

**EDDYVILLE
RIVERPORT**
AND INDUSTRIAL DEVELOPMENT AUTHORITY

PIDP GRANT APPLICATION

MAY 2022

INLET PROJECT

PROJECT TITLE: INLET PROJECT
PROJECT LOCATION: EDDYVILLE, KENTUCKY
APPLICATION TYPE: SMALL INLAND RIVER PORT, SMALL PROJECT
PROJECT TYPE: 5) FIXED LANDSIDE IMPROVEMENTS IN SUPPORT
OF CARGO OPERATIONS
APPLICANT NAME: EDDYVILLE RIVERPORT AND INDUSTRIAL
DEVELOPMENT AUTHORITY
ELIGIBILITY TYPE: PORT AUTHORITY
FUNDING REQUEST: \$4,912,631 million
TOTAL PROJ COST: \$6,140,789 million
WEBSITE: WWW.EDDYVILLERIVERPORT.COM

MARITIME ADMINISTRATION (MARAD), U.S DEPARTMENT OF TRANSPORTATION
PORT INFRASTRUCTURE DEVELOPMENT PROGRAM
PIDP FFY 2022
GRANT APPLICATION PROJECT NARRATIVE

PROJECT TITLE: INLET PROJECT
PROJECT LOCATION: EDDYVILLE, KENTUCKY
APPLICATION TYPE: SMALL INLAND RIVER PORT, SMALL PROJECT
PROJECT TYPE: 5) FIXED LANDSIDE IMPROVEMENTS IN SUPPORT OF CARGO OPERATIONS
APPLICANT NAME: EDDYVILLE RIVERPORT AND INDUSTRIAL DEVELOPMENT AUTHORITY
ELIGIBILITY TYPE: PORT AUTHORITY
FUNDING REQUEST: \$ 4,912,631million (80%)
NON-FEDERAL FUNDS: \$ 1,228,158 million (20%)
TOTAL PROJ. COST: \$ 6,140,789 million
WEBSITE: <https://www.eddyvilleriverport.com/>
APPLICATION WEBSITE: <https://www.eddyvilleriverport.com/pidpinlet>

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Table 1: Required Cover Page

Field Name	Response
Name of Applicant	Eddyville Riverport and Industrial Development Authority
Is the applicant applying as a lead applicant with any private entity partners or joint applicants?	No
Project Description	This Project will fund the development and construction of a new 110' wide, 300' long, 30'- 41' deep inlet. The end of the inlet will have a concrete ramp constructed in order to allow for pulling of barges. Access will be immediately provided on the low side of the inlet. A road access is planned for future development as well and will be funded by the ERIDA.
Is this a planning project?	No, however the Project does include preliminary and design engineering for construction of the project.
Is this project at a coastal, Great Lakes or inland river port?	Inland Riverport
GIS Coordinates (in Latitude and Longitude format)	Latitude: 37.065346° Longitude: -88.070681°
Is this project in an urban or rural area?	Rural area
Project zip code	42038
Is the project located in a Historically Disadvantaged Community or a Community Development Zone?	No
Has the same project been previously submitted for PIDP funding?	No
Is the applicant applying for other discretionary grant programs in 2022 for the same work or related scopes of work?	No
Has the applicant previously received TIGER, BUILD, RAISE, FASTLANE, INFRA or PIDP funding?	No
PIDP grant amount requested	\$4,912,631
Total future eligible project costs	\$6,140,789
Total Project cost	\$6,140,789
Total Federal Funding	\$4,912,631
Total Non-Federal Funding	\$1,228,157
Will RRIF or TIFIA funds be used as part of the project financing?	No

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I. Executive Summary

The Eddyville Riverport and Industrial Development Authority (ERIDA) in Kentucky is excited to submit this Small Project at Small Ports application for \$4.9 million through the MARAD Port Infrastructure Development Program (PIDP FY22). This grant application will make port cargo operations more efficient and expand capacity to handle additional commodity tonnage by creating additional water frontage sites with the construction of a new inlet at the port site. The concrete ramp included in this inlet project also allows for additional intake of barges for at least one of the Riverport’s tenants, allowing for diversification in means and methods of product movement. The Riverport provides more resilient shipping options being located on Lake Barkley with minimal water level fluctuations that provide shippers reliable operations during extreme weather events and flooding. By adding additional capacity, the project increases the resiliency of the inland waterways.

The ERIDA Inlet Project is a rural maritime development in the Pennyriple Region of Kentucky. For the three years between 2019 and 2021, the Port averaged just over 490,000 tons of freight as shown in an independent audit included in Appendix A, qualifying the

Riverport as a small port as outlined

in the 46 U.S.C. 54301(b). ERIDA adopted a Strategic Master Plan in December 2020 that guides development and infrastructure improvements at the Riverport. The Strategic Master Plan, found in Appendix B, lays out the vision, mission and goals for ERIDA. The Plan included an extensive review of commodity flows and identified future opportunities for the Riverport to accommodate growing demand for bulk cargo transportation in the region appropriate for river transport. The market-based approach to the Master Plan provides the framework for future growth. The Plan is flexible so that as opportunities become available, the projects identified can be re-sequenced to meet current demand. The Project was identified as a long-term project targeted for completion beyond 20 years (see page 169). However, due to current interest in the Project, ERIDA is applying for this grant opportunity to construct the inlet.

The Project will enable ERIDA to provide expansion opportunities to its’ existing industries while creating opportunities for enhanced intermodal and inland waterways freight shipping. By expanding the capacity to handle additional dry and liquid bulk commodity tonnage and providing opportunities for existing tenants to maintain and expand their operations, the Project will create economic vitality for the region, which has a significant number of low-income residents. This area of Kentucky has been especially vulnerable to the shift to cleaner energy sources which has resulted in declining demand for coal. Opportunities to expand river



***Our mission is to bring people,
resources and industry together to
foster economic prosperity and family
wage jobs through strategic
partnerships and investments.***

ERIDA Strategic Master Plan 2020

commerce is a key strategy identified in the Pennyriple Region’s Comprehensive Economic Development Strategy to grow and modernize the economy and create jobs in the region. Infrastructure investments at the ERIDA Riverport are included as strategic projects in the CEDS. A copy of the CEDS can be found in Appendix C.

Local workforce training programs provide students and adult learners with course work that includes associate degrees in marine engineering, marine logistics and wheel house management as well as welding courses that include internships with one of the Port’s largest tenants, Paducah Barge, where they work with full time staff in the construction of barges that are used extensively on inland waterways and the Marine Highway System. The Project, once constructed, will complement and build on these workforce training opportunities.

Lyon County Kentucky, where the Riverport is located, has a poverty rate of 14.4% with 20.3% of the population over 25 without a high school diploma. In addition, 26% of the population is over the age of 65 and another 26.1% of the residents under the age of 65 have a disability¹. The ERIDA Board is proactively working to create living wage jobs to retain younger cohorts in the area and attract additional residents to the region. As part of the strategy to create living wage jobs, ERIDA is part of the Lake Barkley Partnership.

The Lake Barkley Partnership was originally formed as the Caldwell-Lyon Partnership for Economic Development more than 20 years ago as a joint effort to consolidate resources for economic development in Western Kentucky. Since that time, the Partnership has worked on several successful manufacturing project expansions at Hydro-Gear, Par 4 Plastics, TreeHouse Foods and Porter Road; certification as a Work Ready Community in Caldwell, Crittenden, and Livingston counties; and certification of a Build Ready Site in Caldwell County. The Partnership is a regional approach to economic development that builds on the strengths of the partners helping the region. Additionally, ERIDA has recently approved the construction of two build ready sites at their Industrial Park located near the Riverport.

The ERIDA Board also completed an *Environmental Justice and Racial Equity Impact Analysis* for the Project to better understand the community context of the project and to plan, design, and implement the Project without negatively impacting surrounding communities vulnerable to climate change. As discussed in more detail in Section V. C., the analysis concluded that the Project would not have a disproportionate negative effect on low-income and elderly populations in the area and the benefits resulting from the Project would accrue equitably to all community members. As part of the Project, a Public Involvement Plan has been developed to provide information to all residents and to offer opportunities to provide input or raise concerns during development and execution of the Project.

A Disadvantaged Business Enterprise (DBE) goal will be developed based on the project work items and the number of Kentucky Transportation Cabinet certified DBE firms available to

¹ <https://www.census.gov/quickfacts/lyoncountykentucky?msclkid=3de8c299ce4c11ec86858b776ed69c87>

perform the work. The work will be performed by contractors required to comply with Federal prevailing wage requirements. Many of the contractors in Western Kentucky work with union labor, and if the lowest bidder is a union contractor, the Project will support union jobs.

Exhibit 1 provides a summary of the proposed Project outlining the current and future conditions of the Riverport.

Exhibit 1: Summary of Proposed Project Current and Future Conditions

Improvement	Current Condition	Future Condition
Inlet (110' wide, 300' long, 30' – 41' deep)	Limited waterfront access	Increased waterfront access and doubling loading/unloading capacity
Addition of 110' wide concrete ramp	Limited off-loading and loading conditions	Diversified product movement

Project Location

Latitude: 37.065346° Longitude: -88.070681° Census Tract 21143960101.

Exhibit 2: Project Location



Eddyville, is in rural Kentucky. The Riverport is positioned on Lake Barkley. The lake levels are regulated year-round via Barkley Dam. As a result, the Riverport currently possesses approximately 5,850 feet of waterfront that is not susceptible to large river level fluctuations which makes it the only Riverport in Kentucky that is not impacted by flooding. To date, there are 60 acres with direct waterfront access and 190 acres with access via conveyor, pipe, or short haul. Exhibit 2 provides an overview of the Project location.

Project Parties

Funding for the Project is being provided by ERIDA from revenues generated at their facilities at the Riverport and Industrial Park for the non-Federal share. A copy of the Riverport’s balance sheet is included in Appendix D. ERIDA is requesting PIDP funds in order to complete the Project as expeditiously as is needed to meet current demand.

Grant Funds, Sources, and Uses of Project Funds

Exhibit 3: Sources of Funds

Source	Status	Amount (\$ in millions)	Percent Contribution (%)
PIDP FY22 Discretionary Grant	Requested	\$4,912,631	80%
Federal – other		\$0	0.0%
Federal		\$4,912,631	80%
Local- ERIDA	Committed	\$1,228,157	20%
Non-Federal		\$ 1,228,157	20%
TOTAL		\$6,140,789	100%

Merit Criteria

Project Meets Grant Statutory Criteria

- ✓ The Project is a small project at a small port in a rural area with a 3-year average annual tonnage for 2019 – 2021 of just over 490,000 tons as shown by an independent audit.
- ✓ The Project meets the non-Federal share requirement with a 20% funding commitment from the ERIDA Board.
- ✓ This Project is low risk and can be under construction before the required obligation date of September 30, 2025.

Exhibit 4: Criteria Summary

Meets Criteria	Description
<i>a) Merit Criteria</i>	
<i>i. Safety, efficiency, or reliability improvements</i>	
Loading and unloading goods at a port	The Project, when completed, will improve the throughput of the Riverport by providing additional waterfront access for loading and unloading bulk commodity cargoes including grain, fertilizer, aggregate and metals. The new ramp at the end of the inlet will provide tenants and potential tenants with the ability to pull barges directly onto land without having to raise them out of the water. The Riverport recently had to forego a new tenant opportunity because this capability was currently not available.
Movement of goods into, out of, around, or within a port	The Project will result in improved movement of goods with the addition of the inlet that is engineered to maximize efficiency and flow of traffic on both the land and water side of the Riverport.
Operational improvement, including projects to improve resilience	The Project will make operations of the Riverport more efficient and allow area shippers the benefits of reliable access to the inland waterway system due to minimal water fluctuations at the

	Riverport. Operationally, the location of the Riverport on a lake also requires less dredging than other Riverports located directly on rivers, reducing ongoing maintenance demands.
Environmental and emissions mitigation measures	The goal of the Project is to expand capacity and enhance the reliability of goods moving via the inland waterways. Exhibit 10 illustrates the energy efficiency of the inland waterway barge industry. The Project also will improve the throughput of goods being transported to final destinations, reducing inside the gate congestion, decreasing truck fuel usage and related emissions.
<i>ii. Economic Vitality</i>	
Impact on economic advantage of the port	The Project will double the throughput capacity of the port making it a viable option for area shippers needing to reach markets outside the area. The Project is proposed based on current interest in the Riverport to expand existing tenant operations and attract an additional tenant needing the added waterfront access.
Contribution to freight transportation at, around and through the port	The Project will provide surface transportation access to the added water frontage that is engineered to improve the flow of goods moving to and from the new barge access created by the Project. On the water side, the addition of the inlet creates more waterside access increasing the ports capacity to transload goods more efficiently.
Overcoming competitive disadvantages	The added waterfront access with the addition of the Inlet Project is an innovative approach to increase waterside capacity of the Riverport within its existing footprint. This provides area farmers more access to a nearby outlet rather than shipping grain to facilities at ports further away. As mentioned above, the new ramp at the end of the inlet provides tenants and potential tenants the ability to pull barges directly onto land without having to raise them out of the water. The Riverport had to forego a new tenant opportunity because this capability was unavailable.
<i>iii. Climate Change and Environmental Justice</i>	
Greenhouse gas reduction	Added capacity to transload bulk dry and liquid cargo truck-to-barge and barge-to-truck at the Riverport, results in reduced harmful emissions per million-ton-miles for commodities shifting to the waterways. In addition, by adding capacity, less repositioning of barges will be required, reducing fuel usage by tow boats thereby lowering emissions at the Riverport. See Section V. C. for additional information.
Promote energy efficiency	The Project will promote energy efficiency by providing additional capacity for area shippers to move product via the inland waterways. As shown in Section V.C., a truck moves a ton of freight 59 miles on a gallon of fuel compared to 202 miles per gallon via railroad and 514 miles per gallon via an inland waterway tow. Also, as noted above, the Project will reduce the repositioning

	of barges for transloading, which lowers the fuel usage required to move freight through the Riverport.
Increase climate resilience of port infrastructure	The Project increases climate resiliency of the inland waterway freight system by increasing capacity at the Eddyville Riverport which does not experience the fluctuations in water levels due to more extreme weather events since water levels are controlled and do not fluctuate. This allows for continued movement of goods in and out of the Riverport and further up and down stream as long as channels on the connecting rivers are navigable.
Public Involvement Plan	A detailed Public Involvement Plan (PIP) has been developed for the Project and will be implemented across all phases of project development and delivery. More information can be found in Section V. C.
<i>iv. Advancing Equity and Opportunity for All</i>	
Advance equity (impact analysis, DBE, outreach, jobs, PLA, apprenticeships)	ERIDA has conducted an <i>Environmental Justice and Racial Equity Impact Analysis</i> for the Project with results discussed in Section V. C. ERIDA is committed to establishing a DBE goal as appropriate for the Project and project development.
Promote workforce opportunities	ERIDA is supported in expanding workforce opportunities through two area institutions. The West Kentucky Community and Technical College has a Marine Technology program specifically to support river industries in Western Kentucky which includes associates degrees in marine culinary management, marine engineering, marine logistics, and wheelhouse management. Additionally, the Caldwell Regional Career Center offers welding courses with some students placed in internships with Paducah Barge in constructing barges at their facility at the Riverport.
<i>vii. Leverage of Federal Funding</i>	
Efforts to improve non-federal leverage	Through the Lake Barkley Partnership, ERIDA is working to bring additional funding partners to assist with the non-federal contribution to the Project. The Board is also approaching tenants and potential tenants that will benefit from the Project to contribute resources for project development and construction.
<i>b) Project Readiness</i>	
Technical capacity	ERIDA regularly consults with design engineering firms with extensive experience in Phase I, Phase II, Testing, and Construction Engineering. The Board retains legal services and is prepared to retain the services of an experienced federal grants manager to support the technical capabilities of the Board, Board Treasurer, and Lake Barkley Partnership leaders. ERIDA has also successfully delivered prior grant funded initiatives at both the state and Federal level. A list of prior grants receive by ERIDA are provided in Appendix E.

Environmental Risk	ERIDA’s initial review of the project has determined that the site will require an Environmental Assessment based on a review of MARAD’s Categorical Exclusion checklist and preliminary coordination with MARAD personnel. In an effort to reduce timeline gaps, ERIDA has reached out to establish communications with the appropriate resource agencies and by submitting a pre-application to the USACE.
Risk Mitigation	A Risk Mitigation matrix is included in Section VI. A. 3.
<i>c) Domestic Preferences</i>	
	The Project components will comply with domestic preferences including Buy American. Additionally, when fully implemented, the Project will provide more reliable supply chains for American products used in construction and agriculture.

II. Project Description

The ERIDA inlet project was identified in its recently completed Master Plan as a long-range project needed to make the Riverport more competitive. Due to development interests and market demand, the Project is being accelerated.

The width of the inlet is proposed as 110’ which is based on a three (3) barge width, and the lock widths located near the Riverport. The length of the inlet, 300’, was determined based on additional waterfront needs, the concrete ramp proposed at the end of the inlet, and land topography. It is anticipated that the inlet will be approximately 30’ in depth on the low side of the inlet, and 41’ in depth on the high side of the inlet. The depths were estimated based on the summer pool elevation of 360 feet, which is the critical design elevation, maintaining an approximate 22-foot depth based on existing lake floor elevations. The concrete ramp at the end of the inlet is proposed to be the full width of the inlet, with an estimated concrete depth of 18 inches to allow for heavy loading. The grade is designed such that barges, scrap metal, or other large products can be pulled up the ramp for offloading instead of being lifted.

Upon construction completion, existing and prospective tenants will be able to use the inlet immediately on the low side. A future phase of this project includes a gravel or paved road development to create another loading and offloading space on the high side of the inlet. The height of the high side of the inlet considers this future expansion capability. The current design status is preliminary conceptual, with enough consideration given to know the project is sustainable as proposed. Preliminary concepts have been developed (Appendix N) based on recent maintenance projects performed by ERIDA, including a refacement and structural repair of the main dock, as well as the installation of a sheet pile wall along the waterfront for stabilization. Nearby project data was beneficial in assumptions made for conceptual design both in cost and technical aspects. Full engineering design is included in the grant request, as well as environmental permitting and assessments.

III. Project Location

Latitude: 37.065346° Longitude: -88.070681° Census Tract 21143960101.

ERIDA’s Riverport resides in Lick Creek, a bay of Lake Barkley that has sufficient water depth throughout the year and boasts 10 Mooring Cells spanning nearly 2,000 feet along the Riverport’s lakefront plus two additional Mooring Cells in the Lick Creek Bay that are stationed 100 feet apart for additional fleeting opportunities. In addition to the mooring cells, the Riverport has 100+/- feet of seawall apron for ease of loading and unloading. Recently the ERIDA completed a project to lengthen the seawall at the Riverport, providing additional waterfront opportunities which made the Riverport the only one in Kentucky located on a lake which receives limited silting buildup. This minimizes the need for regular dredging.

Even though ERIDA’s transportation infrastructure accessing its facilities needs upgrades, it currently has easy connections to major interstate highways (i.e., I-24 and I-69) as well as rail access at the Industrial Park portion of ERIDA’s property. Additionally, ERIDA is geographically positioned approximately 100 miles from an international airport.

The ERIDA is physically located at 978 Old Railroad Road in Eddyville, Kentucky on Lake Barkley, part of the Cumberland River. The ERIDA is a small port moving 502,000 tons in 2019, 428,000 tons in 2020, and 540,000 tons in 2021 for a three-year average of 490,000 tons as shown in Appendix A. For the last three years, 84% of the average tonnage came from farm commodities and another 15.5% was fertilizer.

IV. Grant Funds, Sources, & Uses of Project Funds

The Project brings together various regional partners focused on economic development and maximizing the benefits of the only Kentucky Riverport located on a lake, which increases resiliency of goods movement and limits necessary maintenance expenditures on dredging.

A. Project Costs

The ERIDA is requesting \$4.9 million to develop the Project. The Project budget below depicts how the funds received from the PIDP grant award will be allocated toward Project costs.

Exhibit 5: Project Costs by Category

Eddyville Riverport and Industrial Development Authority Inlet Project	
Cost Category	Amount
Construction	\$4,600,445
Professional Services	\$882,402
Contingency	\$657,942
Total Cost	\$6,140,789

A detailed cost summary is included in Appendix F.

B. Eligible Costs, Sources, and Amount of Funds

Exhibit 6: Sources of Funds

Source	Status	Amount \$s in millions	Percent Contribution (%)
PIDP FY22 Discretionary Grant	Requested	\$4,912,631	80%
Federal - other		\$0	0.0%
Federal		\$4,912,631	80%
Local- ERIDA	Committed	\$1,228,158	20%
Non-Federal		\$ 1,228,158	20%
TOTAL		\$ 6,140,789	100%

C. Documentation of Funding Commitments

The ERIDA Board has committed to funding up to 20% of the non-Federal share and is working to secure funding commitments from tenants and other area stakeholders. Documentation on all non-Federal funding commitments can be found in Appendix G.

D. Amount and Nature of Federal Funds

Exhibit 7: Summary of Sources and Uses of Funds by Agency

Source PIDP FY21 Grant Request	Amount in Millions	Percent Contribution (%)	Use
Federal			
PIDP FY22 Discretionary Grant	\$4,912,631	80%	Final Design /Env. /Construction
Total Federal Funding	\$4,912,631	80%	
Non-Federal /Local Funding			
ERIDA	\$1,228,158	20%	Construction
Total Non-Federal Funding	\$1,228,158	80%	-
	\$6,140,789	100%	

E. Use of Funds by Source

Exhibit 8: Sources and Uses of Funds

Eddyville Riverport and Industrial Development Inlet Project			
Funding Sources	Amount	Status	Purpose
ERIDA	\$1,228,158	Committed	Construction
PIDP FY 22	\$4,912,631	Requested	Construction/ Professional Services/Contingency
Total Project Funding	\$6,140,789		
Total Federal	\$4,912,631	80%	
Total Local	\$1,228,158	20%	
Total Private	0	0%	

V. Merit Criteria

A. Achieving Safety, Efficiency, or Reliability Improvements

Loading and unloading of goods at a port

The Project, when completed, will improve the throughput of the Riverport by providing additional waterfront access for loading and unloading bulk commodity cargoes including grain, fertilizer, aggregate, and metals. The inlet will be 110' wide and 300' long and include a sheet pile and tie back system. The standard dry hopper river barge is 35' wide and 195' long. The Project will accommodate a standard three-wide dry hopper barge configuration providing loading and unloading capabilities for 4,500 tons which doubles the Riverport's current capacity. The standard liquid tank river barge is between 35' and 54' wide and 150' to 300' long. The Project will accommodate between two to three liquid tank barges simultaneously.

This increase in transloading capabilities at the Riverport will reduce the need to reposition barges, thereby making loading and unloading more efficient in both crew resources and fuel consumption. The Project effectively adds 900' (three barge lengths) of waterfront access which is 15% more than the current 5,280'.

Movement of goods into, out of, around, or within a port

The Project will result in improved movement of goods with the addition of the inlet and access via a road on the low side of the inlet that is engineered to maximize efficiency and traffic flow on both the land and water side of the Riverport. With the effective 15% increase in waterfront access, the movement of goods both into and out of the facility will be enhanced.

According to the U.S. Grains Council, there are 39.368 bushels of corn in a metric ton. The increased capacity will allow the port to transload over 177,000 bushels of corn without repositioning barges. This is over 2% of the 3-year annual average tonnage of corn handled by the Port. Similarly, the U.S. Soybean Export Council indicates that there are 36.74 bushels of soybeans in a metric ton which will increase the capacity of transloading soybeans by over 165,000 bushels without having to reposition barges. This is almost 4.6% of the 3-year average annual tonnage of soybeans handled by the Port.

Operational improvement, including projects to improve resilience

The Project will make operations of the Riverport more efficient and allow area shippers the benefits of reliable access to the inland waterway system due to minimal water fluctuations at the Riverport. Operationally, the location of the Riverport on a lake also requires less dredging than other riverports located directly on rivers.

Environmental and emissions mitigation measures

The goal of the Project is to expand capacity and enhance the reliability of goods moving via the inland waterways. Exhibit 10 illustrates the energy efficiency of the inland waterway barge industry. The Project also will improve the throughput of goods being transported to final destinations which reduces inside the gate congestion and decreases truck fuel usage and related emissions.

B. Supporting Economic Vitality at the Regional Level

Economic Advantage of a Small Port

The Project will increase the throughput capacity of the Port making it a viable option for area shippers needing to reach markets outside the area. The Project was developed based on current interest in the Riverport to expand existing tenant operations and attract additional tenants needing the added waterfront access.

Right now, the Riverport primarily supports the regional agricultural industry through inbound fertilizer distribution and outbound commodity movement. Being a small port in a rural community allows the Riverport to provide efficient service to regional farmers in Caldwell, Crittenden, Livingston, Lyon, and Trigg counties. The value of commodities of grain, corn, and soybeans from this region is over \$210 million from the most recent USDA Census of Agriculture. Access to the Riverport saves the farming industry fuel and labor costs by bringing their products to the Riverport located within 40 miles of most farms instead of driving 75 miles to the other riverports in either Paducah or Owensboro. The extra time saved by utilizing this regional port generates a return of time and labor to support the harvesting and planting seasons. The majority of surrounding farms are family owned with only one or two producers working on each farm. Regionally, farming is a major industry and economic driver. We have over 2,000

farms in the region which creates nearly 3,200 jobs. Those jobs account for 20% of our regional labor force making agriculture the second largest industry behind manufacturing.

The 2022 Russian invasion of Ukraine has severely impacted global food supply, specifically the wheat production. Our region alone produces sales over \$110 million in wheat. Having a regional port allows our farmers to effectively move their product to market and ensures that the food supply continues without additional supply chain disruption.

Contribution to freight transportation

The Project includes an access road to provide surface transportation access to added water frontage. The access road will improve the flow of goods moving to and from the new barge access created by the Project. On the water side, the addition of the inlet creates more waterside access increasing the Riverport's capacity to transload goods more efficiently.

ERIDA is a unique organization which owns and operates both as a public riverport and a public industrial park with rail services. This is the only organization in the state to own two types of industrial assets. Both the Riverport and Industrial Park are located within two miles of Interstate 69 and Interstate 24 giving the area direct access to both north-south and east-west transportation networks. ERIDA is currently making industrial site improvements at the Industrial Park to accommodate more and larger economic development projects and industrial recruitment efforts. The Riverport is effectively out of waterfront access at the Port. This inlet allows the port to develop more access to the water and it makes loading and unloading much easier. This expansion also allows the Riverport to ensure they have enough capacity to support multimodal transportation projects between rail transportation at the Industrial Park and water transportation at Riverport.

The Eddyville Riverport is also located along I-69 between Glendale, Kentucky and Stanton, Tennessee, home to both Ford and SK Innovation battery plants. Having river, road, and rail access allows our community to become competitive in the supply chain development for electric vehicles. As we move to more sustainable transportation modes, being in the middle of the innovation hub for battery development will benefit our region.

Overcoming competitive disadvantages

The added waterfront access with the addition of the Inlet Project is an innovative approach to increase waterside capacity of the Riverport within its existing footprint. This provides area farmers more access to a nearby outlet rather than hauling grain to facilities at ports further away to ship to markets for processing or final delivery. The addition of the ramp at the end of the inlet overcomes one competitive disadvantage by allowing barges to be pulled out of the water without having to lift them out. ERIDA missed out on a recent industrial development opportunity since it currently lacks this capability.

Rural communities are at a disadvantage when competing for industrial projects usually due to workforce challenges, transportation infrastructure, and perceptions that exist with decision

makers based in urban areas helping companies to find new locations. The Eddyville Riverport has been working to overcome these disadvantages by partnering with the Lake Barkley Partnership on a regional marketing campaign to change the narrative about what it means to be in a rural community. The West Kentucky region has strong workforce partners through the local school systems, regional career center, three community colleges within our service territory, and partnership with Murray State University. In addition, the Riverport has multiple modes of transportation to get products to market quickly. However, we need to develop additional ways to access the waterfrontage at the Riverport. This project not only increases our capacity to serve our existing industries by creating space for more barges, it also makes loading products easier with the new ramp. Though our primary industry is in the service of agriculture, we have a growing niche in the barge and boat service industry. Two tenants at the Riverport are in the construction and repair industry for barges and pleasure boats. This inlet also allows these organizations to expand their operations.

C. Addressing Climate Change and Environmental Justice Impacts

Greenhouse gas reduction

Providing additional capacity to offer shippers water transportation encourages movement by the mode with the least emissions per ton mile. According to a Texas Transportation Institute study completed in 2017, an inland waterway tow produces 15.6 tons of Greenhouse Gas (GHG) emissions per one-million-ton miles compared to rail which produces 21.2 tons and diesel trucks which produce 154.1 tons of GHG emissions per one-million-ton miles. Table 2. illustrates the modal comparison of emissions included in the TTI study.²

Table 2: Summary of Emissions - Grams per Ton Mile 2014

Emissions (grams/ton mile)					
Mode	HC (VOC for Truck)	CO	NO _x	PM	CO ₂
Inland Barge Tow	0.0094	0.0411	0.2087	0.0056	15.62
Railroad	0.0128	0.0558	0.2830	0.0075	21.19
Truck	0.08	0.27	0.94	0.05	154.08

An inland barge tow produces 26% less GHG emissions than rail and 90% less GHG emissions than trucks per one-million-ton-miles. Additionally, by increasing capacity at the Riverport the number of tow movements are reduced, thereby lowering emissions at the Riverport.

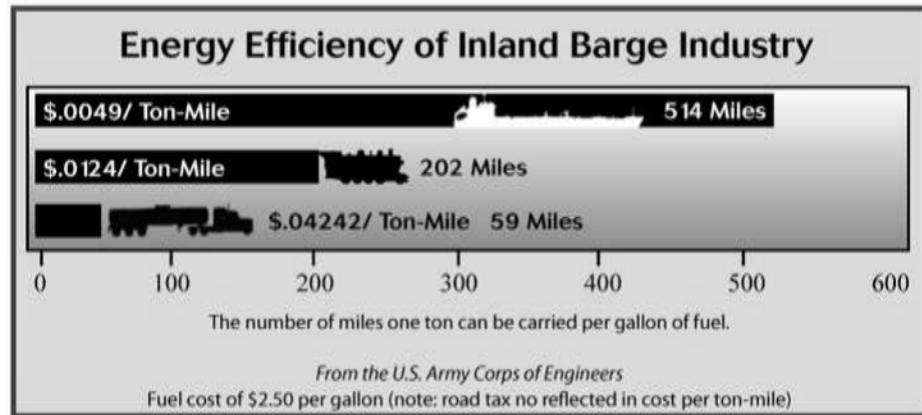
² <http://nationalwaterwaysfoundation.org/documents/Final%20TTI%20Report%202001-2014%20Approved.pdf>

Promote energy efficiency

There currently is not a State of Kentucky Climate Action Plan, Equitable Development Plan, or an Energy Baseline Study. There also are not any at a regional or local level.

However, there are Project measures to increase energy efficiency which include:

Exhibit 9: Efficiency of Barge Transportation



1. Transportation - Supporting alternative-fueled technology and implementing systems that increase the efficiency of transportation and reduce energy consumption.

The goal of the Project is to expand capacity and enhance the reliability of goods moving via the inland waterways. Exhibit 10 illustrates the energy efficiency of the inland waterway barge industry. The Project also will improve the throughput of goods being transported to final destinations, reducing inside the gate congestion, and decreasing truck fuel usage.

Exhibit 10: The Efficiency of Barges versus Truck and Rail

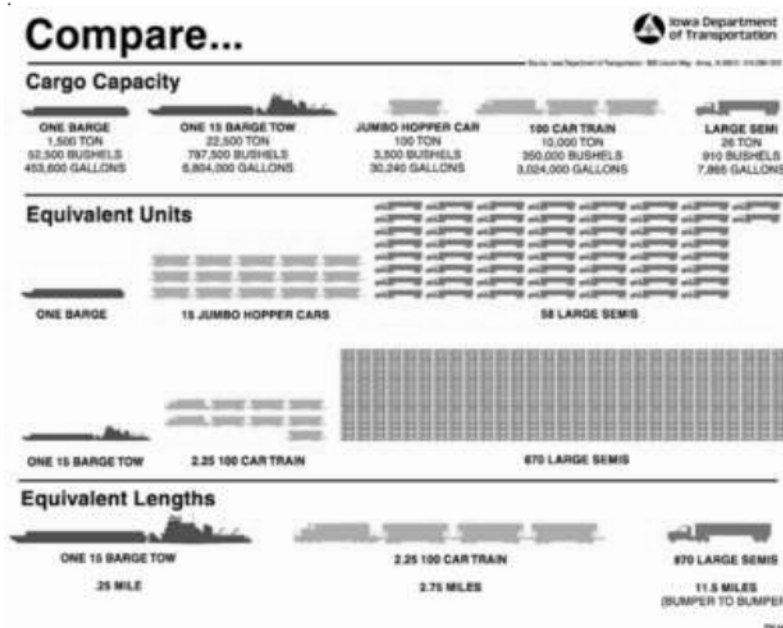


Exhibit 10 displays the efficiency of a barge versus other transportation modes. This Project intends to remove heavy loads off the local roads by moving bulk materials by barge on the waterways.

2. Energy Conservation and Efficiency - Employing energy strategies in buildings and exterior spaces that save money on utility costs, reduce GHG emissions and provide other community benefits.

Increase climate resilience of port infrastructure

The Project increases climate resiliency of the inland waterway freight system by increasing capacity at the Eddyville Riverport which does not experience the fluctuations in water levels due to more extreme weather events since water levels are controlled by dams. This allows for continued movement of goods in and out of the Riverport and further up and down stream as long as channels on the connecting rivers are navigable. Nearby riverports are addressing climate resiliency with the addition of flood walls; however, as rainfall increases and events become more intense, the additional flooding will make the Eddyville Riverport the only viable option for regional shippers.

The four characteristics and filters included under “Climate Exposure” in Neighborhoods at Risk are indicators of land area that may experience more significant impacts from climate change. These variables (hurricane flood zones, floodplains, impervious surface, and lack of tree canopy) represent characteristics of the physical environment that make a population more or less vulnerable to climate change by affecting the likelihood of extreme heat and flood events.

The following are the Climate exposure characteristics for the Project Area

Climate Exposure	Tract 9601	Lyon County, KY
Area lacking tree canopy	67.2%	55.1%
Area of impervious surface	1.0%	0.5%
Area in 500-yr floodplain	0%	0%

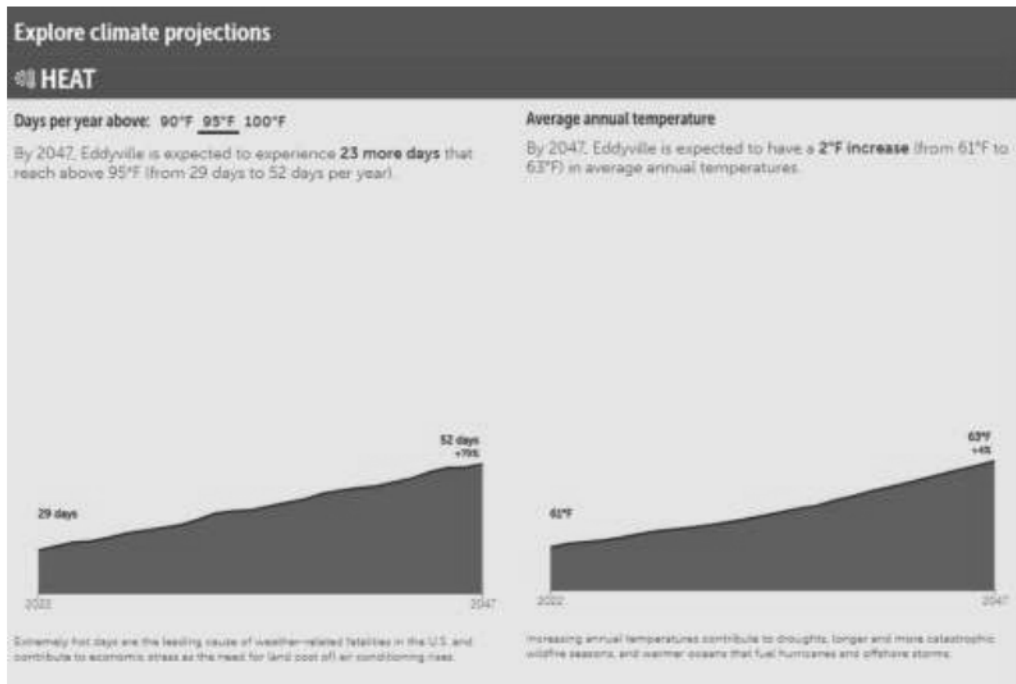
It should be noted that since this is an inland location, the Climate Exposure characteristics only display three of the four variables as hurricane flood zones, the fourth variable, is not applicable for this area.

Based upon these three characteristics as well as land use, etc. the Neighbors at Risk Model predicts that by 2047, Eddyville is expected to experience a 79% increase in extremely hot days and a 11% increase in days with heavy precipitation within the next 25 years.

It is forecasted that the City of Eddyville will experience 23 more days that reach above 95°F than is expected in 2022. Average Annual Temperature by 2047 is anticipated to increase 2°F from 61°F in 2022 to 63°F in 2047.

If Emissions continue to grow, it is anticipated that there will be 0.8 more days with precipitation above 1”. Average annual precipitation is expected to have increased by 1.3” from 48.4” to 49.7” by 2047.

Exhibit 11: Climate Projections in 2047



If Eddyville can lower their emissions over the next 25 years, this increase can be reduced by 0.4 days, reducing the annual precipitation by 0.3” in average annual precipitation.

Exhibit 12: Precipitation Projections under a Higher Emissions Scenario

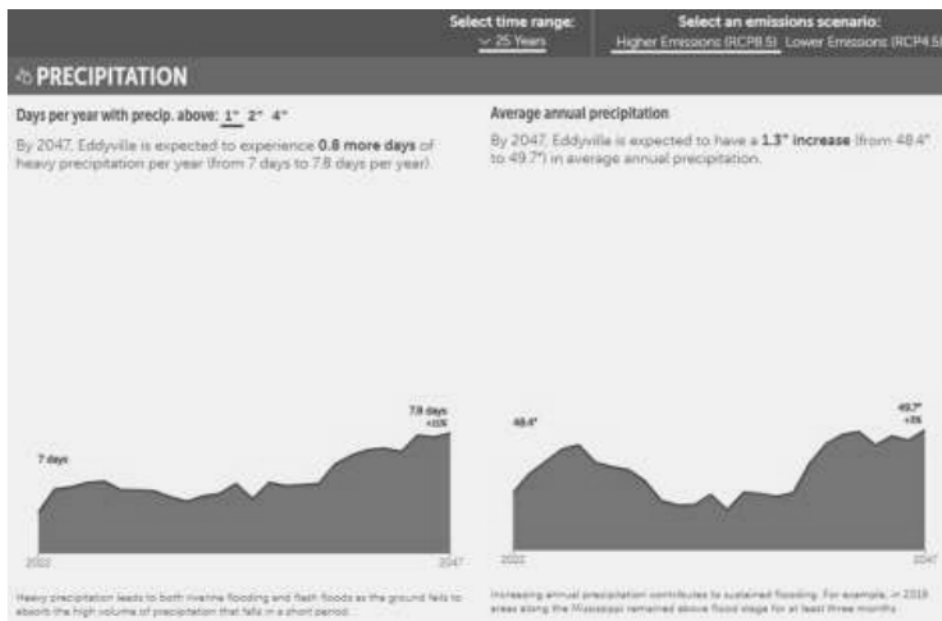
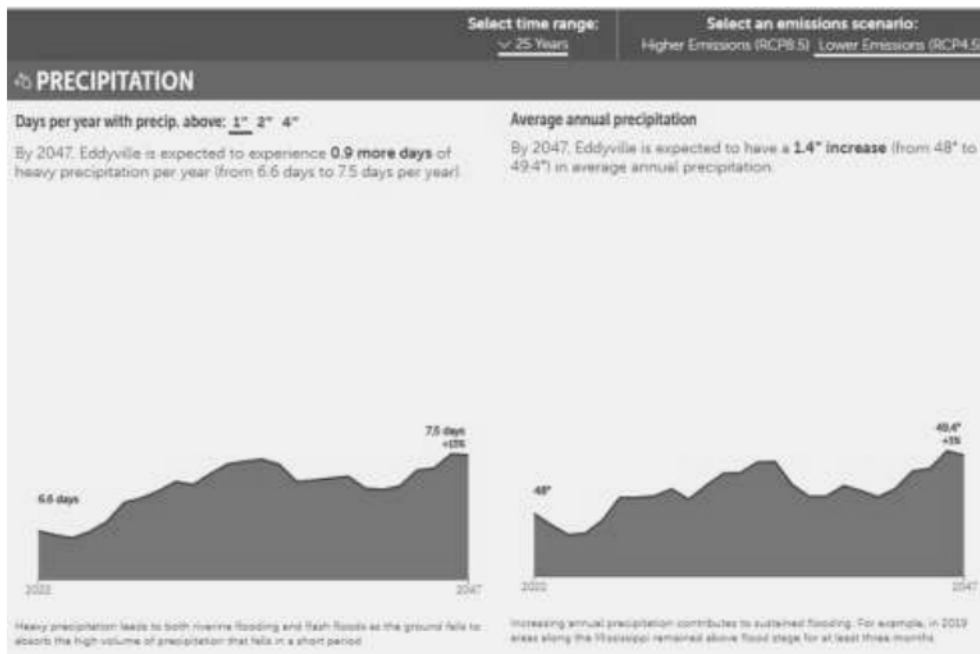


Exhibit 13: Precipitation Projections under a Lower Emissions Scenario



There are 232 properties in Eddyville that have greater than a 26% chance of being severely affected by flooding over the next 30 years. This represents 15% of all properties in the City. This count includes all property types with flood risk including vacant land and properties with unknown land use type.

In addition to damage on properties, flooding can also cut off access to utilities, emergency services, transportation, and may impact the overall economic well-being of an area. Overall, Eddyville has a moderate risk of flooding over the next 30 years, which means flooding is likely to impact day to day life within the community.

Flooding is the most expensive, natural disaster in the United States, costing over \$1 trillion in inflation adjusted dollars since 1980.

FEMA flood maps identify over 1.1 million miles of flood hazard areas, and while the maps can provide detailed information for homeowners on their flood risks, they are not available everywhere. Flood Factor’s national flood model shows that flood risk is more widespread in the United States, with over 25 million properties at risk over the next 30 years. Flood Factor also includes flood risk from urban stormwater flooding, storm surge, and future conditions like sea level rise.

Flood factor is most powerful when used in conjunction with the FEMA flood maps and other available state and local flood risk resources. Flood Factor should be viewed as complementary to the adopted FEMA flood maps for a community, which need to be used for building and permitting purposes.

Flood Factor allows individuals and companies to easily view the model’s flood risk information at the property level, and provides useful information on potential actions to mitigate flood risk.

Exhibit 14: Flood Risk in 30 years (2052)



As illustrated in Exhibits 14 and 15, the Riverport is at risk of flooding in the future if emissions continue to increase as projected by scientists. With that knowledge, it is imperative for the Riverport to do all it can to decrease Climate Change. As noted above, reducing emissions can reduce the projected rainfall both in duration and in level. This Project is a step in the right

direction by offering an expanded facility that can take trucks off the road and move bulk cargo more efficiently and reduce emissions by moving the product by barge versus truck.

Exhibit 15: Infrastructure at Risk



Climate Change and Environmental Justice

ERIDA commissioned a *Racial Equity and Environmental Justice Impact Analysis* specifically for this project. The full report can be found in Appendix H. As seen from the results of the various Environmental Justice (EJ) mapping tools and data collected, it is important to understand the Project and the potential impacts it may have on disadvantaged populations. Using multiple lenses through different Environmental Justice data tools helps refine the characteristics of the surrounding area. Fine tuning the scope of the analysis from the city level to the Census Tract to the Census Block and finally a one-mile radius around the project area, helps to inform planners and designers in developing their public outreach efforts. Using the characteristics of the populations near the project and evaluating project elements that could impact the underserved populations will help planners ensure negative impacts are identified and accounted for through mitigation efforts.

Since Eddyville and the surrounding Lyon County area is sparsely populated, the Census Tract 9601 is one of three Tracts that Lyon County encompasses. US EPA's EJ Screen indicates that the area surrounding the project is not considered an EJ area. However, it does show that within a one-mile buffer around the project, the population with less than a high school degree are in the 62nd percentile for the Commonwealth of Kentucky and 71st percentile for the nation. Additionally, the population over the age of 64 are in the 54th percentile for Kentucky and 59th for the U.S.

Once potential impacts are identified, then specific outreach can be designed to inform the affected populations and develop mitigation options as appropriate. Any activities and projects that reduce vehicle miles traveled and reduce vehicle idling will improve the air quality of the surrounding area as well as help reduce the effects of GHG on climate change. Since the project is wholly contained on Riverport property, it is unlikely to have any direct impacts on the disproportionately elderly population.

Public Engagement and Outreach is a continuous process that will continue throughout the planning, design, and implementation of this project. The Public Engagement will inform the design, and will continue during implementation, procurement and/or construction, and will enable the Project to address any past inequities identified relating to access and barriers to opportunity and climate change.

Current analysis indicates that the proposed project will improve multimodal access to the Riverport. At this point of the team's analysis, it is believed that the EJ populations noted above will not be disproportionately negatively impacted by the Project. Analysis and monitoring will continue as ERIDA and its partners move through the final phases of the project. All mitigation measures identified in the design and environmental review process will be implemented and monitored post-construction for compliance and community enhancement.

Public involvement plan

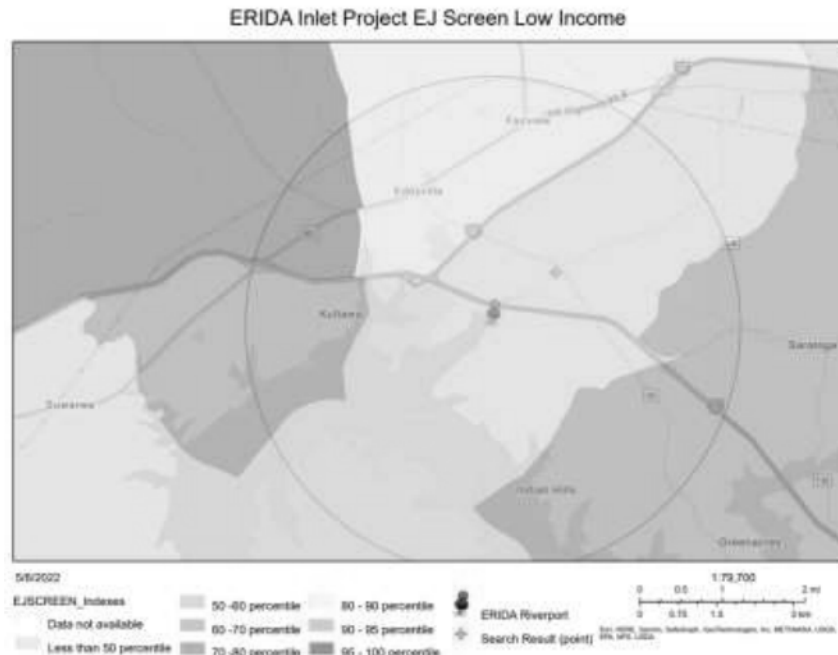
A Community Outreach Plan was developed for this project with outreach aimed at nearby disadvantaged communities as identified in the *Racial Equity and Environmental Justice Impact Analysis*. The Plan, included as Appendix I, recognizes the importance of ensuring that low income and elderly populations are not negatively impacted by the Project or the operational changes that will take place as a result of the Project. The Plan is to build on robust outreach efforts to engage the local community and provide information about the Project and Port operations.

The purpose of the Community Outreach Plan for ERIDA is to provide a detailed, transparent, and cohesive strategy for informing, consulting, and empowering the community on the Riverport Inlet project.

Effective and equity-focused community outreach to represent all stakeholders and the public-at-large will be a priority within the project planning and development. The foundation of this plan is based on ERIDA's Strategic Master Plan

Exhibit 16: Low Income Populations with 3 Miles of Project

adopted on December 15, 2020, which identified the importance of meaningful, equitable public input to the success of future projects. In support of Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government* (86 FR 7009), the Community Involvement Plan is intended to layout engagement strategies to ensure that underserved and historically disadvantaged



communities, as well as those marginalized by traditional methods of outreach, have ample opportunities to participate and engage. Through this Strategy, ERIDA is seeking to enhance and develop relationships that are mutually informative and beneficial to area communities.

Using USDOT's Areas of Persistent Poverty (APP) and Historically Disadvantaged Community (HDC) mapping tool none of the Census Tracts in Lyon County Kentucky are considered an APP or HDC. However, according to the EJScreen tool, 40% of the population within three miles of the Riverport are low income and 17% have less than a high school education. The Community Outreach Plan will target these populations using the following methods:

- Media, direct mailings and postings in facilities frequented by the community;
- A pre-design open house to be held at convenient and accessible locations;
- A public meeting reception once the schematic design is complete; and,
- Through social media.

D. Advancing Equity and Opportunity for All

In addition to advancing equity through a robust Community Involvement Plan, ERIDA recognizes that it is important to ensure benefits of the Project are shared equally by all members of the community and that freight movements associated with the Project do not disproportionately negatively impact disadvantaged communities. As part of the project

development, a Racial Equity and EJ Assessment was done to identify any potential impacts on disadvantaged communities and help develop mitigating strategies, if necessary. The results are discussed in Section V. C. of this application.

ERIDA will assign a Disadvantage Business Enterprise (DBE) goal to the construction of the Project based on the availability of DBE firms certified by the Kentucky Transportation Cabinet for the work items needed to complete the project.

ERIDA benefits from the West Kentucky Community and Technical College's Marine Technology program that was created specifically to support river industries in the region. Additionally, Coldwell Regional Career Center, the regional vocational school, offers welding classes and places students in internships with Paducah Barge at the Riverport for hands on experience building barges for use on the inland waterway system. High school graduates with a welding certificate have a starting wage of \$70k/year in the barge construction industry. The Project will provide additional space for the construction of barges without impacting throughput at the Riverport.

Both the College and the Career Center target their programs to area high school students and adult learners. Students in both Lyon County and Caldwell County schools all receive free lunches for low-income families. As a result, these workforce development programs provide a path to good paying jobs in river industries for these disadvantaged students, including work at the Riverport for the ERIDA's tenants. New tenants are considering locating at the Riverport as a result of the Project which will expand workforce opportunities for students successfully completing the programs.

E. Leveraging Federal Funding to Attract Non-federal Investments in Infrastructure

A. The Port's efforts to maximize the non-federal share of the Project

The Riverport has very limited internal funds to provide to this Project, so we will continue to pursue state and local funding opportunities as grants and other funding vehicles become available. At this point, the Riverport has committed to a 20% percent match and requests the remaining funding (80% be provided by the Federal Government through this PIDP grant). Once completed, the Riverport's customers will pay fees that will cover operations and maintenance costs for the Project.

B. Fiscal Constraints that affect the Port's ability to increase the amount of non-federal revenue dedicated for transportation infrastructure

Kentucky Revised Statutes prohibit the use of fuel-tax revenues for non-highway projects. The ERIDA is not an authorized taxing authority; therefore, it does not have access to revenues generated from any taxes and cannot fund large scale capital improvement projects. In order to become an authorized taxing authority, the ERIDA would need to have approval from the City of

Eddyville, as well as receive public approval by a county- wide vote. Public-Private Partnership funding opportunities are limited by the Kentucky Constitution; Section 164, limits agreements to a 20-year period, thus negatively impacting opportunities for private partnership funding on our maritime Project.

The only state funding available for maritime projects in Kentucky is the designated \$500,000 set aside for riverports in the general budget that requires passage by the state legislature during the biennial budget session. These funds are available to all seven operating public port

Exhibit 17: Peer State Port Funding

Matrix of Peer State Funding Programs

	Kentucky	Ohio	Indiana	Illinois	Missouri	Tennessee	Virginia	Florida
State Port Authority			X				X	
Number of Public Port Terminals	11	8	3	19	15	5	5	15
State Budget Dedicated Funds Greater than \$500,000 Annually		\$7.5 M			\$600 K		\$42 M	\$76 M
State Budget Dedicated Funds Less than \$500,000 Annually	\$500 K				*			
State Ports Grant Programs		\$ 23 M		\$150 M	\$9.4 M		\$5 M	\$44 M
State Rail Grant Programs	X			X		X		X
State Technical Assistance		X	X	X			X	X
Provide Market Outreach Programs or Plans	X	X		X	X	X	X	X
Economic Development Business Community Partnerships	X	X		X		X	X	X

complexes in Kentucky – the Hickman-Fulton Riverport, the Paducah-McCracken County Riverport, the Eddyville Riverport, the Henderson County Riverport, the Owensboro Riverport, the Meade County Riverport, the Louisville-Jefferson County Riverport, and the Greenup-Boyd County Riverport – thus requiring capital improvement

projects to be self-funded or by grant opportunities like the PIDP grant. These funding levels are in sharp contrast to Kentucky’s neighboring states that provide substantial funding to riverports to address their needs. As part of the Kentucky Transportation Cabinet study, *Kentucky Riverports, Highway and Rail Freight Study*³, a review of funding in nearby states was done with the results shown in Exhibit 16.

The ERIDA has been the recipient of three recent Kentucky Riverport Improvement grants as well as a U.S. Department of Commerce grant and has demonstrated the ability to effectively manage federal funds. The ERIDA Treasurer has extensive experience with federal funding and procurement and the Board retains legal and professional engineering services to ensure requirements are met. This PIDP application clearly demonstrates a business case for leveraging new private funds to improve the nation’s transportation network. A federal investment will produce a lasting return on investment for the entire region.

ERIDA has a track record of responsible stewardship of the Riverport’s assets and cash flows as demonstrated by the March 31, 2022 balance sheet included in Appendix D. In addition, ERIDA recently completed a Strategic and Master Planning effort to focus investments on projects based

³ <https://transportation.ky.gov/MultimodalFreight/Documents/Summit%203%20Presentation%20Materials.pdf> See slide 82 of 118.

on market demands and those that will provide the greatest return in terms of economic activity and additional jobs.

VI. Project Readiness

The ERIDA Inlet Project is ready to begin upon receipt of a PIDP grant award, if successful. The Project schedule is dependent on the PIDP grant award. If the PIDP grant is awarded for the Project, we estimate completion within 12 months (September 2025 and August 2026) without inclement weather conditions or material supply chain issues.

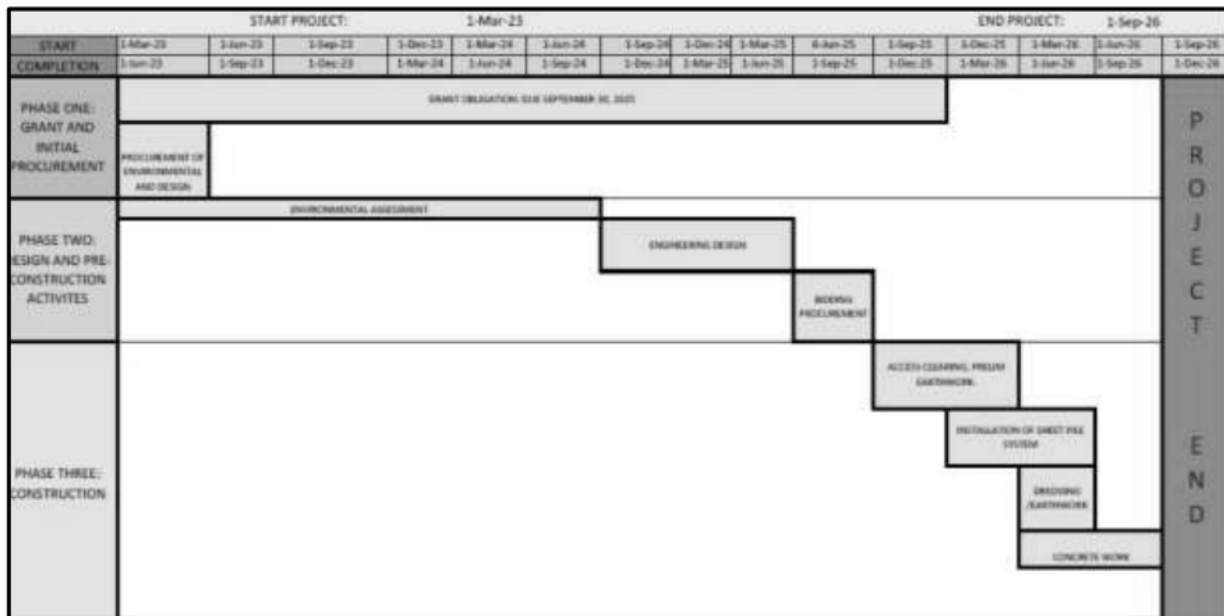
See the Project schedule for the anticipated timeline in Exhibit 17 below.

A. Technical Capacity

The ERIDA has experience with implementing capital projects and with the administration and implementation of Federal Grants. The Riverport has consulting engineers that will work with Port staff to prepare the components for bid and construction. The Riverport has years of experience implementing Federal and State Grants. See Appendix E for a detailed list of the grants, equipment acquisitions, and construction projects between 2019 and 2021.

Project Schedule

Exhibit 18: High-level Project Schedule



A Project schedule is also included in Appendix G.

B. Environmental Risk

NEPA status

The Riverport has reviewed MARAD’s Categorical Exclusion (CE) Checklist (See Appendix K). Based upon this review and discussions with Kris Gilson at MARAD, it was determined that this project will not qualify for a CE due to the potential to affect threatened and endangered species (northern long-eared bat and Indiana bat), tree clearing activities as well as the need for individual permitting activities required for construction of the Inlet. The ERIDA understand that consultation will need to occur between MARAD and USACE on determination of the roles of each agency during the EA process.

Section 106 and Tribal Concurrence (Cultural Resources) No aboveground resources are located within the project area. However, it should be noted that the SHPO could require an archaeologist to be present during construction activities to review excavated materials to ensure that no cultural resources exist.

Section 4(f) protects significant publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, as well as significant historic sites, whether they are publicly or privately owned. None of these exist within the project area or directly adjacent to the project area.

Section 7 Consultation: The Endangered Species Act (ESA) directs all Federal agencies to work to conserve endangered and threatened species – a desktop scan using IPAC has identified there are no Critical Habitats in this location. The following table identifies potential species which could be present at the site:

Table 3: Potential Threatened and Endangered Species at Project Site

Name	Status	Mitigation Required
Mammals		
Gray Bat Myotis grisescens	Endangered	Wherever found
Northern Long-eared Bat Myotis septentrionalis	Endangered	Wherever found
Threatened Indiana Bat CH Myotis sodalis	Threatened	Wherever found
Insects		
Monarch Butterfly Danaus plexippus	Candidate	Wherever found
Flowering Plants		

Prices Potato-bean Apios priceana	Threatened	
Critical habitats	Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.	

It should be noted that minimal tree clearing activities are expected since most of this project occurs within an area that is currently maintained by mowing activities and is adjacent to an existing commercial facility.

Environmental permits

- USACE and KDOW coordination will be required for this project. At this time based on the small footprint of the inlet (110’ of bank impacts) and the lack of identified wetlands in the area of the project, it is anticipated that this project will qualify for nationwide/general regional permits. Since this area is located within a floodplain, a floodplain permit will be required. However, the excavated materials will be utilized in the surrounding area and will be used to balance the site.

State and local approvals

- Other than the permits listed above, there are no other State or Local Approvals required for this Project.

Information on environmental reviews, approvals and permits by other agencies

The ERIDA has been in communication with the Director of Environmental Compliance with the MARAD office located in Washington, DC. According to these conversations, it was agreed that the project would require an Environmental Assessment. A pre-application meeting has occurred with the Lake Barkley USACE lead in which they were briefed about the inlet construction project and they provided positive feedback. Appendix L documents the coordination efforts through May 16, 2022 for the Project.

C. USACE communications and expected timeline for permits

ERIDA has submitted a pre-application to the USACE for the Project. If permits will be required, it generally requires 45 – 90 days to receive based on USACE project load at the time of submittal.

D. Assessment of Project Readiness Risks and Mitigation strategies

Exhibit 19: Risk Matrix

Potential Risk Area	Risk Type	Current Status/ Proposed Mitigation	Risk Level
Technical Feasibility	Feasibility	Conceptual	Low
Design Standards Conformance	Feasibility	ERIDA uses professional consulting engineers for infrastructure improvement projects. Once selected through a quality-based selection process, the selected firm(s) will be required to conform to industry design standards.	Low
Partner Approvals	Schedule	None anticipated.	Low
Local Jurisdiction Approvals	Schedule	None anticipated.	Low
Environmental Approvals	Cost, schedule	Based on the MARAD CE checklist and consultation with MARAD environmental staff, the project will require an EA. Initial consultation has begun for the project.	Medium
Funding	Cost, schedule	All non-Federal commitments have been made in writing. A contingency of 12% has been included in the Project Cost to cover unforeseen costs and inflationary pressures currently seen in the bidding environment.	Low
Public and Stakeholder Support	Cost, schedule	The broad range of support is demonstrated by the letters in support of the project. (Appendix M)	Low
ROW	Cost, schedule	No ROW is required.	NA
Construction	Cost, schedule	The project is a small project in a region with multiple contractors available.	Low
Procurement	Cost, schedule	Currently, the US is experiencing slower than previously experienced delivery schedules and the December 10 th tornado in Western Kentucky near the Riverport has magnified contractor and supply issues. Sheet piling and steel components may have a longer than expected lead time. Concrete is not anticipated to have a delay. Flexibility has been added into the Project schedule to provide adequate buffer to respond to these delays and meet the contractual timelines of the Grant.	Low
Grant Management	Compliance	The ERIDA has retained legal services and will retain professional engineering services for preliminary engineering and design. ERIDA also has access to a seasoned USDOT grants manager.	Low

VII. Domestic Preference

The ERIDA will bid the material purchases consistent with the requisite domestic preferences including Buy America and Buy American. All pass-through requirements will be included in the Bid documents including Domestic Preference requirements. Materials used for the construction components will be sourced locally.

The Project will support the continued supply of domestic materials for regional construction projects and support American construction and agriculture jobs.

VIII. Determinations

Project Determination	Narrative Reference or Response
1. The Project improves the safety, efficiency, or reliability of the movement of goods through a port or intermodal connection to the port.	See V.A.
2. The Project is cost effective.	Not applicable to this application because it is a small project at a small port.
3. The eligible applicant has the authority to carry out the Project.	In 2002 the City of Eddyville, by Articles of Incorporation, formed the Eddyville Riverport and Industrial Development Authority (ERIDA), combining the industrial development authority and the port operation (Resolution 2-4-02 see Table Special Ordinances.pdf (eddyvilleky.org)). Under Kentucky State statutes, KRS 65.510 – 65.650 describes the powers and duties, specifically 65.520 allows Riverports to enter into contracts.
4. The eligible applicant has sufficient funding available to meet matching requirements.	Appendix D contains the ERIDA’s March 2022 balance sheet which shows the availability of matching funds. In addition, the Board is aggressively pursuing other funding partners to contribute toward the non-federal share.
5. The Project will be completed without unreasonable delay.	It is expected that the Project will be fully obligated by the September 30, 2025 deadline. See Project schedule in the project readiness section on page 25 and in Appendix J.
6. The Project cannot be easily and efficiently completed without Federal	As shown on the current balance sheet, the ERIDA can generate matching funds, but does not have the available resources to complete the

<p>funding or financial assistance available to the Project sponsor.</p>	<p>Project without federal investment. This Project would not be completed without the PIDP grant.</p> <ol style="list-style-type: none"> 1. The Project schedule would have to be stretched at least 10 years or more based on funding availability locally. 2. The cost of construction if done as local funds become available are expected to increase significantly with inflation.
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IX. Conclusion

ERIDA is providing the foundation for growth in the Pennyriple Region of Kentucky. In November 2019, the Pennyriple Area Development District (PADD), covering nine counties in Western Kentucky, released its Comprehensive Economic Development Strategy (CEDS). The CEDS is an action plan for PADD to guide economic growth in the area. It establishes program priorities and provides a foundation of performance measures used to track progress in achieving the goals established. The Eddyville Riverport is centrally located in the PADD providing critical development opportunities that align with the CEDS. In considering the transportation and logistics trends for the area, it is important that the recommendations resulting from extensive data analysis align with the strategies, goals, and objectives for the region.

The economic base for the region includes rich mineral resources, prime agriculture opportunities and an ideal tourist destination created by Kentucky and Barkley Lakes.

Strategic projects included in the CEDS for Lyon County include a rail spur at the Riverport along with other infrastructure improvements. The Plan notes that **infrastructure improvements should be guided by growth industries that rely on water transportation for goods movement, which were highlighted in the section on projected growth areas.** The Project is being advanced to address current needs in the market for the inlet at the Riverport and is consistent with the ERIDA’s Master Plan.

Recognizing its place in the community, the ERIDA is developing strategies to address climate change resiliency and prevention. The Project is one-step in the process to improve the energy efficiency of freight movements in Western Kentucky. The ERIDA is working in partnership with the power provider to ensure clean energy alternatives are advanced in its operations.

The Authority, through its planning for the Project, understands its role in addressing EJ and Racial Equity issues impacting its neighbors and will begin efforts to engage with the community and its leaders to learn more about the impacts created by port operations and the Project. The outcome of those conversations will lead to mitigating actions by the ERIDA to reduce impacts and improve accessibility.

Without support from the Maritime Administration’s Port Infrastructure Development Program, the improvements included in the Project will face an uncertain future and result in untimely supply chain interruptions impacting the regional environment and economy. The ERIDA is working diligently to garner broad support for the Project and to maximize local investments to leverage limited ERIDA as well as federal resources. The ERIDA appreciates the difficulty MARAD and USDOT will have in selecting awards for the PIDP and respectfully submits this application for the small port small grant category. Ultimately, federal investment in the Project will advance the national goals for efficient and safe freight movement, economic vitality, addressing climate change and environmental justice impacts, advancing racial equity and leveraging federal funding.



X. Appendices

Appendix A: Audited Tonnage

Appendix B: ERIDA Strategic Master Plan

Appendix C: Pennyrile Area Development District Comprehensive Economic Development Plan

Appendix D: ERIDA Balance Sheet March 2022

Appendix E: ERIDA Grants

Appendix F: Detailed Cost Summary

Appendix G: Funding Commitment Letter

Appendix H: Racial Equity and Environmental Impact Analysis

Appendix I: Community Outreach Plan

Appendix J: Detailed Project Schedule

Appendix K: Completed MARAD CE Checklist

Appendix L: Communications with Governing Authorities

Appendix M: Letters of Support

Appendix N: Project Renderings

APPENDIX A

Audited Tonnage Data



INDEPENDENT AUDITOR'S REPORT

Eddyville Riverport and Industrial Development Authority, Inc.
Eddyville, Kentucky

To the Board of Directors,

We have audited the accompanying schedule of annual tonnage of the Eddyville Riverport Industrial Development Authority, Inc. for the years ended December 31, 2019, 2020, and 2021 and the related notes.

Management's Responsibility for the Financial Information

Management is responsible for the preparation and fair presentation of this schedule in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the schedule that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on the schedule based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the schedule. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the schedule in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the schedule of annual tonnage referred to above presents fairly, in all material respects, the annual tonnage processed through the Eddyville Riverport and Industrial Development Authority for the years ended December 31, 2019, 2020, and 2021, in accordance with accounting principles generally accepted in the United States of America.



Eddyville, Kentucky
May 7, 2022

**Eddyville Riverport and Industrial Development Authority
Schedule of Annual Tonnage**

Year	Customer	Product	Measurement Unit	Total Units	Ton Conversion	Income
2019	Agri-Chem	Dry Fertilizer	Ton	48,488.904	48,488.904	\$ 148,166.19
2019	Agri-Chem	Liquid Fertilizer	Ton	28,950.060	28,950.060	29,465.47
2019	Gavilon	Yellow Corn	Bushel	3,491,918.870	97,773.700	104,795.81
2019	Gavilon	Soybeans	Bushel	3,995,056.470	119,851.700	167,415.83
2019	Gavilon	Wheat	Bushel	1,881,806.680	56,454.200	56,830.56
2019	Gavilon	White Corn	Bushel	795,731.470	22,280.500	23,671.28
2019	Gavilon	Through-Put	Bushel	4,491,662.580	125,767.560	178,558.46
2019	Hopkinsville Elevator	Rye	Ton	3,419.399	3,419.399	18,806.69
					502,986.023	\$ 727,710.29
<hr/>						
2020	Agri-Chem	Dry Fertilizer	Ton	43,380.702	43,380.702	\$ 135,273.82
2020	Agri-Chem	Liquid Fertilizer	Ton	11,991.610	11,991.610	12,471.27
2020	Gavilon	Yellow Corn	Bushel	4,628,323.310	129,593.100	141,880.52
2020	Gavilon	Soybeans	Bushel	3,628,174.030	108,845.200	155,169.16
2020	Gavilon	Wheat	Bushel	1,804,412.820	54,132.400	55,395.47
2020	Gavilon	White Corn	Bushel	1,174,910.360	32,897.750	36,014.34
2020	Gavilon	Through-Put	Bushel	2,047,274.810	57,324.160	80,450.89
2020	Acquatic Protein	Asian Carp	Pound	2,937,781.000	1,468.891	29,377.81
					439,633.813	\$ 646,033.28
<hr/>						
2021	Agri-Chem	Dry Fertilizer	Ton	54,740.201	54,740.201	\$ 172,979.03
2021	Agri-Chem	Liquid Fertilizer	Ton	48,455.629	48,455.629	50,878.41
2021	Gavilon	Yellow Corn	Bushel	6,381,960.630	178,694.900	198,121.03
2021	Gavilon	Soybeans	Bushel	3,706,778.380	111,203.400	160,324.51
2021	Gavilon	Wheat	Bushel	2,200,022.460	66,000.710	69,139.07
2021	Gavilon	White Corn	Bushel	982,161.310	27,500.740	30,462.34
2021	Gavilon	Through-Put	Bushel	1,900,061.060	53,202.140	79,141.74
2021	Acquatic Protein	Asian Carp	Pound	630,026.000	315.013	6,300.26
					540,112.733	\$ 767,346.39

SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Activity – The Eddyville Riverport and Industrial Development Authority, Inc. (the “Authority”), is organized as a non-stock, nonprofit corporation pursuant to KRS 273. The purpose of the Authority is to develop and maintain necessary and proper riverport and river navigation facilities, and to acquire and develop property of the riverport to attract river-oriented industry,

Principles determining scope of reporting entity – The Authority’s schedule of annual tonnage includes only those revenues derived from the loading/unloading of product through the Authority facilities. The main products include corn, wheat, soybeans, dry fertilizer and wet fertilizer. Those products that are not measured in tons are converted so that the schedule reports all items in tons.

Basis of accounting – The Authority is presented as an enterprise fund, which is a proprietary fund type. The basic financial statements are reported using the economic measurement focus and the accrual basis of accounting. Revenues are recognized when earned, and expenses are recognized when incurred. Port authority customers are billed monthly. Enterprise funds distinguish operating revenues and expenses from non-operating items. Operating revenues and expenses generally result from providing services in connection with an enterprise fund’s principal ongoing operations. Operating revenues for the Authority are charges for services and contractual amounts for lease of facilities.



APPENDIX B

ERIDA Strategic Master Plan

Eddyville Riverport & Industrial Development Authority Master Plan

December 16, 2020



BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.

In Partnership With:





ERIDA Strategic Master Plan

November 2020

Bacon Farmer Workman Engineering & Testing, Inc.
Ann L. Schneider and Associates LLC
The Beckett Group

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- b. Industrial Park Boundary Survey

Appendices 2: Environmental Overview

- a. Riverport Environmental Summary Report
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 - ii. CURRENT LEASE / DEVELOPABLE AREAS
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- a. Riverport Rendering
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Chapter 1: Stakeholder Engagement Summary

Importance of Stakeholder Engagement

Stakeholders are people who will shape and influence the future success of the ERIDA. Whether they are internal or external, it is important to engage stakeholders early in a project or plan. Stakeholders bring value to plan development in a number of ways including:

- help reduce and uncover risks;
- provide an outside perspective on the project or organization;
- spot trends that may impact future demands and opportunities;
- provide expertise about current processes, historical information and industry insight;
- build relationships and increase community investment in the organization/project; and,
- provide new and different ideas that encourage out-of-the-box thinking.

Successful stakeholder engagement brings an element of transparency and accountability in public sector decision-making, particularly for transportation related projects. Effective stakeholder input contributes to better decisions, plans, policies and projects. It provides a means for building community and customer consensus that increases support for future endeavors and can build relevance for the ERIDA and its efforts.

Stakeholder Engagement Goal

Recognizing the benefits of involving stakeholders in the development of the Strategic Master Plan, the ERIDA Board and Planning Committee established active stakeholder participation. With the creation of a Stakeholder Committee, the Master Plan planning committee and with the existing ERIDA Board, the objective of broad community engagement and support in achieving the ERIDA's long-term vision was established as one goal of the planning process. To ensure successful implementation, key messages were identified and communicated among the planning committee and project team. These key messages that provided the basis for engagement were:

1. The master plan will allow for public input on the future direction of the ERIDA properties.
2. The ERIDA seeks and values public participation via stakeholders in its planning process;
3. There are many opportunities to engage stakeholders/public in the process;
4. The ERIDA plan will lay out the current vision, mission and values that will drive future expansion, operation and development, providing a public benefit to the community; and,
5. The final plan will specify a procedure for periodic review and updates to review its progress and make mid-course corrections and adjustments based on current information and updated projections.

The ERIDA planning committee and Board of Directors identified key stakeholders that would offer their insights into the planning process. This input would provide value to the Strategic Master Plan as outlined above and achieve the goal of broad community understanding and support for ERIDA's long-term vision. Stakeholders included government officials at the Federal, State and local levels, businesses and business organizations, and economic development organizations. The list of stakeholders and their organization are listed in Table 1.

Table 1: ERIDA Master Plan Stakeholders

Name	Organization	Name	Organization
Paul Akridge	Akridge Hardware and Farm Supply	Nick Gibson	Gavilon (Port tenant)
Morgan Alvey	Field Rep for Senator McConnell	John Grove	UK Research Farm
Mark Borden	DHL (IP)	Lori Harper	Rogers Group
Christi Boudro	Hydro Gear	David Hill	ERIDA Board
Bobby Bowers	BGB Trucking (IP)	Chris Hooks	ERIDA Board*
Wayne Breedlove	Hu Bs (Port tenant)	Stan Humphries	State Senator
David Buchanan	Agri Chem (Port tenant)	Glen Kinder	ERIDA Board Treasurer*
Brent Bugg	Fredonia Valley Bank	Rachel McCubbin	Field Rep for Senator Paul
Barbara Campbell	Mayor of Kuttawa	Will McDowell	Kentucky Utilities
Tim Capps	Lake Barkley Partnership	Kevin McEwan	P&L Railroad
John Choat	Mayor of Eddyville	John Operle	Ingram Barge
Henry Christ	Dunaway Timber	Corky Peek	KY Cabinet for Economic Development
Billy Ray Coursey	ERIDA Board Chairman*	Jerry Peek	ERIDA Board
Amanda Davenport	Lake Barkley Partnership	Ken Perdue	Logan Aluminum
Justin Dickens	Crouse	Drake Rogers	Hydro Gear
Debi Dodd	Lake Barkley Tourist Commission	Steve Southern	Ingram Barge
Deb Domke	Lake Barkley Chamber of Commerce	Michael Taylor	Paducah Barge (Port tenant)
Chad Dorsey	USDOT Maritime Administration	Russ Tilford	Lyon Co. Schools Superintendent
Jeremy Edgeworth	KY Transportation Cabinet	Angel Travis	ERIDA Staff
Debbie Ellis	Kentucky Soybean Board	Charity Vallandingham	Denton Law Firm
Dennis Faulkner	ERIDA Board	Jason Vincent	Pennyryle Area Development District
Susan Fox	Lyon County Extension	Wade White	Lyon County Judge Executive
Chris Freeland	State Representative	Amelia Wilson	Field Rep for Congressman Comer
Brent Gaines	McGriff, Seibels & Williams of Mo., Inc.	Anthony Young	Lyon County Farm Bureau
Angie Yu	Kentucky Fish Center (Port tenant)		

Stakeholders were consulted at key milestones during the project to obtain relevant and meaningful insights and to raise community and industry awareness of the ERIDA. Adjustments to the stakeholder participation plan were necessary due to social distancing requirements resulting from the COVID 19 pandemic. The first stakeholders workshop scheduled for late March had to be rescheduled as a virtual event that took place on April 2nd. The second workshop held on August 6th was a hybrid workshop with limited participation in person and the rest of the participants joining virtually. The final workshop was held on October 29th with eight stakeholders and board members attending in person and 12 stakeholders joining virtually.

First Stakeholder Workshop

In addition to the workshops, stakeholders were asked to provide input via a worksheet to help with establishing the vision, mission and values of the ERIDA. Prior to the workshop, stakeholders were provided a pre-event worksheet exercise aimed at generating feedback and discussion that included the following:

- What are 3 words or phrases that describes what you know about the EddyvilleRiverport?
- If you could wave a magic wand and have 3 wishes, what would you wish for Western Kentucky?
- It is now 2040 and you are returning to Eddyville after a long-term absence. What is the headline on the Sunday paper about the successes the Region has achieved over the last 20 years?
- Knowing what you see as the future for the Region, think about the Eddyville Riverport and Industrial Development Authority (ERIDA) and imagine that it is 2040, you are explaining to your grandchildren about the benefits provided to the community by the ERIDA. What would you tell them?
- Finally, what does success look like? List 5 attributes of a successful ERIDA. Pick 5 verbs or short descriptive sentences/phrases that describe SUCCESS to you.

Stakeholder insights provided by this exercise aided the project team in understanding the long-term vision for the region, the role that the ERIDA will play, the values ERIDA should embrace in accomplishing its vision, and the goals to guide ERIDA decisions. Responses were collected prior to the first and second workshops with a total of 19 responses out of 50 sent for a 38% response rate.

Second Stakeholder Workshop

Prior to the second workshop the planning committee and Board members participated in a SWOT exercise to define internal strengths and weaknesses and to identify external threats and opportunities driving future operations and development. The work was synthesized into a SWOT matrix for review with and validation by stakeholders.

The second workshop gathered input from stakeholders about the strengths and weaknesses of the ERIDA from different points of view. Understanding external perceptions helped to identify operational objectives and marketing strategies to strengthen the market position of the ERIDA. It also allowed a comparison with peers and competitors to better guide future investments in infrastructure, equipment and staffing. Stakeholders also brought their collective knowledge about the business environment and market that ERIDA is part of to identify opportunities for growth and threats that could negatively impact that growth or conversely that could be turned into opportunities with a strategic response.

Invitations were sent to 50 people to participate, which included the 6 ERIDA Board members. Eight people attended the workshop at Murray State University in Paducah and another nine participated virtually for a 34% participation rate.

Attendees participated in identifying and ranking the four components of the SWOT providing important insights that guided the development of the goals and objectives outlined in the management strategy recommendations. Attendees were also presented with the results of the transportation and logistics trends and were asked to provide feedback on the findings. The trends generated some discussion about impacts on future development decisions.

Survey Monkey

The project team worked to maximize participation in the SWOT ranking and followed up on the work done during the workshop with a virtual survey. The survey was done using the Survey Monkey platform. Ten people responded to the survey for a 20% response rate. The total response rate was 40% when the results from the workshop are included and adjustments made to avoid double counting.

Third Stakeholder Workshop

The third and final workshop was focused on illustrating the development plan for both the Riverport and the Industrial Park, as well as reviewing the improvements proposed for the following time frames (see Chapter 8 for details):

- First year;
- Years 1-5;
- Years 5-10;
- Years 10-20; and,
- Year 20 and beyond.

A total of 45 stakeholders were invited along with the six ERIDA Board members. The participation rate was 26.7% with two stakeholders attending in person along with the six Board members and 12 stakeholders who participated virtually via the Zoom meeting.

Stakeholders were also given the opportunity to comment on the recommendations related to the marketing tools, management strategy and the implementation plan. There was limited feedback during the meeting, however stakeholders were invited to provide comment to the project team following the workshop. The comment period was opened for one week and no additional input was provided.

Chapter 2: ERIDA Vision, Mission and Values

Background

The Eddyville Riverport and Industrial Development Authority, Inc. (ERIDA) is starting a planning process with the creation of a Master Plan. A consulting team, led by The Bacon Farmer Workman Engineering & Testing, Inc. (BFW Engineering), has been retained to guide the master planning efforts with the ERIDA planning committee.

The ERIDA seeks active public and stakeholder involvement in the development of its 2020 Master Plan. As part of the Master Planning process stakeholders have been carefully identified to be engaged in the long-term planning process and to become more familiar with current operations and future opportunities. ERIDA's Master Plan planning committee has thoughtfully identified community, state and federal stakeholders that will add value to the development of the Master Plan and the future of the ERIDA. The breakdown of identified stakeholders is depicted in Figure 1.

Figure 1: Stakeholder Representation

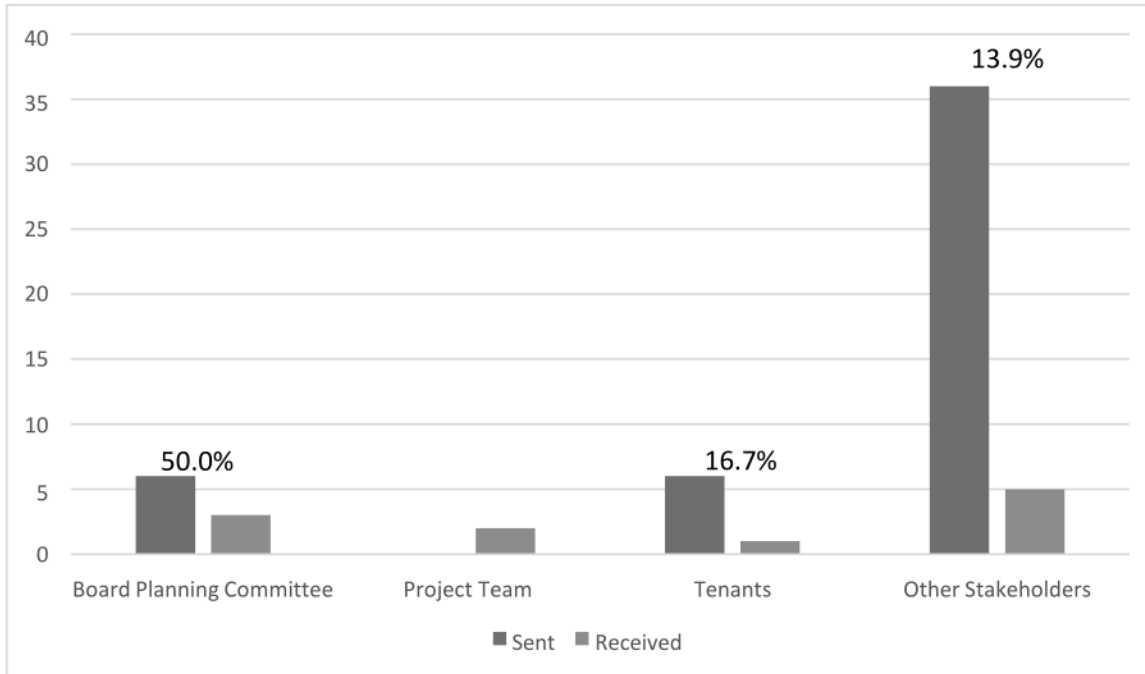


The purpose of the first stakeholder's meeting/webinar was to introduce community stakeholders and leaders to the Eddyville Riverport and Industrial Development Authority, Inc. (ERIDA) and to get their input for the Master Plan that is being prepared to guide future development of the Riverport and Industrial Park area. As part of the planning process, it is important to establish the vision, mission and values of the ERIDA to guide future opportunities and development of the facilities. It is important that the vision, mission and values represent those of the region and are consistent with other regional economic development efforts.

Prior to the webinar, the identified stakeholders were provided with worksheets to gather input on their knowledge of ERIDA and to gain insights into community thought leaders' aspirations for the future of the area. Of the 39 stakeholders identified, emails were provided for 36. Worksheets were emailed to the 36 identified stakeholders, the 6 ERIDA Board members, ERIDA staff and the consultant team. Due

to the COVID-19 social distancing requirements, the in-person meeting scheduled for March 17, 2020 was canceled and rescheduled as a Webinar on the GoToWebinar platform on April 2, 2020. As a result, stakeholders received mailed copies and email copies with 2 subsequent reminders. The response rates for various participants are illustrated in Figure 2.

Figure 2: Worksheet Response Rates



Participation in the Webinar included 9 stakeholders (1 was a tenant) and 4 members of the Board planning committee. There were 3 stakeholders that RSVPed that they would not be able to participate in the Webinar.

ERIDA Awareness

Part of the purpose of stakeholder participation is to raise awareness of the ERIDA and economic development opportunities at the Riverport and Industrial Park. To fully engage stakeholders, one of the worksheet exercises was aimed at ascertaining the level of understanding the key community leaders have of ERIDA. Respondents were asked to list 3 words describing ERIDA. The stakeholder responses aligned well with the responses from the Board Planning Committee, illustrating awareness of the Riverport specifically and ERIDA generally. Figure 3 captures the general themes summarized from responses.

Figure 3: Describing ERIDA Themes

3 Words Describing ERIDA – Stakeholder Themes	Board/Project Team Themes
<ul style="list-style-type: none"> • Serving area agriculture (3) • Potential opportunities (3) • Barge service (2) • Economic Development/Jobs (2) • Lakeside opportunities (2) • Community (1) • Great Board of Directors (1) 	<ul style="list-style-type: none"> • Serving area agriculture (2) • Aggressive Board of Directors (3) • Owns Industrial Park (1) • Lakeside opportunities (1) • Economic Development/Jobs (1)



Eddyville Riverport Master Plan
April 2, 2020

Participants in the Webinar were provided with information on the history of ERIDA, services available and current tenants at the Riverport, a description of the Industrial Park and a map of both locations.

The information provided will be blended with additional feedback to advise the marketing strategy outlined in Task 5 of the scope of work for the project. The current state of development is important to capture and outline accurately to provide a baseline for future development opportunities. This will include the asset inventory being developed in Task 3.

Master Plan Purpose and Future Stakeholder Participation

Participants were given a brief overview of the Master Plan and the foundational elements of the final plan. The foundational elements outlined were:

- A future land use plan to guide future development.
- Policy recommendations to help the Board realize the full potential captured in the Master Plan.
- A decision-making framework for the current Board and future Boards in making determinations on tenants, rates, service expansions and operating decisions.
- A marketing strategy to actively engage with site locators and potential future tenants.
- An action plan to put the recommendations in motion and a set of performance measures to continually track progress and recalibrate when needed.
- A catalog of funding and financing opportunities, both public and private, to help ERIDA achieve demand-driven growth.

Stakeholder participation in the Master Planning effort is critical to successful implementation and outcomes that reflect the needs of the community, region and State. Recognizing that the identified stakeholders' time is invaluable, the Board planning team and consultant project team have outlined how to maximize the benefits of participation while being respectful of the amount of time stakeholders

have available for their voluntary participation in the planning effort. To help stakeholders gauge what the effort will require of them, an outline of a stakeholder input schedule was provided. Table 2 shows the schedule that was shared with participants outlining the time frames and the purpose of each meeting. It was noted that there might need to be some flexibility in time frames depending on the evolving pandemic response.

Table 2: Expected Stakeholder Participation

Month	Subject Matter
April	Introduction to ERIDA, Vision, Mission and Values
May	Strength – Weaknesses – Opportunities – Threats
July	Port and Transportation logistics trends review
August	Draft Master Plan review and validation

Validating ERIDA Vision, Mission and Values

The main purpose of the 1st stakeholder Webinar was to validate the Vision, Mission and Values that the ERIDA Planning Committee developed in the initial phase of the Master Plan development. The vision statement reflects what the future should look like, the mission statement outlines why an organization exists identifying the overall goal of its operations and the values are a set of principles that guide the decisions of the ERIDA Board.

Vision Statement

The vision is a statement of what the ERIDA aspires to become over the planning horizon. For ERIDA, the planning horizon is 20 years (2040). Vision statements are big and bold and paint a picture of the future. Through the planning worksheets, participants were given exercises to help them think about what the future should look like for the ERIDA specifically and region more broadly. It is important that the ERIDA vision complements that of the region and so stakeholders were asked to discuss their 3 wishes for Western Kentucky for the next 20 years. The key themes that came through both the worksheet exercises and input during the Webinar were:

- Jobs, Jobs, Jobs
- Infrastructure
- Community growth/improvement
- Partnerships and collaboration

Stakeholders were also asked to provide what the headlines might look like in 20 years if the Master Plan was successfully implemented. The responses help to shape what the Riverport/Industrial Park should aspire to becoming in 20 years. The same themes carried through and broadly include:

- ERIDA is a marine freight hub.
- Eddyville/Kuttawa/Lyon County and Western Kentucky provides a successful business environment for businesses to thrive.
- There is a balance of economic development with quality of life, one was not sacrificed for the other.
- The headlines celebrate the job growth in the region.

The feedback through the exercise responses and the Webinar support by Vision Statement developed by the Planning Committee. It focuses on jobs (green ink), community (purple ink), infrastructure (blue ink) and an environment conducive to successful business development (red and orange ink). Interestingly, one of the ideas discussed during the Webinar was the idea of the Riverport becoming a water focused incubator for companies or individuals to test and grow their business concepts that are tied to their water assets of the region.

ERIDA 2020 Vision Statement

To become the CENTERPIECE for economic development connecting Western Kentucky to the world, by utilizing the river, road and rail to create family wage jobs and prosperity for our communities.

Mission Statement

As noted, the mission statement is focused on why ERIDA exists and what is the goal of its operations. Participants were asked to tell a story to their grandchildren in 20 years about the benefits that ERIDA has provided since 2020. The benefits help to capture stakeholders' views on why ERIDA exists and how it will thrive.

A summary of the benefits described by respondents to the worksheets and supported by many on the Webinar reflects the themes in the vision statement and provides solid support for the mission on ERIDA. It is important that the vision statement support the mission and that the mission allows ERIDA to achieve the ultimate vision for their facilities. The general category of benefits include a focus on customers, a strong Board of Directors, a thriving livable community, targeted infrastructure needs and job creation.

Within those categories the themes that emerged are:

Customers – support agricultural economy, connect local economy to the global marketplace, provide economic development opportunities (creation and expansion)

Strong Board of Directors – excellent planning, forward thinking decision-making, port expansion

Thriving livable community – access to high speed internet and technology, community presence

Targeted infrastructure investments – port expansion, access to high speed internet and technology, rail to Riverport, Asian carp elimination

Job creation – quality jobs, economic development, participating in global economy

The mission statement developed by the ERIDA Board reflects the general categories and the consensus of its purpose.

ERIDA Mission Statement

Our mission is to bring people, resources and industry together to foster economic prosperity and family wage jobs through strategic partnerships and investments.

Mission Validation

Customers - Economic prosperity

Community – bringing people, resources and industry together

Strong Board – strategic partnerships and investments

Targeted investments – strategic investments

Job creation – family wage jobs

During the Webinar, there was a discussion of having the types of jobs to attract and/or retain younger workers in the region. However, an issue was raised that younger workers are more focused on economic development while older residents do not want to sacrifice the relaxed lake front life style. There will need to be further discussion on how to achieve a balance that reflects the differences in quality of life values between younger and older people.

The Riverport will play a role in both and growth will have to consider the “neighbors” in relation to noise, traffic, air pollution and other negative externalities that might be tied to industrial growth.

ERIDA Values

Values are the set of principles that guide day-to-day operating decisions and longer-term business decisions on infrastructure investments, targeted industries for economic development and community relationships. Asking stakeholders to provide 5 attributes of a successful ERIDA provides an understanding of what values stakeholders view as important for decision-making in both the short and longer term.

Themes that emerged from the exercise include:

What Success Looks Like

- Profitable businesses
 - Consistent, sustainable, living wage jobs
 - Sense of community and community growth
 - Growing economic development opportunities
 - Innovation
 - Integrity
 - Resiliency
 - Partnership
 - Robust infrastructure – broad band, rail, roads, port, public transit
 - Strong agriculture
 - Economic diversity
 - Solid planning
 - Targeted investment
-

ERIDA Values

- Value community partnerships – public and private
 - Integrity
 - Innovation
 - Customer focused
 - Trusted business partner
 - Nimble decision-makers
 - Strategic investing
 - Multi-modal connector serving a diverse market
 - Resiliency
-

Based on the discussion in the webinar, resiliency emerged as an important value for the Board to consider. Additionally, a great deal of emphasis was placed on partnerships – public/private, public/public. The sense was that rather than different jurisdictions and entities competing with each other for the same business opportunities, the region needs to work together to bring in new development and grow existing businesses.

The webinar provided valuable feedback and reflected the key messages in the Public Engagement Plan presented at the December 2019 kick-off meeting. The key messages are:

- The Master Planning Process will allow for public input on the future direction of the ERIDA properties.
- ERIDA seeks and values public participation in its planning process.
- There are many opportunities for the public to engage in the process.
- The ERIDA plan will lay out the current vision, mission and values that will drive future expansion, operation and development, providing public benefit to the community.
- The plan will specify a procedure for periodic review and updates to review progress and make mid-course corrections / adjustments to the Plan based on current information and updated projections.

Chapter 3: Asset Inventory

Asset Overview

Eddyville Riverport and Industrial Development Authority (ERIDA) has unique potential due to the undeveloped resources in a topographically diverse location situated adjacent to important resources and infrastructure. Both the Riverport and the Industrial Park allow for diversity of development and provide room for growth within the existing footprint and the potential for adding property strategically as it becomes available for future businesses.

The proper development of these sites will require substantial infrastructure investment in addition to ERIDA's current assets. Eddyville is favorably positioned geographically and economically to support a successful Riverport and Industrial Park. The Riverport is positioned on Lake Barkley. The lake levels are regulated year-round via Barkley Dam. Therefore, the Riverport possesses approximately 5,850 feet of waterfront that is not susceptible to large river level fluctuations. Currently there are 60 acres with direct waterfront access and 190 acres with access via conveyor, pipe or shorthaul.

ERIDA's Riverport resides in Lick Creek, a bay of the lake that has sufficient water depth throughout the year and boasts 10 Mooring Cells spanning nearly 2,000 feet along the Riverport's lakefront plus 2 additional Mooring Cells in the Lick Creek bay that are stationed 100 feet apart for additional fleeting opportunities. In addition to the mooring cells, the Riverport has 100+/- feet of seawall apron for ease of loading and unloading. Currently, the ERIDA has a project that is funded and under design to lengthen the seawall at the Riverport, which will provide additional waterfront opportunities that can take advantage of being the only Riverport in Kentucky located on a lake with limited silting. This minimizes the need for regular dredging.

Even though ERIDA's transportation infrastructure accessing its facilities needs upgrades, it currently has easy connections to major interstate highways (i.e. I-24 and I-69) as well as rail access at the Industrial Park portion of ERIDA's property. Additionally, ERIDA is geographically positioned approximately 100 miles from an international airport. Current and future tenants enjoy affordable utilities that are readily available such as water, natural gas, and electricity. Additionally, the Industrial Park provides sanitary sewer for its tenants. However, the expansion of key utilities such as sewer at the Riverport and additional water capacity and broadband capabilities at both the Riverport and the Industrial Park would provide the foundation for future business recruitment and expansion.

The long-term multimodal master development plan, with the ultimate objective to attract investment in the Riverport, Industrial Park, and the community, is comprehensive and forward-thinking. The core elements of the plan are:

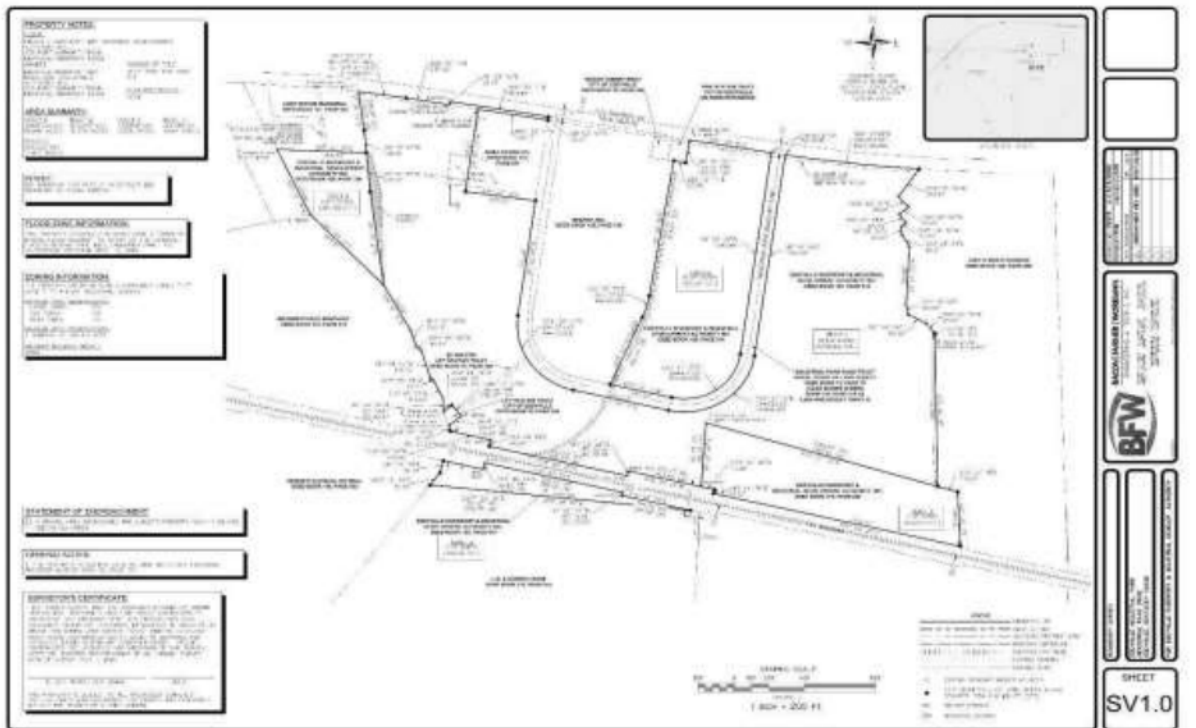
1. Spine infrastructure to and through the ERIDA sites, including additional appropriate road and rail infrastructure.
2. Cargo management infrastructure; including river, road, and rail intermodal assets
3. Interior Infrastructure at the ERIDA sites:
 - a. Roads
 - b. Rail lines
 - c. Utility infrastructure
 - d. Environmental stewardship
4. Industrial Park Property Utilization
 - a. Local distribution
 - b. Regional distribution
 - c. Multimodal logistics
 - d. Manufacturing



Current Industrial Park Aerial



Current Industrial Park Survey



Features/Assets

ERIDA has amassed substantial assets through strong fiscal management over the course of many years. The project team has worked extensively with the ERIDA board to create an inventory of current assets, facilities, equipment, and infrastructure. A comprehensive accounting of assets will help ERIDA assess what areas need to be addressed and the items that will need to be purchased to cultivate future growth.

- Total Acreage: Approximately 400 acres
 - Riverport – 274.463 acres
 - Industrial Park – 121.84 acres
- Approximately 5,850 feet of waterfront
 - Seawall Apron: 100 feet +/- currently with an additional 110 feet +/- funded and under design; minimum of 8 feet depth alongside during winter pool at water surface elevation of 354 feet; normal summer pool elevation is 359 feet thus providing additional water depth along wall
 - 10 Mooring Cells spanning nearly 2,000 feet along the Riverport's lakefront plus 2 additional Mooring Cells in the Lick Creek bay that are stationed 100 feet apart for additional fleeting opportunities
 - Approximately 1,600 feet of the waterfront is armored with cyclopean stone rip-rap to provide a consistent bank that is less susceptible to erosion
 - ERIDA's remaining waterfront is currently undeveloped
- 250 +/- Acres of Timber is owned by ERIDA between the Riverport and Industrial Park combined
- Potential Warehouse Storage Capacity: Approximately 50,000 square feet
 - Boat Repair Building (40'x70') – Leased to HuB's Offshore
 - 40'x125' Metal Building – Leased to the KY Fish Center, LLC
 - 2 Additional Metal Buildings – Buildings are 30'x85' and 40'x85' respectively.
 - 180'x200' Building – Currently owned by Agri-Chem, LLC
- Agri-Chem, LLC owns their facilities and equipment, however, ERIDA has option to buy from the tenant at conclusion of lease
- Gavilon owns their facilities and equipment, however, ERIDA has option to buy from the tenant at conclusion of lease
- Open Storage: 100 +/- acres are currently available for open storage between the Industrial Park and the Riverport properties. Many more acres could be cleared, developed and utilized for open storage upon harvesting significant timber resources on ERIDA's properties.
- 325 +/- acres available for development between the Riverport and Industrial Park combined; the topography is diverse which will allow for diversity in development
- Affordable Utilities readily available (water, natural gas, electricity)
- Approximately 2,000 feet of railroad spur located at industrial park with trackage rights; Spur located adjacent to the Paducah and Louisville (P&L) Railroad mainline which is a full service 280-mile regional Class II railroad that is 100% signaled and is compatible with any Class I railroad. The P&L RR connects directly with four of the seven North American Class I carriers: the BNSF and CN (Paducah, KY), CSXT (Madisonville, KY), and NS and CSXT (Louisville, KY). Connecting the Industrial Park through the P&L to any destination market in the continental US with just one interchange switch.
- Rail-served sites available at Industrial Park. ERIDA recently purchased additional developable acreage adjacent to the mainline

- 2018 Sennebogen 840m Crane which is used frequently to load and unload barges and trucks by the port operator
- Reinforced Concrete Heavy Lift Pad – Approximately 5,000 square feet
- 2015 Case SR240 Loader/Skid Steer
- Husqvarna M-ZT61 Mower
- 80 Ton Fairbanks Truck Scale with computer read out
- Scale House Trailer and contents
- Scale Lights
- ERIDA Office Trailer and Contents
- Approximately 360 feet of beltline conveyor which allows current tenants to move product more efficiently; Current beltline and potential expansion of the beltline infrastructure will help broaden development to parcels further away from the water's edge.
- Material Pit #2 – Owned by ERIDA but Gavilon has right to use pit grain elevator; pit has barge to truck conveyor unloading/loading capabilities
- Gantry Crane for Boat Lift – Primarily utilized by HuB's Offshore for boat repairs
- Boat Repair Well – Repairs to the well will soon commence due to 2020 Kentucky Riverport Improvement Grant. Project consists of reinstating embankment surrounding repair well and an extension of adjacent sea wall.
- All Steel Barge Pulling Equipment
- Rottgering Area Electrical Equipment
- Additional Leased Equipment with Options to Buy from Tenants

Chapter 4: Transportation and Logistics Trends

Executive Summary

Background

In 1976 the Lyon County Riverport Authority was established with involvement from Lyon County, the City of Eddyville, and the City of Kuttawa. In 2002, Lyon County and Kuttawa elected to cease participation with the Authority. At that point the City of Eddyville, by articles of incorporation, formed the Eddyville Riverport and Industrial Development Authority (ERIDA), combining the industrial development authority and the port operation. ERIDA facilities are located where river, road and rail connect providing an unprecedented opportunity for growth and participation in the global marketplace.

Currently, the Eddyville Riverport and Industrial Development Authority (ERIDA), is positioned to be a catalyst for economic development in Lyon County and the surrounding area, The ERIDA Board recognizing the potential for growth, has taken the necessary step of preparing a Master Plan to guide future development. The Master Plan being developed will provide strategic direction and serves as the foundation for understanding growth and expansion opportunities.

To ensure that future economic opportunities are sustainable, it is important to consider projections for commodity flows and market conditions. Taking a data driven approach to understand the current state of freight movements and projections for 2040, this analysis can be used to prioritize investments in land, infrastructure, and equipment.

The analysis is done using data available through the Federal Highway Administration's Freight Analysis Framework version 4 (FAF4). The FAF4 data set is based on the 2012 Commodity Flow Survey conducted by the U.S. Census Bureau, incorporating data from agriculture, extraction, utility, construction, service, and other sectors of the economy. This analysis includes information for the State of Kentucky and an area defined as the rest of Kentucky (ROK). The ROK area are the counties that are outside of the Louisville and Cincinnati Consolidated Statistical Areas (details are included in the report).

The analysis provides the FAF4 projection for 2018 as the base year. By capturing the key freight movements and features of the current state, the analysis provides the basis for understanding trends over the 22-year period between 2018 and 2040.

Current Freight Movements: 2018

Kentucky and the counties that make up the rest of Kentucky play an important role in the movement of goods in the U.S. Table 3 puts those movements into context.

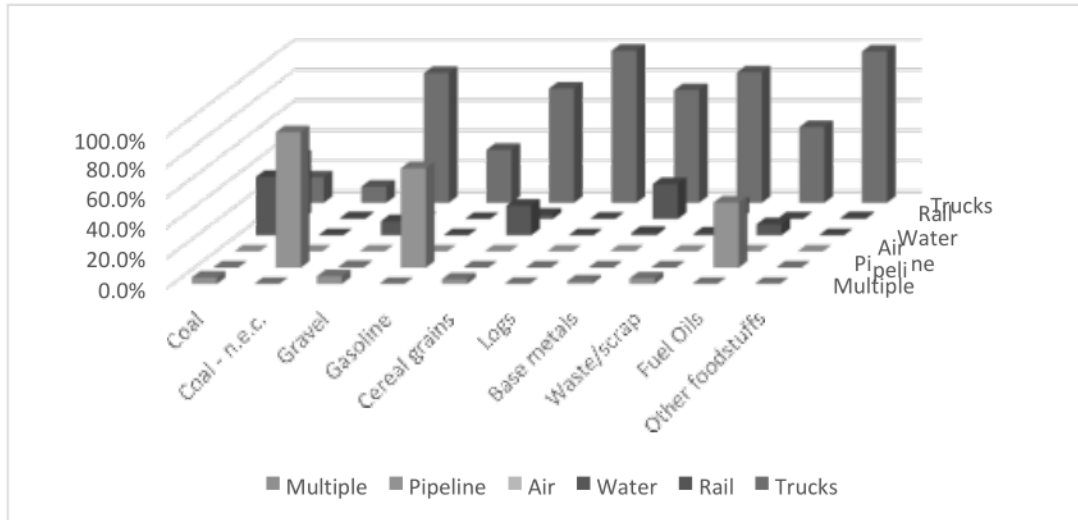
Table 3: Summary of 2018 Freight Movements by Tonnage

	Rest of Kentucky	Kentucky
Total Freight Moved	409 million tons	673 million tons
Share of U.S. Tonnage	2.6%	3.6%
Total Tonnage of Commodities Originated	264 million tons	347 million tons
Total Tonnage of Commodities Destined For	224 million tons	327 million tons
Total Intraregional/Intrastate Tonnage¹	112 million tons	175 million tons
Modal Split	Trucks..... 57.3% Railroads 11.5% Water 9.8% Pipelines..... 19.0% Multiple Modes/Mail 2.4%	Trucks 61.1% Railroads..... 9.4% Water..... 10.5% Pipelines 16.1% Multiple Modes/Mail 2.3%
Top 10 Commodities Originated and share of tonnage	Coal 25.1% Liquefied coal prods 16.4% Gravel..... 12.3% Gasoline 5.1% Cereal grains 5.1% Logs 4.6% Base metals 3.8% Waste/scrap 2.8% Fuel oils 2.7% Other foodstuffs 2.0%	Coal..... 19.2% Gravel 15.8% Liquefied coal prods 14.0% Gasoline 5.4% Cereal grains 4.3% Logs..... 3.8% Motorized vehicles 3.5% Nonmetal min. prods 3.4% Waste/scrap 3.3% Base metals 3.2%
Top 10 Commodities Destined for and share of tonnage	Liquefied coal prods 15.4% Gravel..... 14.0% Coal 12.9% Crude petroleum..... 5.9% Logs 5.4% Cereal grains 5.0% Base metals 4.6% Waste/scrap 4.2% Nonmetal min prods 3.5% Other foodstuffs 2.7%	Gravel 14.9% Liquefied coal prods 14.7% Coal..... 12.2% Waste/scrap 4.4% Gasoline..... 4.3% Nonmetal min prods 4.1% Crude petroleum 4.0% Logs..... 4.0% Base metals 3.8% Cereal grains 3.8%

¹ Includes freight that originates and is destined within the ROK and the State.

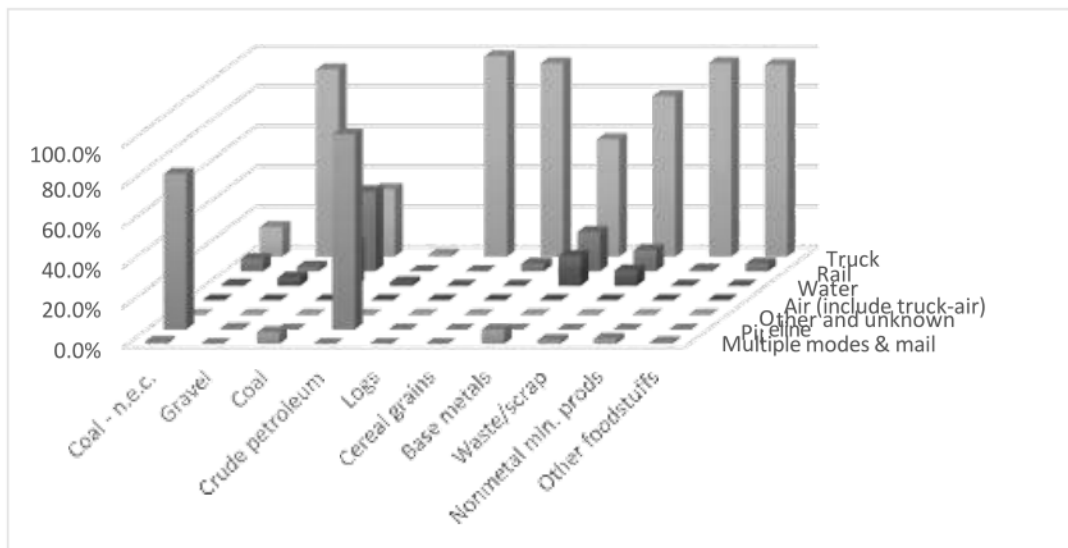
Trucks moved the predominant share of the top ten commodities being shipped out of the ROK as illustrated in Figure 4.

Figure 4: Top Ten Commodities Originating in the ROK by Tonnage and Mode, 2018



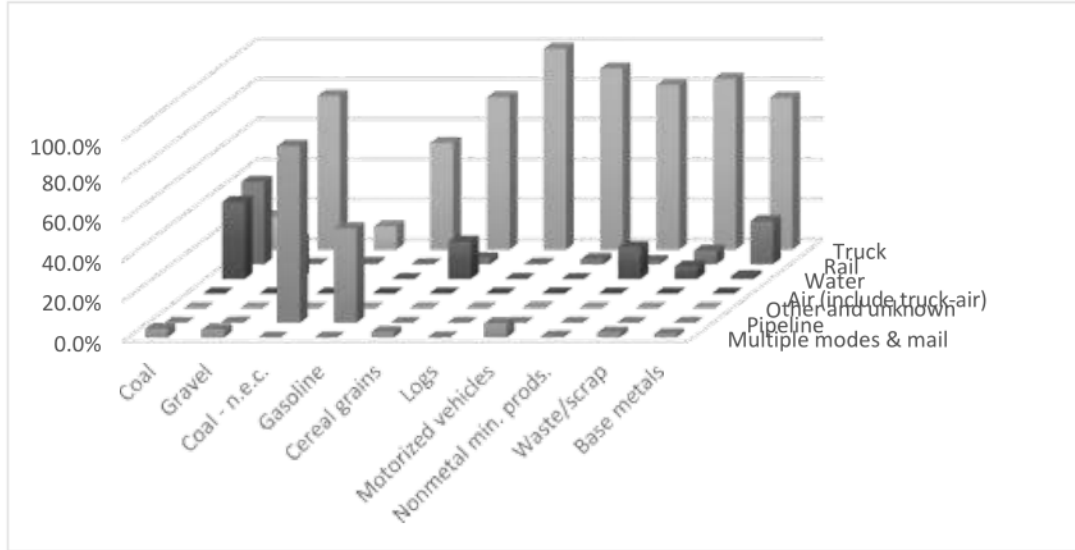
Like the outbound freight, the commodities destined for the ROK are largely moved by trucks with the exception of the liquefied coal products and crude petroleum, both of which primarily by pipeline as shown in Figure 5.

Figure 5: Top Ten Commodities Destined for the ROK by Tonnage and Mode, 2018



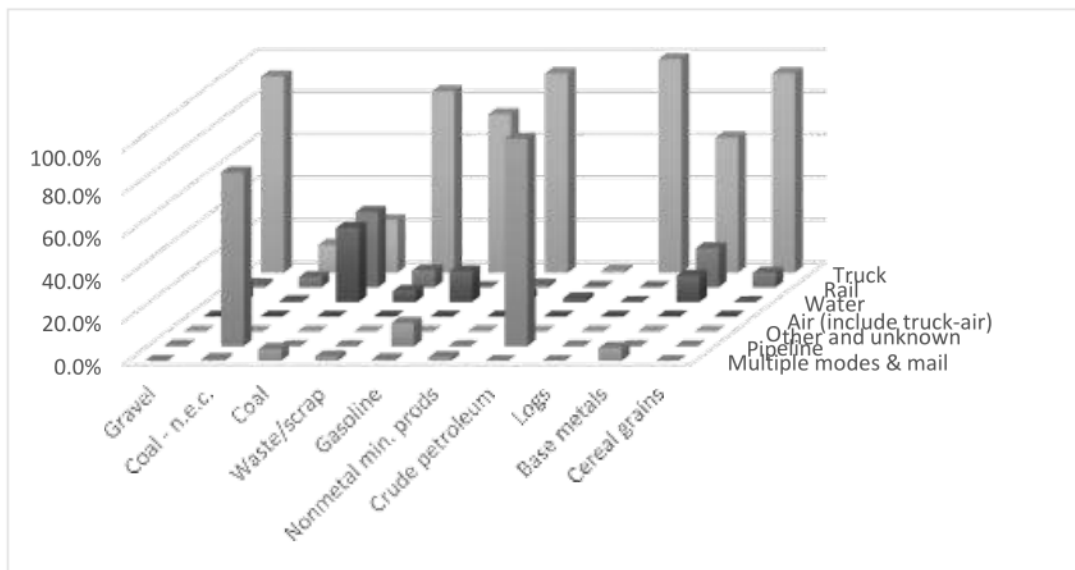
For the State of Kentucky, trucking dominates the movement of the top ten commodities, however three out of the top five commodities by tonnage are rely more on pipelines (liquefied coal and gasoline) and rail and water (coal) for transport as shown in Figure 6.

Figure 6: Top Ten Commodities Originating in Kentucky by Tonnage and Mode, 2018



Commodities destined for Kentucky are moved by a similar mix of modes, with truck moving most of seven of the top ten, pipelines being the primary means of delivery for liquefied coal and crude petroleum and coal split between rail, water and trucks as shown in Figure 7.

Figure 7: Top Ten Commodities Destined for Kentucky by Tonnage and Mode, 2018



The top ten trading partners in 2018 are listed for the ROK and Kentucky in Table 4 for both inbound and outbound freight.

Table 4: Top Ten Trading Partners Inbound and Outbound for ROK and Kentucky 2018

Outbound Freight (Originated)				Inbound Freight (Destined For)			
ROK		Kentucky		ROK		Kentucky	
Destination State	Tonnage	Destination State	Tonnage	Originated In	Tonnage	Originated In	Tonnage
KY	126,895	KY	174,669	KY	118,230	KY	174,669
OH	23,606	OH	30,867	TN	32,167	TN	45,337
WV	20,409	WV	25,168	OH	9,076	OH	17,166
IN	17,847	IN	23,951	TX	8,728	IN	13,803
LA	11,054	TN	12,179	IN	8,460	TX	10,441
TN	10,222	IL	11,770	WY	7,610	IL	10,256
IL	9,889	LA	11,530	IL	7,375	WY	7,673
SC	7,854	SC	8,177	ND	3,953	LA	5,121
GA	5,886	GA	6,404	CO	3,095	ND	4,199
FL	4,239	FL	4,906	WV	2,689	MI	3,676

Projected Freight Movements: 2040

Identifying trends in the movement of goods over the 22-year forecast provides insights into opportunities to grow and diversify the types of businesses at both ERIDA facilities. The analysis that was done provides important insights that can inform the Board on how to prioritize investments in infrastructure, equipment, and operations to better position them for the future. The forecast of commodity flows is based on a model of the US economy developed for the U.S. Department of Transportation (USDOT) by HIS Global, Inc. It is important to note that the forecast predates the COVID-19 pandemic, response, and economic interruption. The next USDOT forecast will not be available until later 2020 at the earliest.

Kentucky is projected to be the 20th largest originator of commodities by tons, 16th by value in 2040. As a destination state, Kentucky is expected to be 19th in tonnage received and 17th in the value of that tonnage. The ROK is projected to be the 19th largest originator of tonnage of commodities out of 132 consolidated statistical areas (CSA) and 36th by value. As a destination, the ROK is 18th by inbound tonnage and 35th by value of that tonnage. These projections illustrate the role of the State and the region in the U.S. economy. Table 5 provides detailed information on projected freight movements in 2040.

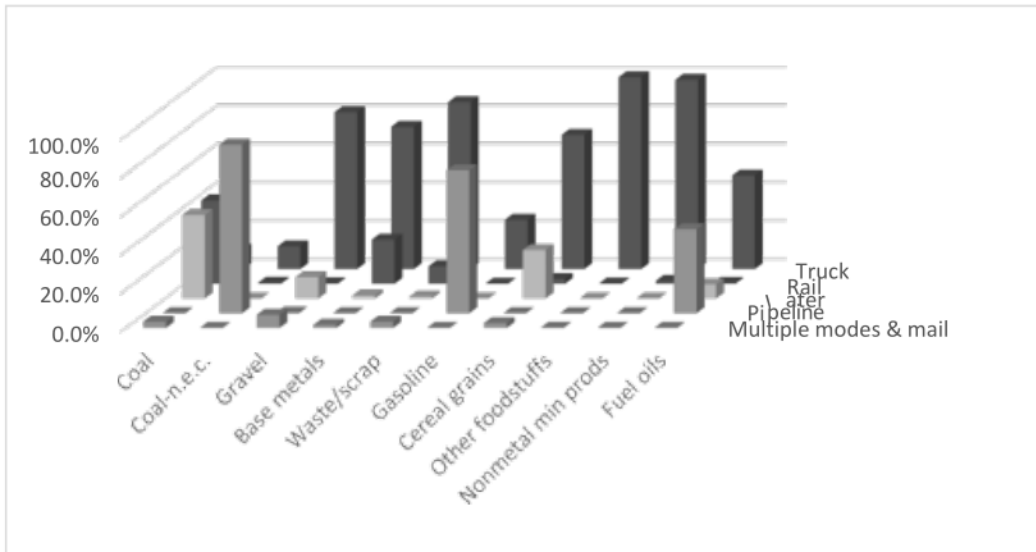
Table 5: Summary of Projected 2040 Freight Movements by Tonnage

	Rest of Kentucky	Kentucky
Total Freight Moved	636 million tons	883 million tons
Growth from 2018	30.0%	31.1%
Share of U.S. Tonnage	2.6%	3.7%
Total Tonnage of Commodities Originated	324 million tons	425 million tons
Total Tonnage of Commodities Destined For	312 million tons	458 million tons
Total Intraregional/Intrastate Tonnage²	116 million tons	192 million tons
Modal Split	Trucks..... 51.7% Railroads 13.2% Water 10.0% Pipelines..... 22.7% Multiple Modes/Mail..... 2.4%	Trucks 54.8% Railroads..... 11.3% Water..... 11.1% Pipelines 19.9% Multiple Modes/Mail 2.7%
Top 10 Commodities Originated and share of tonnage	Coal 26.4% Liquefied coal prods..... 17.1% Gravel..... 12.3% Base metals 4.9% Waste/scrap..... 4.4% Gasoline 3.4% Cereal grains 3.3% Other foodstuffs..... 2.6% Nonmetal min. prods. 2.5% Fuel oils 2.1%	Coal..... 20.5% Gravel 15.4% Liquefied coal prods 14.2% Nonmetal min. prods..... 4.7% Waste/scrap 4.7% Base metals 4.2% Gasoline..... 3.6% Motorized vehicles 3.3% Other foodstuffs 2.9% Cereal grains..... 2.8%
Top 10 Commodities Destined for and share of tonnage	Liquefied coal prods..... 26.1% Gravel..... 11.8% Coal 11.0% Waste/scrap..... 4.5% Basic chemicals 4.4% Nonmetal min. prods. 4.3% Crude petroleum..... 4.0% Base metals..... 3.8% Other foodstuffs..... 3.0% Cereal grains 2.6%	Liquefied coal prods. 24.3% Coal..... 12.7% Gravel 11.9% Waste/scrap 4.9% Nonmetal min. prods..... 4.6% Basic chemicals..... 3.6% Base metals 3.3% Other foodstuffs 3.1% Crude petroleum 2.7% Gasoline..... 2.6%

² Includes freight that originates and is destined within the ROK and the State.

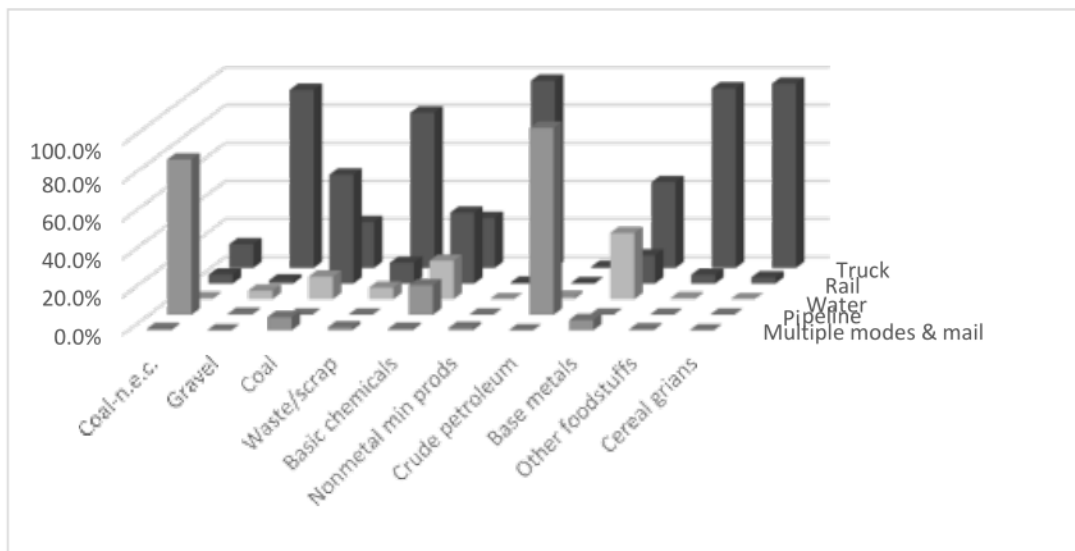
It is expected in 2040 that trucking will continue to be the mode of choice for most of the top ten commodities with the exception of liquefied coal products, gasoline, and coal. Liquefied coal products and gasoline will move primarily through pipelines while coal movements are split among water, rail and trucks as shown in Figure 8.

Figure 8: Top Ten Commodities Originating in the ROK by Tonnage and Mode, 2040



For the top ten commodities destined for the ROK area, trucks are projected to be the go-to means of transport for half of them. Pipeline movements dominate liquefied coal products and crude petroleum with rail dominating coal and to a lesser extent, basic chemicals. Water movements will be important for coal, waste/scrap, basic chemicals, and base metals, as shown in Figure 9.

Figure 9: Top Ten Commodities by Tonnage Destined for ROK by Mode, 2040



The top ten commodities originating in Kentucky are projected to rely heavily on trucks and over the road transport with the exception of liquefied coal products and gasoline, which will move primarily through pipelines. In addition, coal movements will be split between rail and water with trucks playing a supporting role as shown in Figure 10.

Figure 10: Top Ten Commodities by Tonnage Originating in Kentucky by Mode, 2040

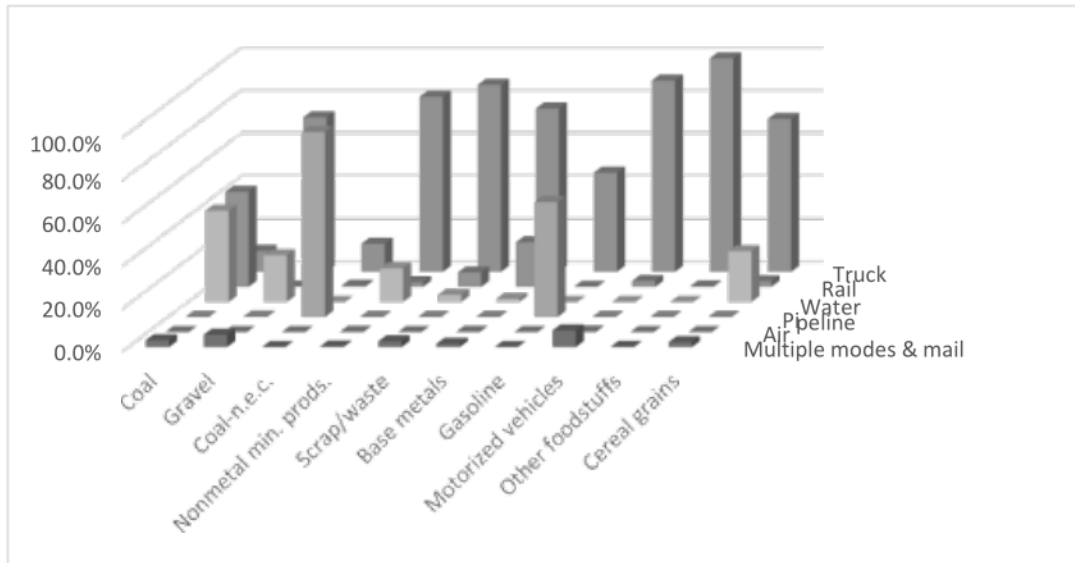
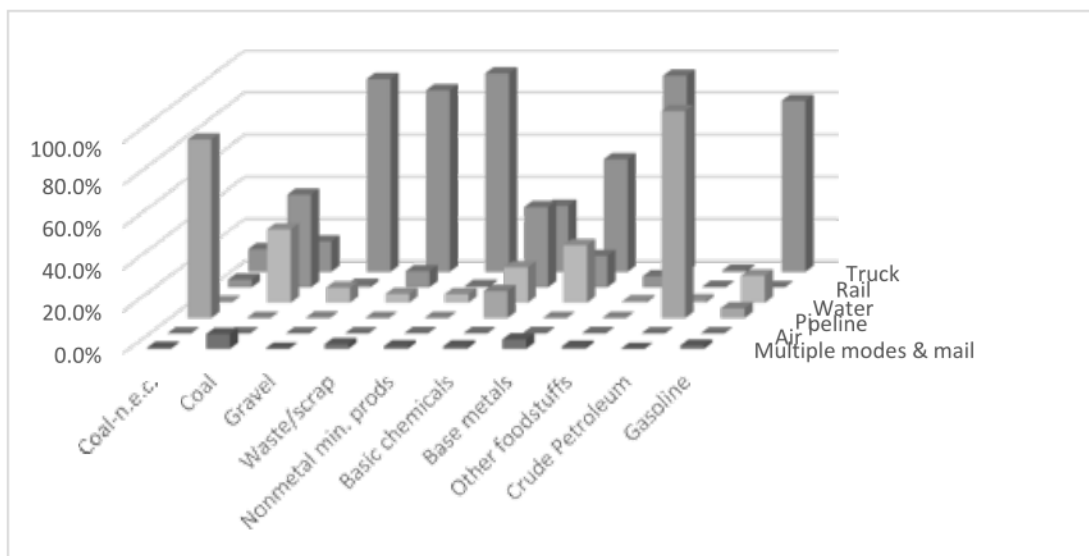


Figure 11 illustrates the modal split for the top ten commodities destined for the State in 2040. The pattern is similar to the modal split for freight destined for the ROK in 2040 with trucks moving the majority of six of the ten, pipelines dominating two commodity groups with the other two commodities moving more multi-modally.

Figure 11: Top Ten Commodities by Tonnage Destined for Kentucky by Mode, 2040



The top ten trading partners projected in 2040 for inbound and outbound freight for the State and the ROK area are listed in Table 6.

Table 6: Top Ten Trading Partners for Inbound and Outbound Freight for Kentucky and ROK, 2040

Outbound Freight (Originated)				Inbound Freight (Destined For)			
ROK		Kentucky		ROK		Kentucky	
Destination State	Tonnage	Destination State	Tonnage	Originated In	Tonnage	Originated In	Tonnage
KY	142,102	KY	192,264	KY	123,756	KY	192,264
WV	26,217	OH	36,632	TN	77,105	TN	105,601
OH	25,422	WV	33,281	WY	14,146	OH	20,825
IN	24,129	IN	31,545	IL	13,823	IN	20,448
LA	21,301	LA	22,032	IN	12,620	IL	18,277
SC	17,147	SC	17,947	TX	11,242	TX	14,887
TN	14,544	TN	16,992	OH	11,192	WY	14,317
IL	8,509	IL	10,487	CO	4,944	MI	7,896
GA	5,849	GA	6,911	MI	4,744	LA	6,631
FL	4,947	FL	6,145	LA	4,305	WV	5,946

Important Trends Projected for 2040

It is important to look at trends that will impact the growth of freight movements at the Riverport and the potential for movements at both the Riverport and Industrial Park. Table 7 illustrates the top 15 growing commodities by tonnage in the ROK projected by 2040. Based on further analysis, commodities highlighted in yellow are prime areas for increasing movements by water.

Table 7: Top 15 Growing Commodities by Tonnage Originating in the ROK, 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Coal	66,564.64	85,595.04	19,030.39	Rail/Water (43.4%)	43.4%
Coal-n.e.c.	43,561.85	55,429.34	11,867.50	Pipeline (87.7%)	0.0%
Gravel	32,453.57	39,813.87	7,360.30	Truck (81.6%)	11.1%
Waste/scrap	7,504.79	14,098.91	6,594.13	Truck (86.8%)	0.9%
Base metals	10,094.42	15,953.33	5,858.90	Truck (74.0%)	1.5%
Nonmetal min. prods.	4,550.90	8,057.21	3,506.31	Truck (98.4%)	0.0%
Other foodstuffs	5,244.06	8,550.72	3,306.67	Truck (99.8%)	0.0%
Basic chemicals	3,678.17	6,708.28	3,030.11	Truck (37.5%)	10.4%
Chemical prods.	2,652.50	5,011.59	2,359.09	Truck (92.0%)	0.0%
Plastics/rubber	2,098.19	4,025.72	1,927.53	Truck (74.7%)	0.0%
Animal feed	4,000.76	5,909.87	1,909.11	Truck (89.0%)	5.4%
Motorized vehicles	4,617.87	6,027.04	1,409.17	Truck (94.6%)	0.0%
Machinery	876.50	2,073.43	1,196.93	Truck (94.9%)	0.0%
Electronics	827.78	1,966.38	1,138.60	Truck (94.9%)	0.0%
Live animals/fish	1,849.46	2,643.90	794.44	Truck (100.0%)	0.0%

It is equally important to understand the projected declines in the tonnage of commodities originating in the ROK that could potentially impact ERIDA. Table 8 lists those commodities and illustrate the projected decreases. Note that other ag products include soybeans and cereal grains include corn.

Table 8: Commodities originating in the ROK Projected to Decline > 100 KTONs, 2040

Commodity	2018 KTONs	2040 KTONs	Change in KTONs	Predominant Mode	Water Share
Crude petroleum	505.49	360.53	(144.97)	Water (41.8%)	41.8%
Fuel oils	7,130.97	6,912.26	(218.71)	Truck (48.6%)	7.3%
Other ag prods.	4,456.45	4,055.81	(400.64)	Truck (71.1%)	28.8%
Natural sands	3,211.03	2,262.28	(948.76)	Truck (100.0%)	0.0%
Newsprint/paper	4,737.66	3,486.05	(1,251.62)	Truck (84.5%)	0.0%
Gasoline	13,452.87	11,077.91	(2,374.96)	Pipeline (74.4%)	0.0%
Cereal grains	13,405.91	10,779.46	(2,626.45)	Truck (69.8%)	25.2%
Logs	12,291.77	4,113.73	(8,178.05)	Truck (99.8%)	0.0%

Commodities destined for the ROK that are projected to increase by more than one million tons, shown in Table 9, are important to consider as potential development opportunities to offload commodities at either facility to move to final destination. Highlighted commodities are those that are expected to have a significant share moved on the waterways and would be potential industries to consider for development opportunities.

Table 9: Commodities Destined for ROK > 1 Million Ton Increase in 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Coal-n.e.c.	34,536.42	81,734.62	47,198.20	Pipeline (81.6%)	0.6%
Basic chemicals	5,495.53	13,666.62	8,171.09	Rail (37.2%)	20.2%
Nonmetal min. prods.	7,851.56	13,393.36	5,541.81	Truck (98.4%)	0.0%
Coal	29,029.67	34,367.99	5,338.32	Rail (57.2%)	11.9%
Gravel	31,538.26	36,753.17	5,214.91	Truck (93.6%)	4.4%
Waste/scrap	9,467.23	13,935.26	4,468.03	Truck (81.6%)	6.6%
Other foodstuffs	6,139.33	9,396.50	3,257.17	Truck (94.4%)	0.5%
Fertilizers	1,864.51	5,095.21	3,230.70	Truck (78.9%)	0.0%
Fuel oils	4,710.57	7,293.42	2,582.85	Truck (83.4%)	7.0%
Animal feed	4,023.84	5,970.77	1,946.92	Truck (91.8%)	0.0%
Base metals	10,251.29	11,974.86	1,723.57	Truck (45.1%)	34.7%
Wood prods.	3,850.52	5,555.40	1,704.88	Truck (89.4%)	0.0%
Chemical prods.	1,976.50	3,558.63	1,582.13	Truck (93.1%)	0.0%
Building stone	116.31	1,656.41	1,540.10	Truck (95.4%)	0.0%
Gasoline	5,566.46	7,007.20	1,440.74	Truck (97.2%)	0.0%
Nonmetallic minerals	1,532.26	2,754.85	1,222.59	Truck (64.9%)	32.6%
Machinery	1,265.92	2,305.20	1,039.27	Truck (71.5%)	0.0%
Mixed freight	3,188.54	4,199.70	1,011.17	Truck (95.2%)	0.0%

Looking more broadly at freight trends for the State provide additional insights into opportunities to increase volumes moving through ERIDA facilities. Table 10 shows the 17 fastest growing commodities by tonnage expected to originate in Kentucky in 2040. Further analysis suggest areas highlighted in yellow are potential growth areas. Commodities expected to contract in terms of volumes shipped are included in Table 11.

Table 10: Fastest Growing Commodities Originating in Kentucky by Ton, 2040

Commodity	2018 Ktons	2040 Ktons	Increase in Ktons	Predominant Mode	Water Share
Coal	66,564.70	87,073.64	20,508.95	Rail (44.4%)	42.6%
Coal-n.e.c.	48,690.10	60,376.65	11,686.55	Pipeline (86.4%)	0.0%
Gravel	54,709.87	65,321.22	10,611.35	Truck (72.1%)	21.8%
Waste/scrap	11,433.72	19,784.25	8,350.53	Truck (87.3%)	3.3%
Nonmetal min. prods.	11,863.56	20,010.55	8,147.00	Truck (81.8%)	15.7%
Base metals	11,010.87	18,031.06	7,020.19	Truck (76.2%)	1.4%
Other foodstuffs	7,184.42	12,319.39	5,134.96	Truck (99.7%)	0.0%
Basic chemicals	5,312.87	10,208.92	4,896.05	Truck (43.5%)	6.9%
Chemical prods.	3,479.45	6,600.89	3,121.43	Truck (90.9%)	0.0%
Plastics/rubber	3,243.83	6,283.50	3,039.67	Truck (78.2%)	0.0%
Animal feed	4,895.37	7,287.93	2,392.55	Truck (90.8%)	4.4%
Machinery	1,474.34	3,396.00	1,921.66	Truck (89.7%)	0.0%
Motorized vehicles	12,251.58	14,136.59	1,885.01	Multiple modes/mail (97.6%)	0.0%
Electronics	1,160.92	2,840.48	1,679.56	Truck (82.0%)	0.0%
Mixed freight	5,278.12	6,778.76	1,500.64	Truck (99.3%)	0.0%
Milled grain products	1,178.92	2,098.20	919.29	Truck (99.6%)	0.0%
Live animals/fish	2,072.81	2,988.62	915.80	Truck (100.0%)	0.0%

Table 11: Commodities Originating in Kentucky with Shipments Projected to Decline by 100 Ktons or More, 2040

Commodity	2018 Ktons	2040 Ktons	Increase in Ktons	Predominant Mode	Water Share
Crude petroleum	505.49	360.53	(144.97)	Pipeline (56.0%)	41.8%
Other ag prods.	6,619.11	6,155.64	(463.47)	Truck (76.9%)	22.6%
Fuel oils	9,450.07	8,248.01	(1,202.06)	Truck (56.9%)	6.2%
Newsprint/paper	4,976.36	3,693.21	(1,283.15)	Truck (84.6%)	0.0%
Cereal grains	14,804.65	12,058.98	(2,745.67)	Truck (71.4%)	23.7%
Gasoline	18,722.20	15,347.03	(3,375.17)	Pipeline (53.7%)	0.0%
Natural sands	9,695.57	6,019.36	(3,676.21)	Truck (100.0%)	0.0%

There are 20 commodities destined for Kentucky that are expected to increase by more than one million tons between 2018 and 2040 as listed in Table 12. Highlighted commodities are potential growth areas for ERIDA based on additional analysis done. Commodities destined for Kentucky that are expected to contract are included in Table 13.

Table 12: Commodities Destined for Kentucky Growing More than 1 Million Tons, 2018 - 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Coal-n.e.c.	47,956.75	111,149.33	63,192.58	Pipeline (84.7%)	0.4%
Coal	39,826.73	58,270.89	18,444.16	Rail (43.9%)	34.7%
Basic chemicals	6,809.62	16,565.56	9,755.94	Rail (38.0%)	16.7%
Waste/scrap	14,231.89	22,419.42	8,187.53	Truck (86.1%)	4.1%
Nonmetal min. prods.	13,385.56	21,130.07	7,744.51	Truck (94.1%)	4.0%
Gravel	48,671.04	54,381.79	5,710.75	Truck (91.5%)	7.1%
Other foodstuffs	9,358.42	14,193.87	4,835.45	Truck (93.0%)	0.7%
Fertilizers	2,061.08	5,785.04	3,723.96	Truck (79.5%)	0.0%
Base metals	12,387.97	15,255.31	2,867.33	Truck (53.4%)	27.2%
Plastics/rubber	3,325.31	5,871.53	2,546.22	Truck (63.1%)	0.2%
Machinery	2,215.58	4,745.64	2,530.06	Truck (69.9%)	0.0%
Animal feed	4,845.34	7,247.66	2,402.33	Truck (93.1%)	0.0%
Wood prods.	5,245.73	7,617.37	2,371.64	Truck (87.9%)	0.0%
Chemical prods.	2,878.99	5,232.20	2,353.21	Truck (91.6%)	0.0%
Alcoholic beverages	1,381.63	3,254.61	1,872.98	Truck (84.0%)	0.1%
Mixed freight	5,342.32	7,086.63	1,744.31	Truck (94.3%)	0.0%
Electronics	1,794.95	3,380.36	1,585.41	Truck (71.8%)	1.6%
Building stone	205.91	1,678.93	1,473.02	Truck (95.5%)	0.0%
Fuel oils	7,207.60	8,513.16	1,305.56	Truck (85.4%)	6.0%
Nonmetallic minerals	2,205.16	3,367.46	1,162.30	Truck (57.5%)	26.7%

Table 13: Commodities Destined for Kentucky with Tonnage Declines Projected, 2018 - 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Motorized vehicles	8,972.34	8,485.28	(487.06)	Truck (92.1%)	0.3%
Other ag prods.	7,124.02	6,413.74	(710.28)	Truck (88.3%)	8.3%
Crude petroleum	13,223.04	12,482.64	(740.41)	Pipeline (98.2%)	1.1%
Newsprint/paper	4,722.31	3,604.78	(1,117.54)	Truck (77.3%)	0.0%
Gasoline	14,084.55	12,044.61	(2,039.94)	Truck (81.1%)	12.8%
Cereal grains	12,282.09	9,145.16	(3,136.93)	Truck (92.7%)	0.0%
Natural sands	10,021.90	6,177.10	(3,844.79)	Truck (99.5%)	0.3%
Logs	12,182.83	4,351.72	(8,831.11)	Truck (99.9%)	0.0%

Economic Trends and Unintended Impacts

It is important to consider broader economic trends with growing impacts on industry and logistics. Trends discussed in detail in the final section will help ERIDA in its deliberations on targeting potential growth opportunities. Impacts from the COVID-19 pandemic and economic fallout create a level of uncertainty about the medium-term future but are considered in the discussion of the important trends to consider that include:

- E-commerce
- Global trade
- Emerging technologies
- Population shifts

As ERIDA and the entire region begins to leverage its natural and built assets to meet its goals for the future, it is also important to plan for mitigating the negative side effects of growth. It is clear through the development of the vision, mission and values developed for ERIDA that the quality of life in the region is important to balance with the need for economic diversity and jobs growth. Through careful planning, the region will grow responsibly avoiding bottlenecks and congestion, maintaining the area's quality of life for its residents, and protecting its natural and cultural resources for residents and tourists.

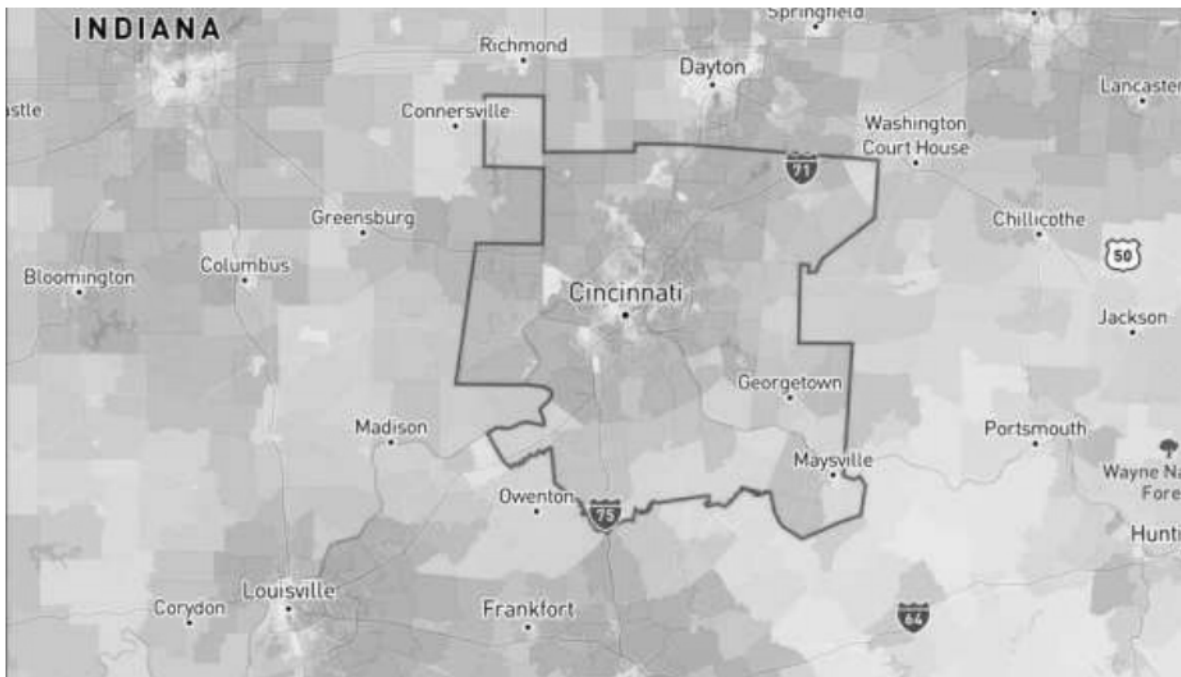
Current State: 2018

Introduction

It is important to understand the current and projected future freight flows in the study area and the State of Kentucky to identify areas of opportunity for the ERIDA to maximize its potential at both the Riverport and the industrial park. Data collected to support this analysis comes from the Federal Highway Administration's (FHWA) Freight Analysis Framework version 4 (FAF4). The Freight Analysis Framework (FAF), produced through a partnership between USDOT Bureau of Transportation Statistics (BTS) and FHWA, integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. Starting with data from the 2012 Commodity Flow Survey (CFS) and international trade data from the Census Bureau, FAF incorporates data from agriculture, extraction, utility, construction, service, and other sectors.³

FAF4 provides estimates for tonnage (in **thousand tons or Ktons**), value (in **million dollars**), and ton-miles (**millions**) by regions of origin and destination, commodity⁴ type, and mode of transport. Kentucky information is split among 2 major metropolitan areas known as Consolidated Statistical Areas (CSAs), and with the rest of the State captured together (Rest of Kentucky). The two CSAs are Louisville/Jefferson County-Elizabethtown-Madison and Cincinnati-Wilmington-Maysville.

Figure 12: Map of Cincinnati-Wilmington-Maysville CSA



³ <https://faf.ornl.gov/fafweb/Default.aspx>

⁴ Commodities are defined by the 2012 Commodity Flow Survey Standard Classification of Transported Goods (SCTG). The SCTG reference guide that delineates what is included in each commodity category can be found at [https://bhs.econ.census.gov/bhs/cfs/Commodity%20Code%20Manual%20\(CFS-1200\).pdf](https://bhs.econ.census.gov/bhs/cfs/Commodity%20Code%20Manual%20(CFS-1200).pdf)

Kentucky counties included with the Cincinnati Consolidated Statistical Area include: Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton. In 2018, this CSA had a population of 2,249,416 and was ranked as the 30th largest CSA in the U.S.

Figure 13: Map of Louisville/Jefferson County-Elizabethtown-Madison CSA



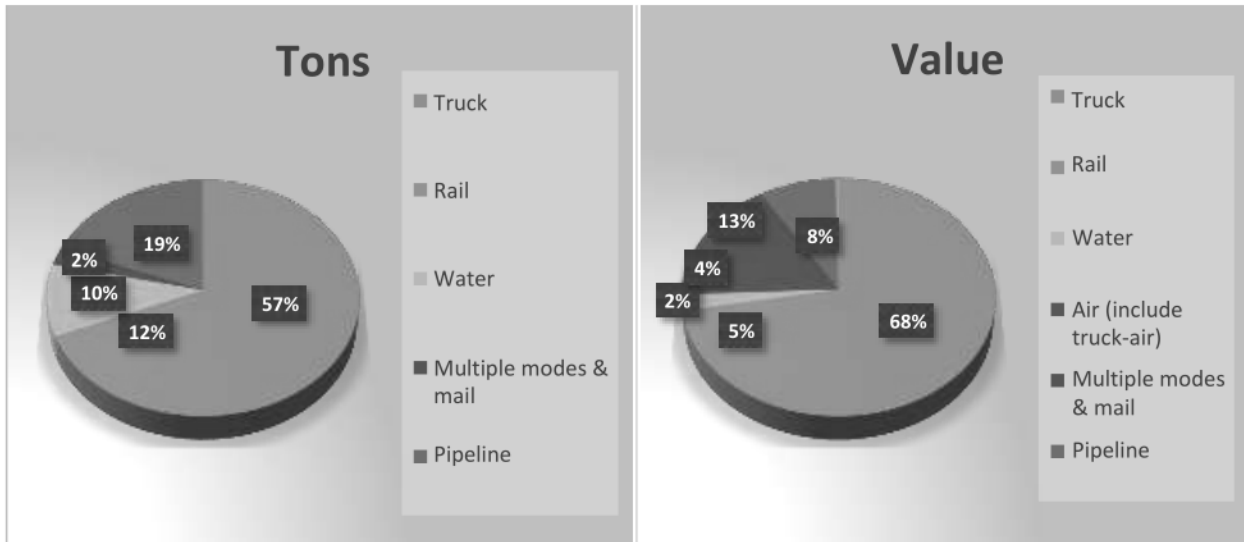
The counties in the Louisville Consolidated Statistical Area include: Bullitt, Henry, Jefferson, Meade, Oldham, Shelby, Spencer, Trimble, Hardin, LaRue and Nelson. In 2018, this CSA had a population of 1,528,738 and was ranked as the 38th largest CSA in the U.S.

Lyon County and its surrounding counties are included in the rest of Kentucky in the FAF4 database.

Total Freight Movements by Mode

Nearly 490 million tons of freight traversed the area defined as the rest of Kentucky (ROK) in 2018, valued at over \$356 billion (current \$s 2018) as show in Figure 14. Trucks carry the majority of the freight in the ROK based on both tonnage (57.3%) and value (67.5%). Pipeline carried 19% of the tonnage representing 8.4% of the value and water carried 9.8% of the tonnage representing 2.2% of the value. Rail carried 11.5% of the tonnage but only 4.6% of the value.

Figure 14: Rest of Kentucky Freight Flows Tons and Value by Mode, 2018



Source: FAF4 data for 2018, FHWA

Total ROK Intra-regional Movements

Included in the shipments was freight that was destined to, from and within the ROK. Freight movements that both originated and terminated in the region totaled 112 million tons valued at \$41 billion. The vast majority of intraregional movements were by truck based on both tonnage (86.9%) and value (80.6%). Kentucky’s inland waterways moved 6.2% of the tonnage and pipelines carried another 4.0% of the intraregional freight. Rail represented only 2.7% of the intraregional tonnage.

The greater reliance on trucks for intraregional movements reflects the need for greater flexibility and the lower distances required to move freight within the region. Within the ROK region, 77.9% of freight movements are less than 100 miles and 99.2% of freight movements are less than 250 miles. Given the short distances, trucking cargo makes the most sense. The top 5 commodities tonnage moved within the ROK account for 70.1% of cargo moved less than 100 miles and the top 10 commodities by tonnage account for 88.9%. The top 5 commodities by tonnage moved within the ROK are gravel, logs, cereal grains, coal, and waste/scrap.

Total Statewide Movements

Over 673 million tons of freight moved from, to and within the State of Kentucky in 2018, valued at \$761 billion. The ROK freight movements represented 72.7% of the State’s tonnage but only 46.8% of the value which suggests that the freight moving out of the Cincinnati and Louisville areas are lower in tonnage but of higher value.

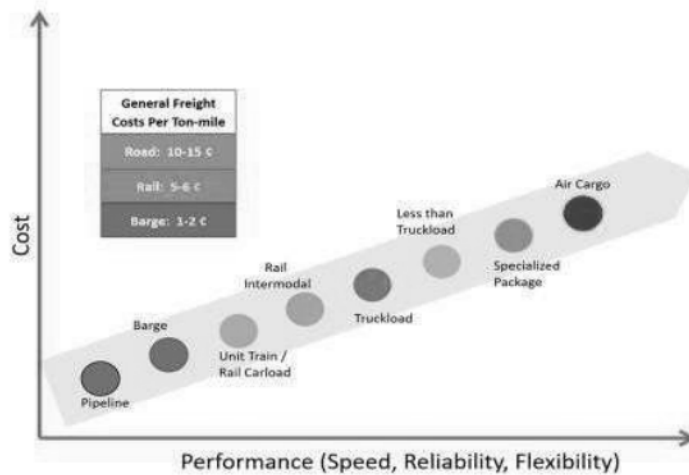
The top 5 commodities shipped from the Kentucky portion of the Cincinnati CSA by value were motorized vehicles, machinery, textiles/leather, pharmaceuticals, and electronics. While motorized vehicles represent the 3rd largest commodity originated by tonnage, machinery was 18th by tonnage, textiles/leather 20th by tonnage, pharmaceuticals 28th by tonnage and electronics 30th by tonnage.

The top 5 commodities shipped from the Kentucky portion of the Louisville CSA by value were motorized vehicles, electronics, machinery, precision instruments and pharmaceuticals. By tonnage these commodities ranked 4th, 27th, 22nd, 34th and 32nd respectively.

Breaking down the statewide total of freight moved indicates that trucks carried 61.1% of the tonnage and 67.1% of the value. Pipelines carried 16.5% of the tonnage and 4.5% of the value compared to water movements which accounted for 10.5% of the tonnage but only 1.3% of the value. Conversely, air cargo accounted for a mere 0.1% of the tonnage but 12.6% of the value, highlighting that air cargo is typically higher value but low tonnage commodities reflecting the modal service attributes and costs where heavier and bulk commodities with longer lead times and lower value move by slower but less costly modes compared with lighter, highly valued and more time sensitive commodities. Figure 15 illustrates the cost and time to delivery differences.

Figure 15: Modal Service Attributes and Cost

Modal Service Attributes and Cost



Source: Quetica, LLC

Table 14 illustrates the percentage of tonnage and value of freight moved in Kentucky and the study area (ROK) by each of the modes in 2018. As shown, in 2018 the ROK had a greater share of freight moved through pipelines compared to the State and a lower share of freight moved by water. The area outside of the Consolidated Statistical Areas relied more heavily on rail to move freight and by multiple modes and mail. Multiple modes and mail captures intermodal movements and anything moved by parcel post where the mode is not captured once it leaves its point of origin or arrives at its destination.

Table 14: Freight Movement by Mode Shares in Kentucky and the Rest of Kentucky, 2018

Mode	Kentucky		Rest of Kentucky	
	Share of Tonnage	Share of Value	Share of Tonnage	Share of Value
Truck	61.1%	67.1%	57.3%	67.5%
Rail	9.4%	2.9%	11.5%	4.6%
Water	10.5%	1.3%	9.8%	2.2%
Air (include truck-air)	0.1%	12.9%	0.0%	3.5%
Multiple modes & mail	2.3%	10.9%	2.4%	13.4%
Pipeline	16.5%	4.5%	19.0%	8.4%
Other and unknown	0.0%	0.3%	0.0%	0.3%

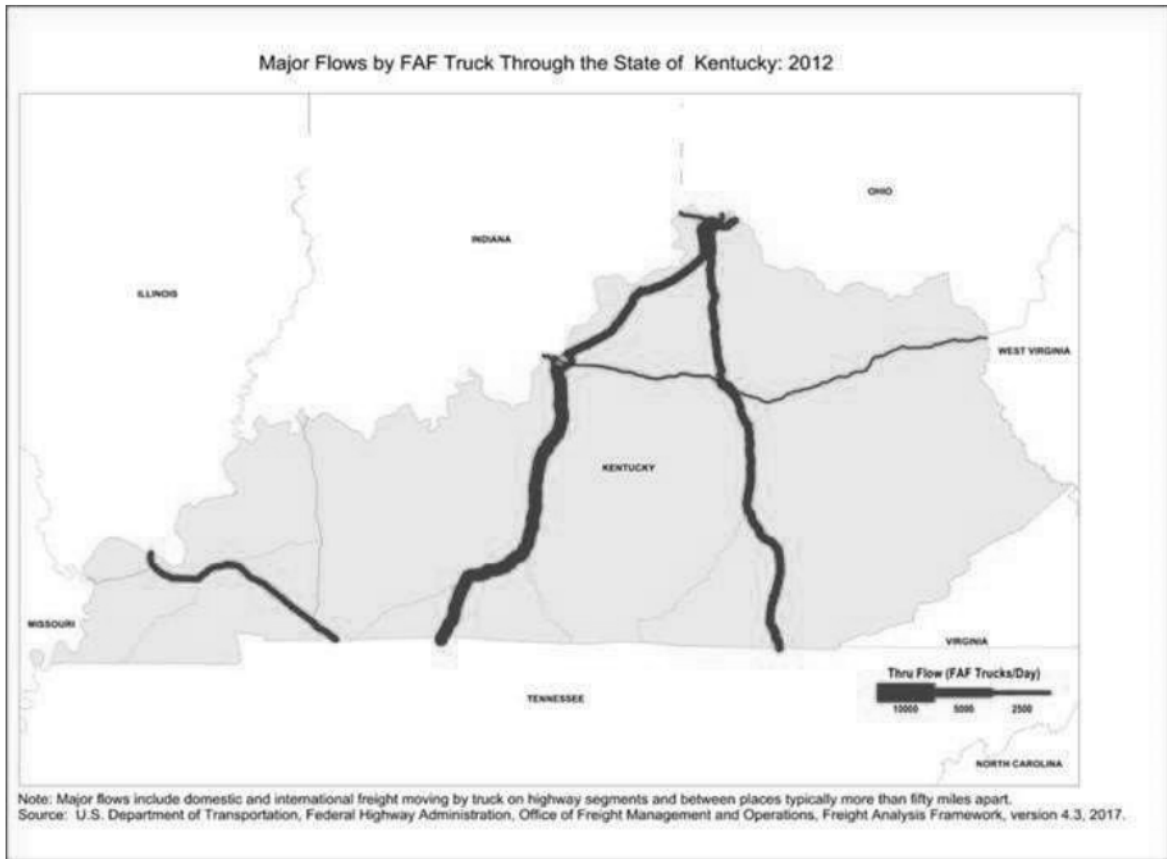
Inbound, Outbound and Intraregional/Intrastate Freight Movements

ROK

More freight originated in the ROK than what was destined for the ROK. Of the freight movements in the ROK, 54.1% originated within the area and 45.9% was destined for the area. The outbound freight totaled 264 million tons valued at over \$179 billion compared to 224 million tons inbound valued at almost \$177 billion. Included in the originating and destined freight were movements that originated and terminated within the region which accounts for 112 million tons of freight and \$41 billion of the value.

Trucks carried a significant share of the freight originating in the ROK, accounting for 52.3% of tonnage moved followed by pipelines at 19.5% with both rail and water accounting for 12.8% of the outbound tonnage each. Trucks carried 66.3% of the freight value followed by multiple modes/mail at 14.2% of the value and pipelines carrying 9.8% of the value. Trucks carried an even the larger share of inbound freight by both tonnage and value at 63.1% of the tonnage and 68.8% of the value. Pipelines carried 18.4% of the tonnage destined for the ROK, followed by rail (9.9%) and water (6.3%). Figure 16 illustrates major truck flows through Kentucky in 2012, the latest mapping available in FAF4.

Figure 16: Truck Flows through Kentucky 2012



Figures 17 and 18 show the tonnage share by mode and direction and the value share by mode and direction, respectively.

Figure 17: Rest of Kentucky Tonnage Share by Mode and Direction, 2018

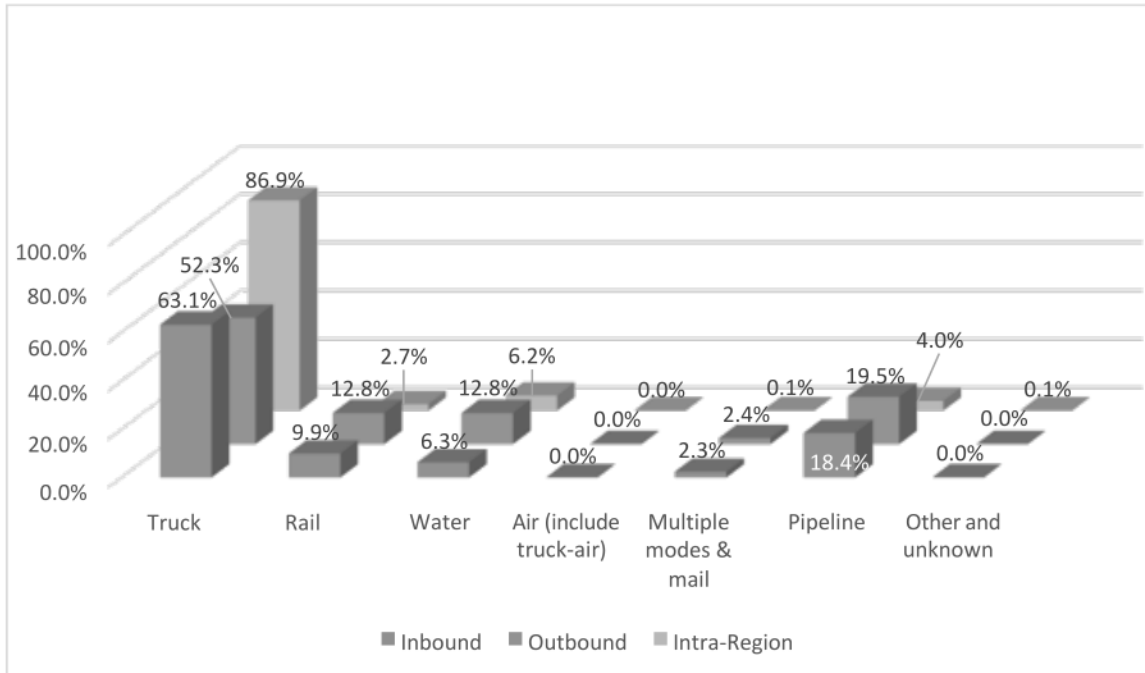
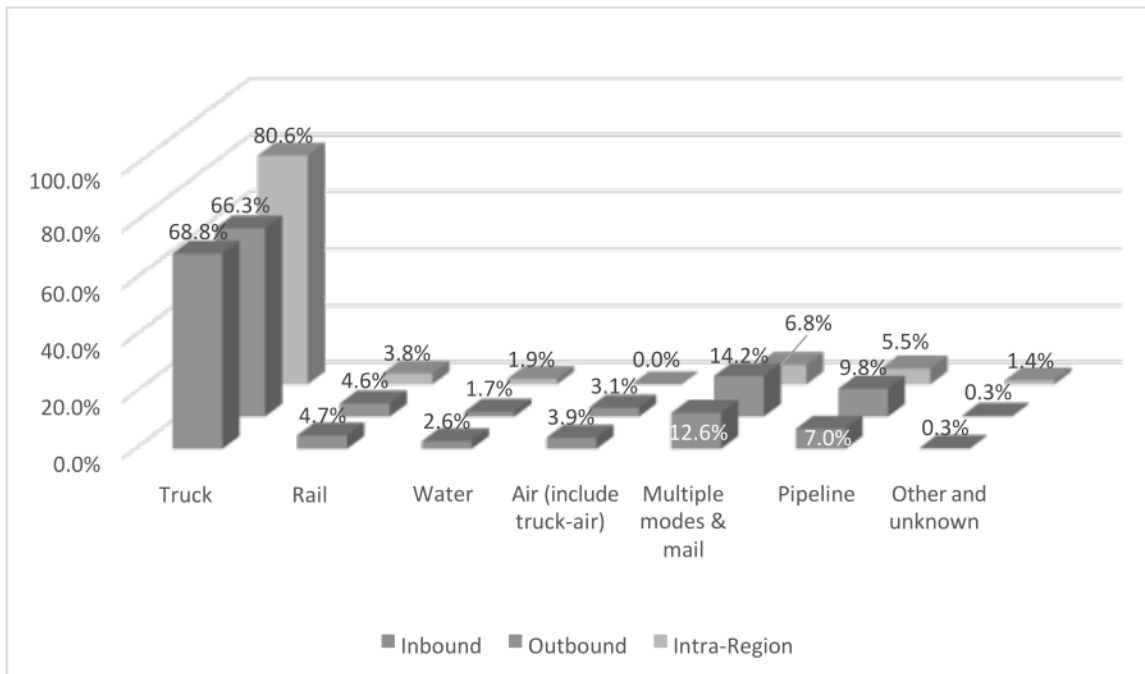


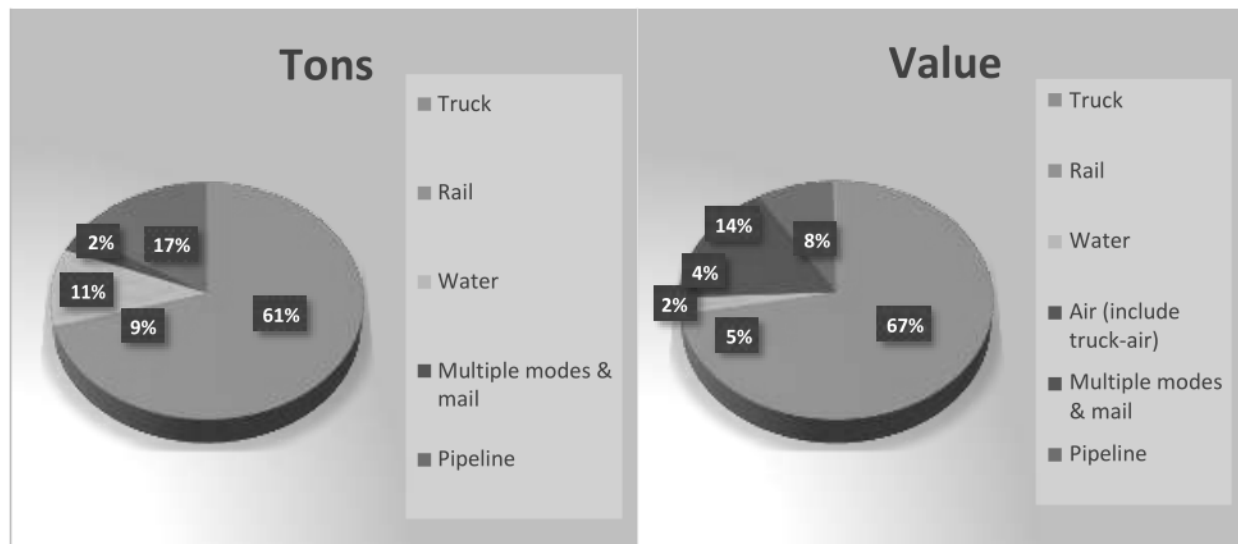
Figure 18: Rest of Kentucky Value of Freight Share by Mode and Direction, 2018



Kentucky

For the State as a whole, the flows were more evenly split in 2018 with freight originating in Kentucky totaling almost 347 million tons compared to freight destined for Kentucky totaling 327 million tons, a 51.5% - 48.5% split. By value, freight originating in Kentucky was \$384.7 billion compared to \$376.9 billion destined for the State, a 50.5% - 49.5% split. Included in those totals were 175 million tons of freight that constituted intrastate movements. The total value of the intrastate movements was \$116.7 billion. Intrastate movements accounted for 25.9% of total tonnage of freight moved but only 15.3% of the value of the freight moved. Figure 19 illustrates the modal split for all freight movements in the State.

Figure 19: State of Kentucky Freight Movement by Tons and Value, 2018



Much like the ROK, the majority of freight originating in Kentucky was moved by truck, 58.3% by tonnage and 66.9% by value. Trucks were more predominant in shipments destined for the State, accounting for 64.2% of tons moved and 67.4% of the value. Intrastate movements were also dominated by trucking, much like the ROK study area, where trucks moved 83.2% of the tonnage and 88.2% of the value.

Based on tonnage of freight originating in Kentucky, pipelines, water, and rail moved 16.1%, 12.8% and 10.2%. Air cargo accounted for 13.4% of the value moved followed by multiple modes/mail which accounted for 10.9% of the value. Freight destined for Kentucky was balanced with goods originating in the state with 16.8% of the tonnage arriving via pipeline, 8.5% by rail and 8.0% by water. Similarly, 12.3% of the value of good destined for Kentucky were shipped via air and 10.9% arrived by multiple modes of transportation/mail.

Like the ROK, cargo moving within the State was dominated by trucks which hauled 83.2% of the tonnage and 88.2% of the value. Surprisingly, water accounted for 9.8% of the intrastate tonnage movements.

Figures 20 and 21 illustrate the tonnage share by mode and direction for 2018 and the value of shipments by mode and direction for 2018.

Figure 20: State of Kentucky Tonnage Share by Mode and Direction, 2018

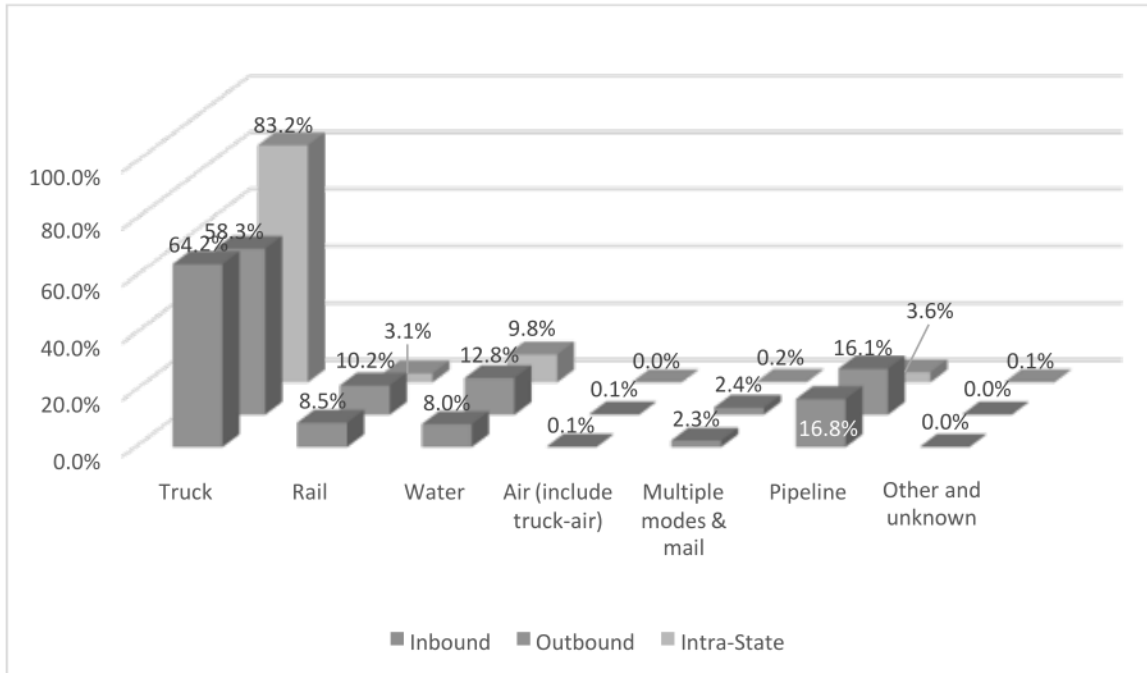
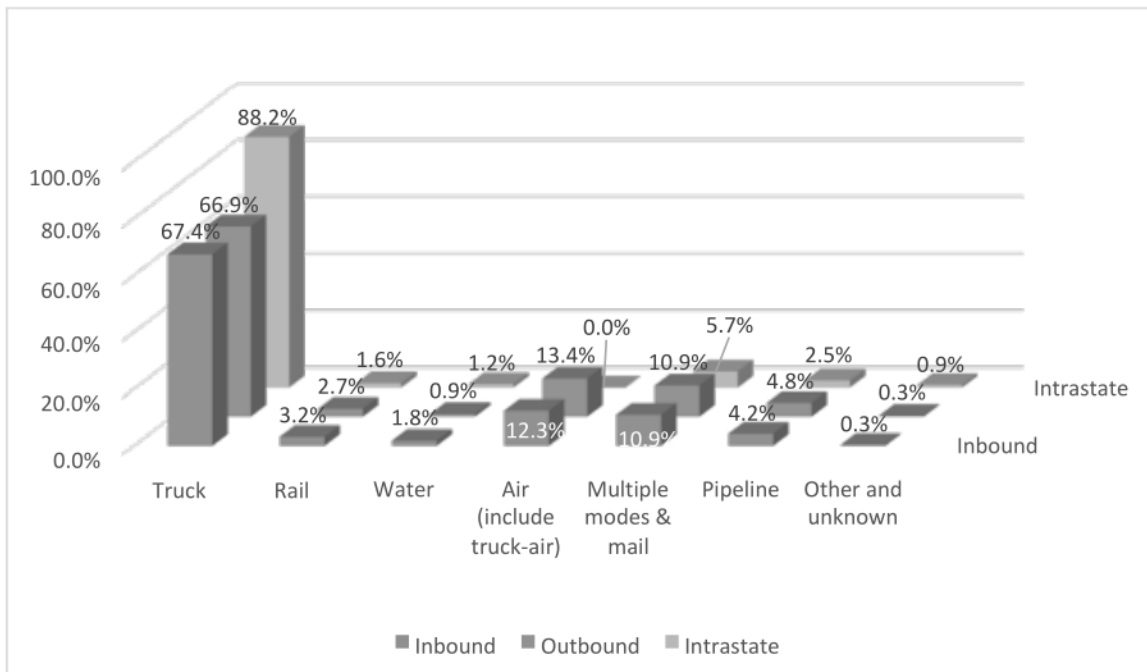


Figure 21: State of Kentucky Value of Freight Share by Mode and Direction, 2018



Top Commodity Movements

ROK

Commodities are classified using the Standard Classification for Transported Goods at the two-digit level (SCTG). The top 3 commodities by tonnage (coal, coal - not elsewhere classified⁵ and gravel) account for 48.6% of all freight originating and destined for the ROK, with a total of 142 million tons. By value, these movements account for only 6.9% of the value of freight originating and destined for the ROK area. The top 10 commodity movements by weight and value are listed in Table 15.

Table 15: Top Ten Commodities Originating and Destined Combined for the Rest of Kentucky by Tonnage and Value, 2018

Commodity (SCTG2)	Share of Tons Moved	Commodity (SCTG2) [rank of share by tons]	Share of Value of Goods Moved
Coal	19.5%	Pharmaceuticals [38]	10.8%
Coal – n.e.c.	16.0%	Motorized vehicles [15]	10.5%
Gravel	13.1%	Base Metals [6]	7.7%
Cereal grains	5.0%	Machinery [25]	7.3%
Logs	5.0%	Mixed freight [20]	5.5%
Base metals	4.2%	Electronics [28]	5.5%
Gasoline	3.9%	Coal-n.e.c. [2]	5.4%
Waste/scrap	3.5%	Gasoline [7]	3.4%
Crude petroleum	2.8%	Textiles/leather [35]	3.3%
Nonmetal min. prods.	2.5%	Plastics/rubber [22]	3.3%

When separating outbound (originating) freight from inbound (destined for) freight, the top 3 commodities are the same, however in different order. The outbound and inbound includes freight that originates and terminates within the ROK. For example, while gravel accounts for 13.1% of the tonnage moved to and from the ROK, almost 43% of the gravel stays within the ROK. For Coal and logs, 15.3% of the coal and 48.7% of the logs moved stays within the ROK region.

The top ten commodities by tonnage originating in the ROK are depicted in Figure 22. The Top 10 commodities represent 79.9% of the tons of cargo originating in the region. Not surprisingly coal and coal – n.e.c. are the top two commodities by tonnage originating in the ROK. Followed by gravel, gasoline, and cereal grains (which does not include soybeans) rounding out the top five commodities by tonnage originating in ROK. The top 5 commodities originating in the ROK by value are motor vehicles, pharmaceuticals, base metals, machinery, and coal – n.e.c. The top ten commodities by value originating in the ROK are shown in Figure 23.

⁵ Coal – net elsewhere classified (SCTG2 – 19) includes lubricating oil and greases and other refined petroleum oils and oils obtained from bituminous minerals, not elsewhere classified. See [https://bhs.econ.census.gov/bhs/cfs/Commodity%20Code%20Manual%20\(CFS-1200\).pdf](https://bhs.econ.census.gov/bhs/cfs/Commodity%20Code%20Manual%20(CFS-1200).pdf)

Figure 22: Top Ten Commodities Originating in the ROK and Share of Total Originating Tonnage, 2018

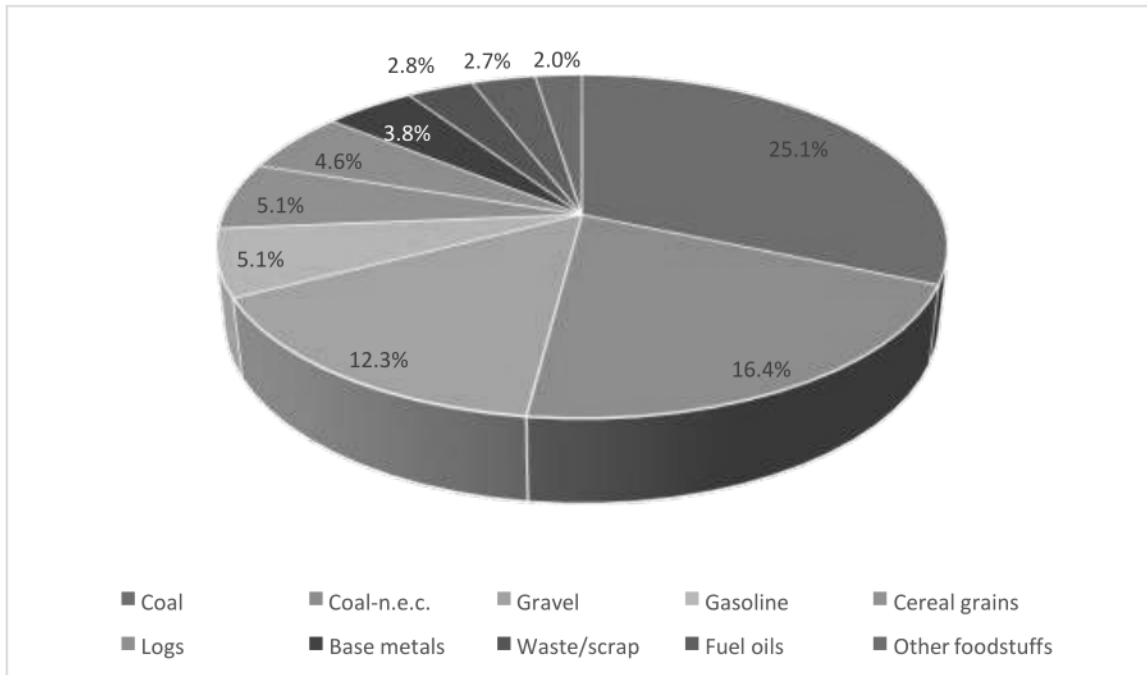
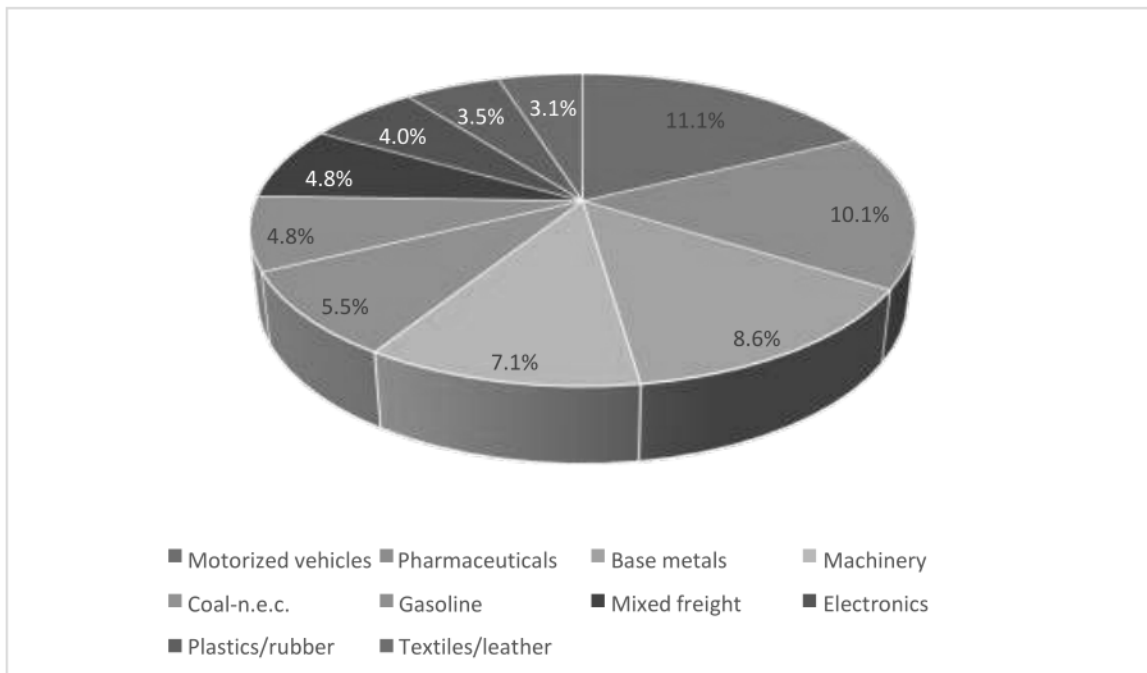


Figure 23: Top Ten Commodities Originating in the ROK and Share of Total Originating by Value, 2018



On the other side of the ledger are the top ten commodities destined for the ROK, which account for 73.6% of all of the tonnage destined for the ROK. The top commodities by tonnage destined for the ROK

are concentrated in the mining and energy sector with coal – n.e.c., gravel, coal, crude petroleum, and logs rounding out the top five. Figure 24 illustrates the top ten commodities by tonnage destined for the ROK. By value, the top ten commodities destined for the ROK account 64.1% of inbound shipments. The top five by value include pharmaceuticals, motor vehicles, machinery, electronics, and base metals. Figure 25 depicts the top ten commodities inbound to the ROK by value.

Figure 24: Top Ten Commodities Destined for the ROK and Share of Total Terminating Tonnage, 2018

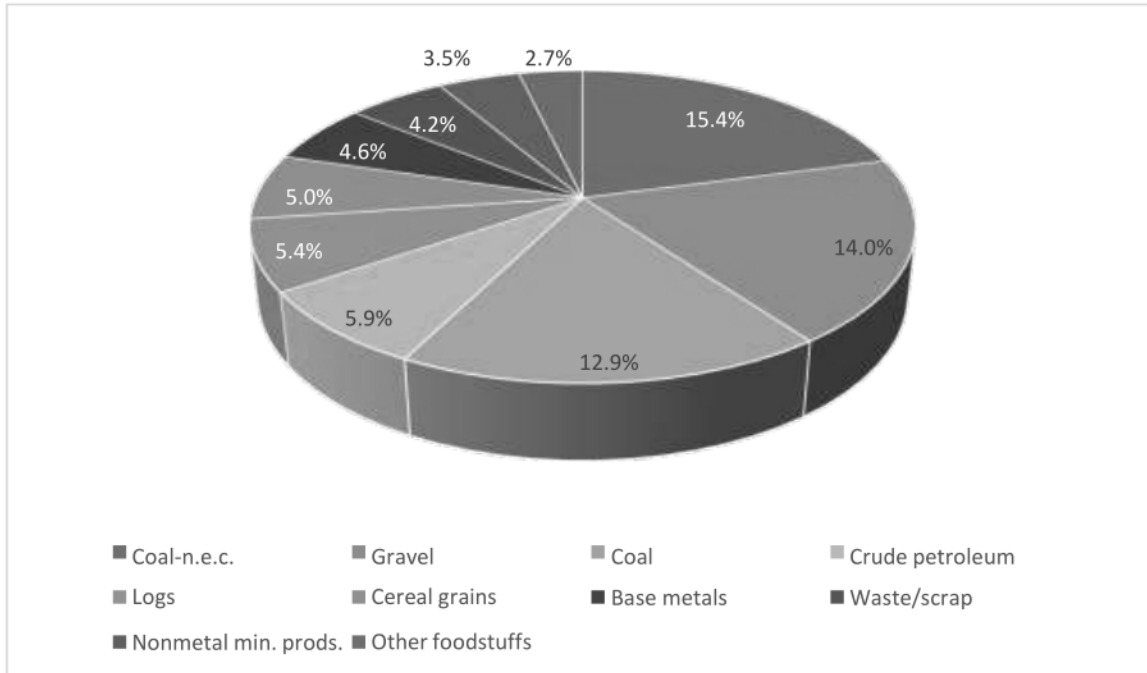
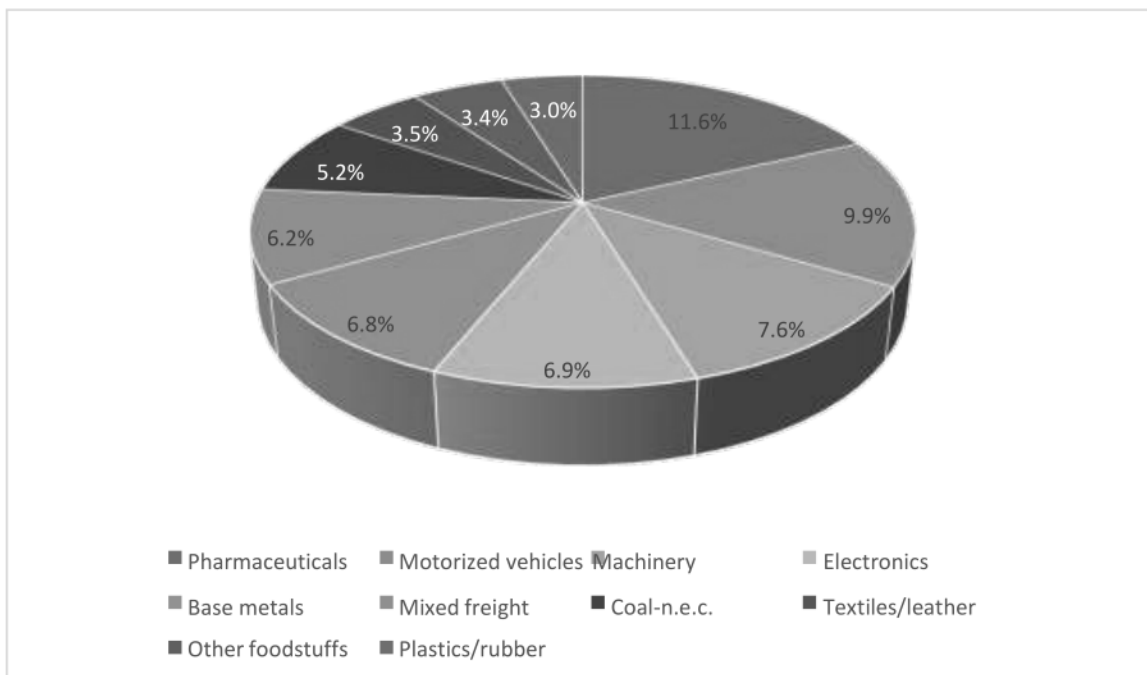


Figure 25: Top Ten Commodities Destined for the ROK and Share of Total Terminating by Value, 2018



In looking at the commodities that both originated and terminated in the ROK, the top five by tonnage were gravel, coal, logs, cereal grains, and coal – n.e.c. By value, the top 5 commodities moving within the ROK were motorized vehicles, base metals, fuel oils, mixed freight, and pharmaceuticals. Mixed freight includes items for grocery stores, hardware, plumbing supplies, office supplies and supplies/food for restaurants and fast-food chains.

Kentucky

For the State of Kentucky, the top three commodities mirror the top three commodities for the ROK region. Coal accounts for 15.8% of the tonnage moved both outbound and inbound in the State, gravel accounts for 15.3% and coal – n.e.c. accounts for 14.3%. But while the top three commodities by tonnage for originating and destined freight account for 45.5% of all tonnage, it accounts for only 4.0% of the value. By value, the top three commodities are motor vehicles at 19.5%, pharmaceuticals at 9.7% and electronics at 9.5%. The top ten commodity movements by weight and value for the entire state are listed in Table 16.

Table 16: Top Ten Commodities Originating and Destined Combined for Kentucky by Tonnage and Value, 2018

Commodity (SCTG2)	Share of Tons Moved	Commodity (SCTG2) [rank of share by tons]	Share of Value of Goods Moved
Coal	15.8%	Motorized vehicles [10]	19.5%
Gravel	15.3%	Pharmaceuticals [37]	9.7%
Coal – n.e.c.	14.3%	Electronics [28]	9.5%
Gasoline	4.9%	Machinery [23]	8.8%
Cereal grains	4.0%	Mixed freight [18]	4.4%
Logs	3.9%	Base metals [9]	4.3%
Waste/scrap	3.8%	Textiles/leather [35]	3.4%
Nonmetal min. prods.	3.7%	Coal – n.e.c. [3]	3.2%
Base metals	3.5%	Precision instruments [39]	3.1%
Motorized vehicles	3.2%	Plastics/rubber [21]	2.9%

The top commodities of freight tonnage originating in Kentucky are coal, gravel, coal – n.e.c., gasoline and cereal grains which together account for 58.7% of all the originating tonnage. Gravel, coal, coal – n.e.c., waste/scrap and gasoline are the top five commodities terminating in Kentucky making up 50.5% of freight terminating in Kentucky. Included in those amounts are freight that both originate and terminate in Kentucky. The top five commodities that both originate and terminate within the State are gravel, coal, logs, cereal grains, and natural sands which together is 57.1% of the freight by tonnage moving within the State.

Over half (53.6%) the value of freight originating in Kentucky is concentrated in the top five commodities including, motorized vehicles (23.5%), electronics (9.5%), machinery (8.2%), pharmaceuticals (7.7%) and base metals (4.7%). The top five commodities by value destined for Kentucky account for 51.1% of the total value of freight destined for the State. The top five commodities are motorized vehicles, pharmaceuticals, electronics, machinery, and mixed freight. For freight that both originates and terminates in the State the top five by value are motorized vehicles, pharmaceuticals, machinery, mixed freight, and gasoline for a total of 56.8% of the value of intrastate freight.

Table 17 illustrates the top ten commodities originating and terminating in Kentucky by tonnage and Table 18 shows the top ten commodities originating and terminating in Kentucky by value.

Table 17: Top Ten Commodities Originating and Terminating in Kentucky by Tonnage, 2018

Commodity (SCTG2)	Share of Tons Originated	Commodity (SCTG2)	Share of Tons Terminating
Coal	19.2%	Gravel	14.9%
Gravel	15.8%	Coal-n.e.c.	14.7%
Coal – n.e.c.	14.0%	Coal	12.2%
Gasoline	5.4%	Waste/scrap	4.4%
Cereal grains	4.3%	Gasoline	4.3%
Logs	3.8%	Nonmetal min. prods.	4.1%
Motorized vehicles	3.5%	Crude Petroleum	4.0%
Nonmetal min. prods.	3.4%	Logs	4.0%
Waste/scrap	3.3%	Base metals	3.8%
Base metals	3.2%	Cereal grains	3.8%

Table 18: Top Ten Commodities Originating and Terminating in Kentucky by Value, 2018

Commodity (SCTG2)	Share of Value Originating	Commodity (SCTG2)	Share of Tons Terminating
Motorized vehicles	23.5%	Motorized Vehicles	15.4%
Electronics	9.5%	Pharmaceuticals	11.7%
Machinery	8.2%	Electronics	9.6%
Pharmaceuticals	7.7%	Machinery	9.5%
Base metals	4.7%	Mixed freight	4.9%
Textiles/leather	3.9%	Base metals	4.0%
Mixed freight	3.9%	Precision instruments	3.8%
Gasoline	3.1%	Coal-n.e.c.	3.5%
Coal-n.e.c.	3.0%	Misc. mfg. prods.	3.0%
Plastic/rubber	2.8%	Textiles/leather	2.9%

Top Commodities Moved by Mode and Direction

ROK

Trucking dominates freight movements originating in the ROK region. Of the top 10 commodities originating in the region, trucks move the vast majority of half of the top 10 commodities. Pipelines move the majority of the tonnage of coal – n.e.c. (liquefied coal products) and gasoline. Coal is moved primarily by rail and water while fuel oils movements are split between truck and pipeline. Figure 26 illustrates the top ten originating commodities by tonnage by mode.

As in the top ten commodities by tonnage, the top ten by value are also predominantly moved by truck with all but 3 having more than 65% of the value of the commodities shipped over the road. Pipelines move the majority of the value of gasoline and coal – n.e.c. while the greatest share of pharmaceuticals was moved by multiple modes and mail. Figure 27 depicts the top ten originating commodities by value by mode.

Figure 26: Top Ten Commodities Originating in the ROK by Tonnage and Mode, 2018

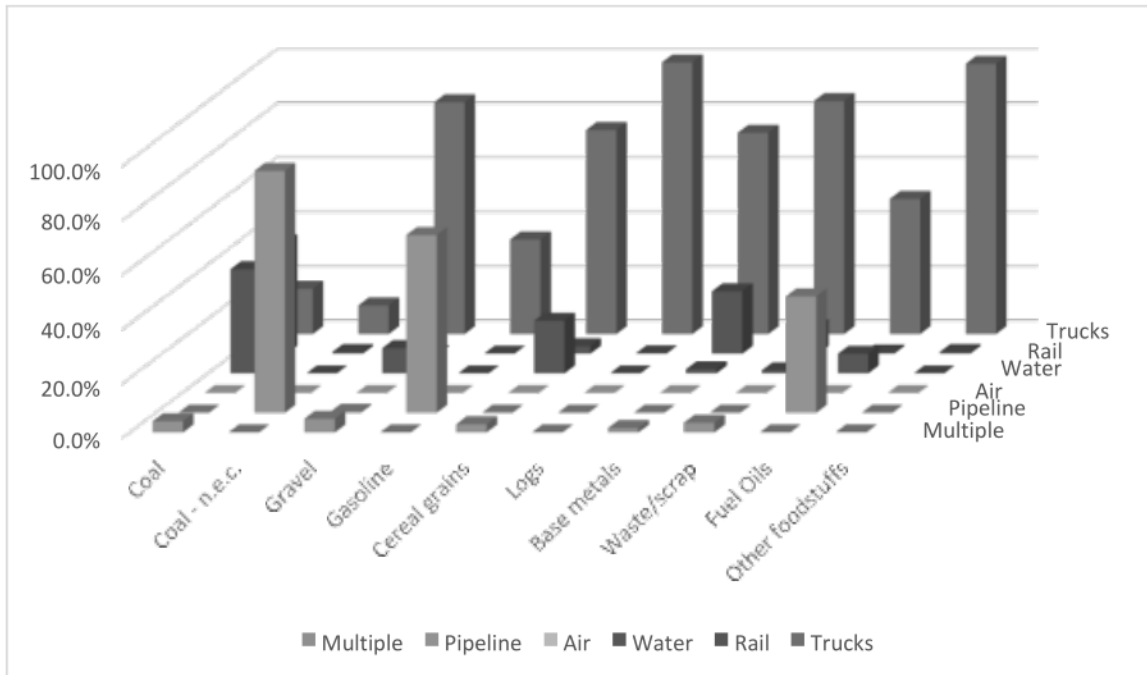
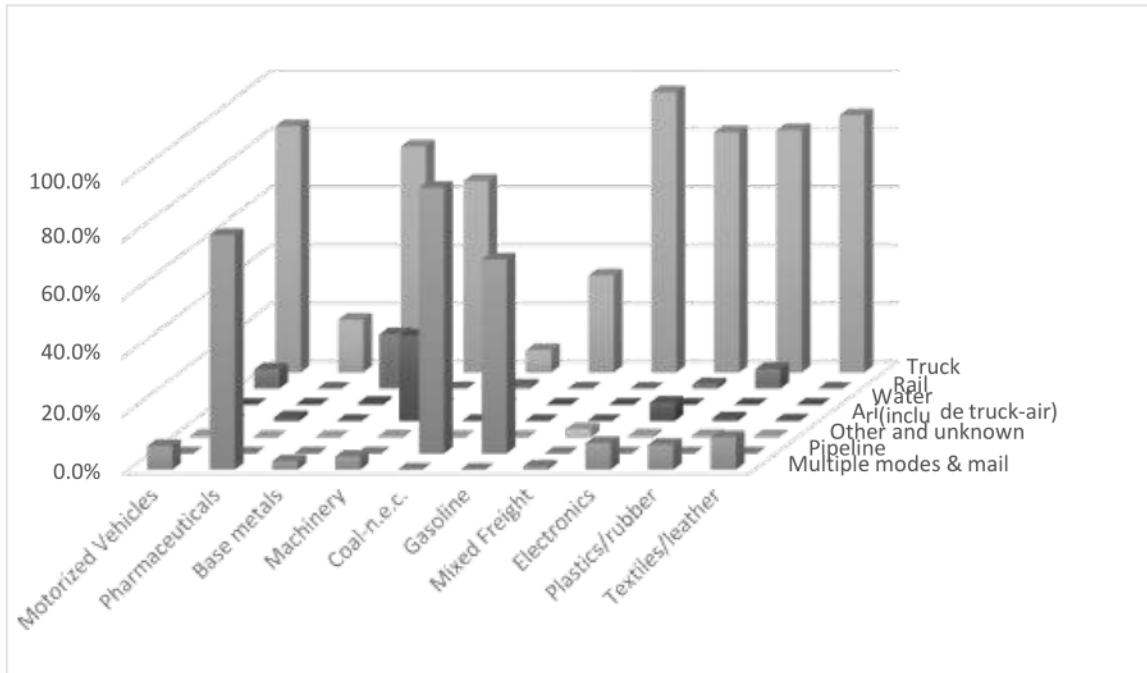


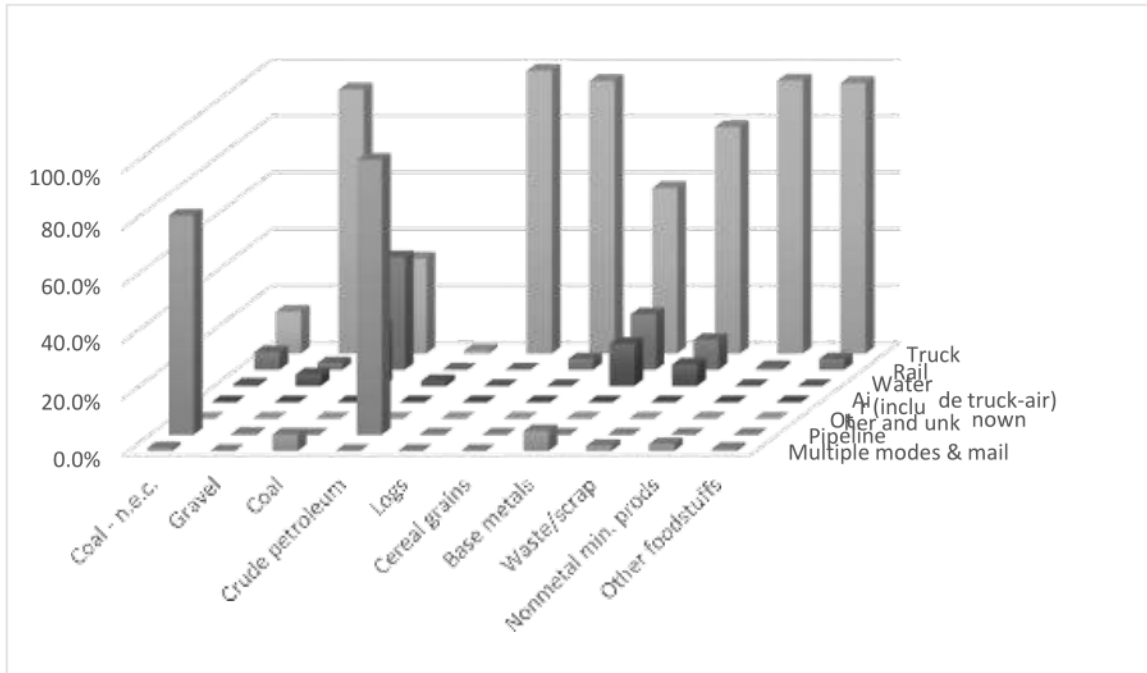
Figure 27: Top Ten Commodities Originating in the ROK by Value by Mode, 2018



The top ten commodities destined for the ROK region by tonnage and mode are shown in Figure 28. For five of the top ten commodities by tons destined for the ROK region, trucking accounts for over 90% of shipments. Not surprisingly, pipeline movements account for over three fourths of the tons of crude petroleum and coal – n.e.c. Water movements play a meaningful role in the movement of coal and base metals, accounting for almost 15% and 25%, respectively. Gravel and logs destined for the ROK stand

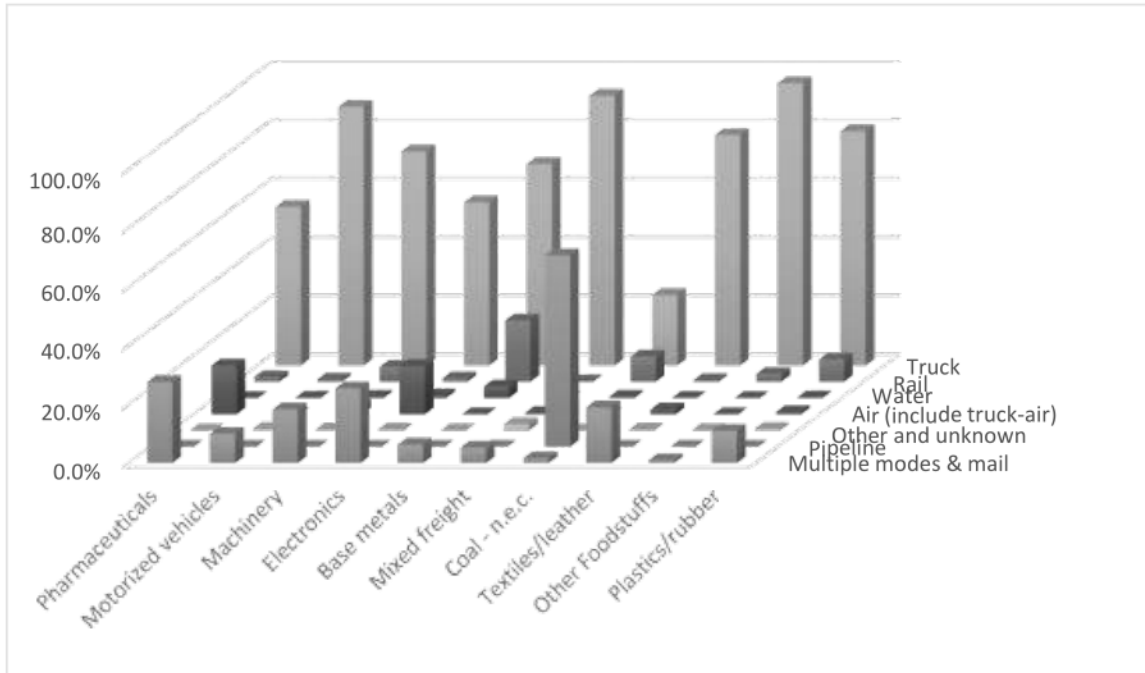
out as potential areas of growth for water movements with trucks moving 93.3% and 99.9% of the tonnage, respectively.

Figure 28: Top Ten Commodities Destined for the ROK by Tonnage and Mode, 2018



By value, the top ten commodities destined for the ROK are somewhat less dependent on trucks with only two of the commodities with over 90% of the value hauled over the road, mixed freight, and other foodstuffs. Multiple modes and mail move some share of each of the top ten commodities by value. Air cargo represents 16.6% of the value of pharmaceuticals moved and 16.5% of the value of electronics. Figure 29 shows the top ten commodities destined for the ROK by value and mode.

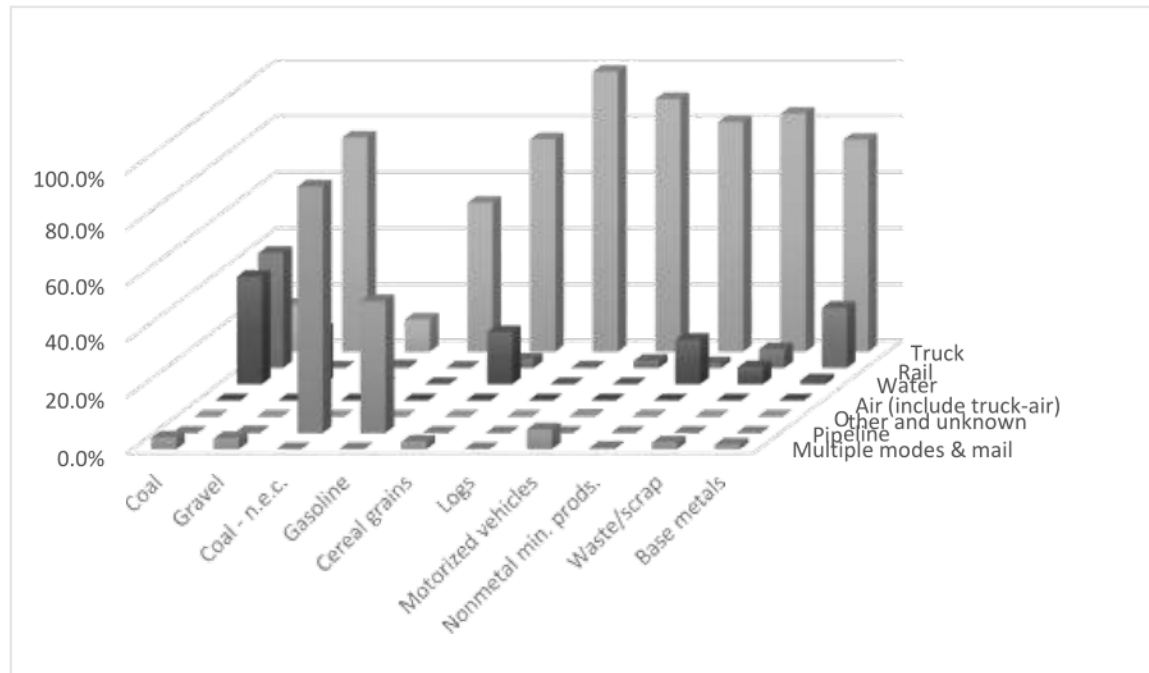
Figure 29: Top Ten Commodities Destined for the ROK by Value and Mode, 2018



Kentucky

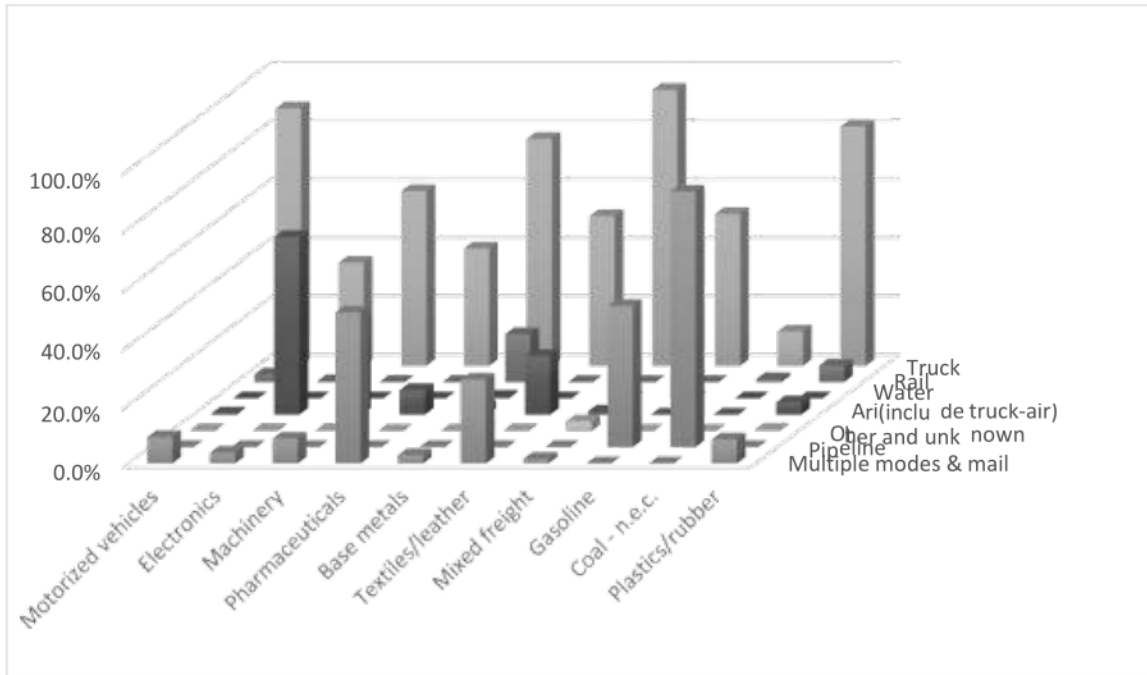
Kentucky is the 4th largest originator of coal in the U.S. by both tonnage and value. Coal is the number one commodity that originates in Kentucky and the transport of coal relies heavily on rail and water. Kentucky is the 6th largest originator of motorized vehicles in the country by tonnage and 4th largest by value. However, motorized vehicles rank only 7th on Kentucky's top ten commodities originated by tons. The shipment of motorized vehicles is highly dependent on truck with trucks accounting for 90% of the tons of motorized vehicles moved. Figure 30 illustrates the top ten commodities originating in the State by tonnage and mode.

Figure 30: Top Ten Commodities Originating in Kentucky by Tonnage and Value, 2018



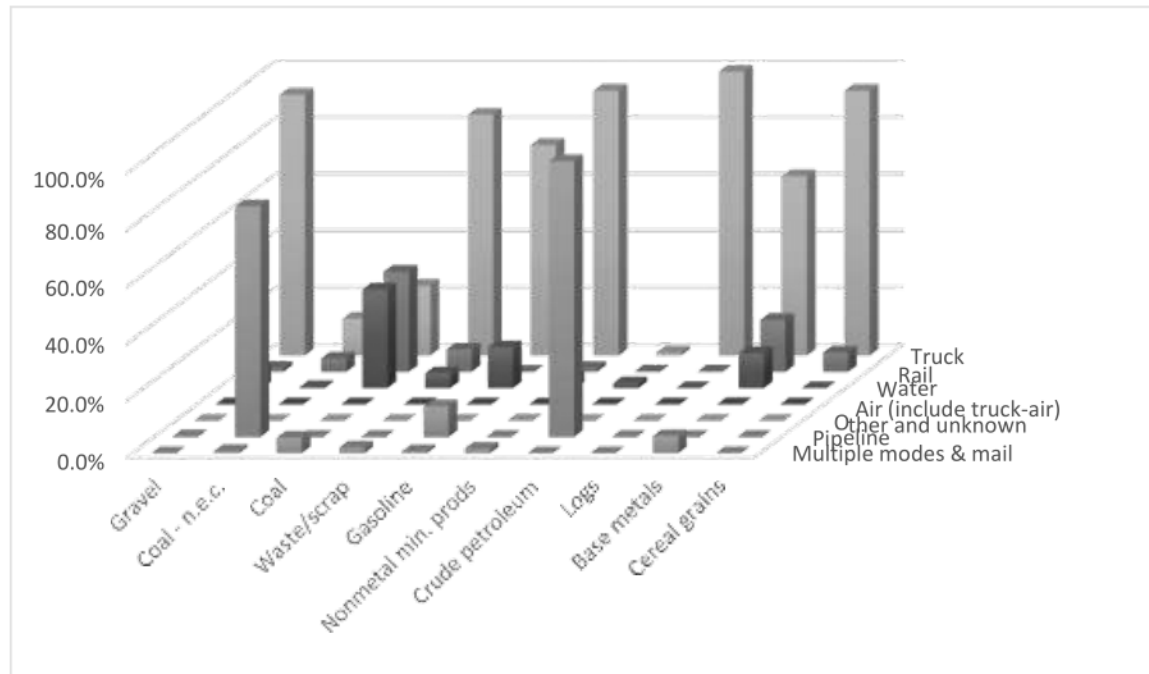
By value, motorized vehicles are the top commodity originating in Kentucky. A far distant second and third are electronics and machinery, in which the State is the 10th and 11th largest originating state in the U.S. The vast majority of originating motorized vehicles, mixed freight and plastics/rubber by value rely on trucking movements. Coal – n.e.c. is primarily shipped through pipelines and pharmaceuticals are moved primarily through multiple modes / mail with electronics shipped via air. Figure 31 illustrates the top ten commodities originating in Kentucky by value by mode.

Figure 31: Top Ten Commodities Originating in Kentucky by Value by Mode, 2018



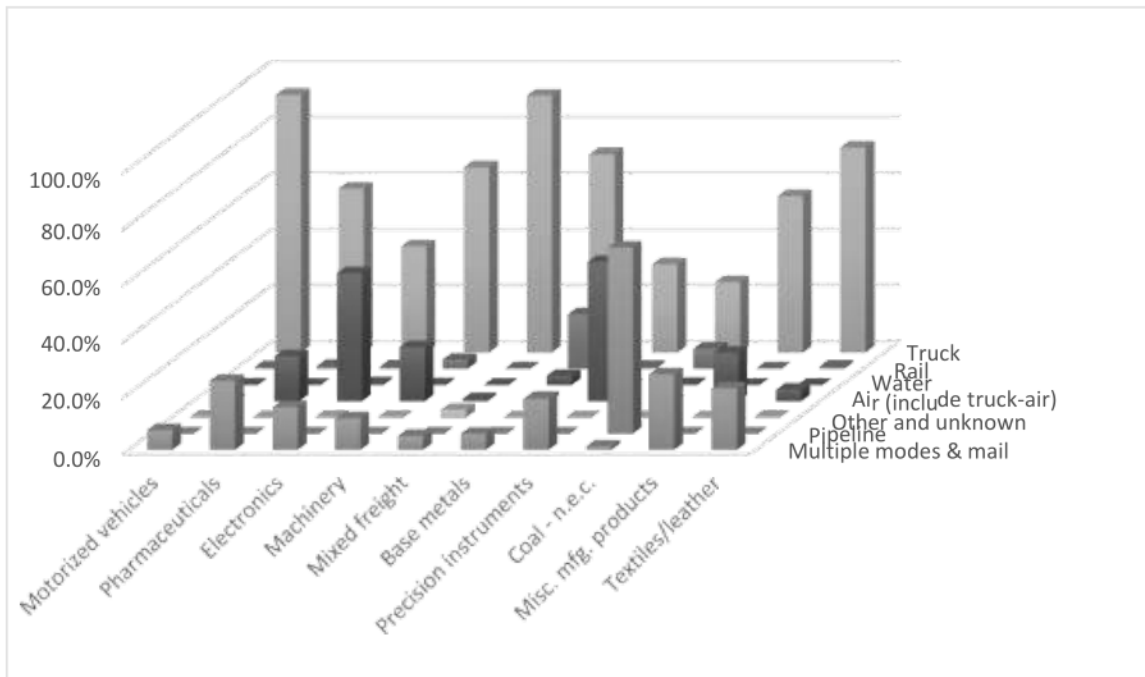
In examining the commodities destined for Kentucky, four of the top ten commodities by tonnage rely on trucking for over 90% of the movements and three other commodities are between 63% and 90%. Two of the commodities rely heavily on pipeline movements. Coal, the other commodity by tons, is split pretty evenly between water, rail, and trucking. Figure 32 shows the top ten commodities destined for Kentucky by tonnage and mode. It is interesting to note that overall, the states that originate the most tonnage of freight destined for Kentucky is Kentucky itself, Texas, and the neighboring states of Tennessee, Ohio and Indiana.

Figure 32: Top Ten Commodities Destined for Kentucky by Tons by Mode, 2018



When considering cargo destined for Kentucky by value, trucking is still the predominant means to move goods to Kentucky. However, multiple modes/mail and air are important haulers of commodities destined for the State highlighting the fact that lower tonnage – higher value freight is more time sensitive and relies on faster modes. Based on the value of goods, the top five originating states are Kentucky, Ohio, Illinois, Tennessee, and Texas. Ohio and Illinois are large pharmaceutical originating states. Motor vehicles shipped to Kentucky come mainly intrastate and from Michigan and Ohio with electronics destined for Kentucky coming from California, Texas and intrastate in that order. Figure 33 illustrates the top ten commodities destined for Kentucky by value and mode.

Figure 33: Top Ten Commodities Destined for Kentucky by Value by Mode, 2018



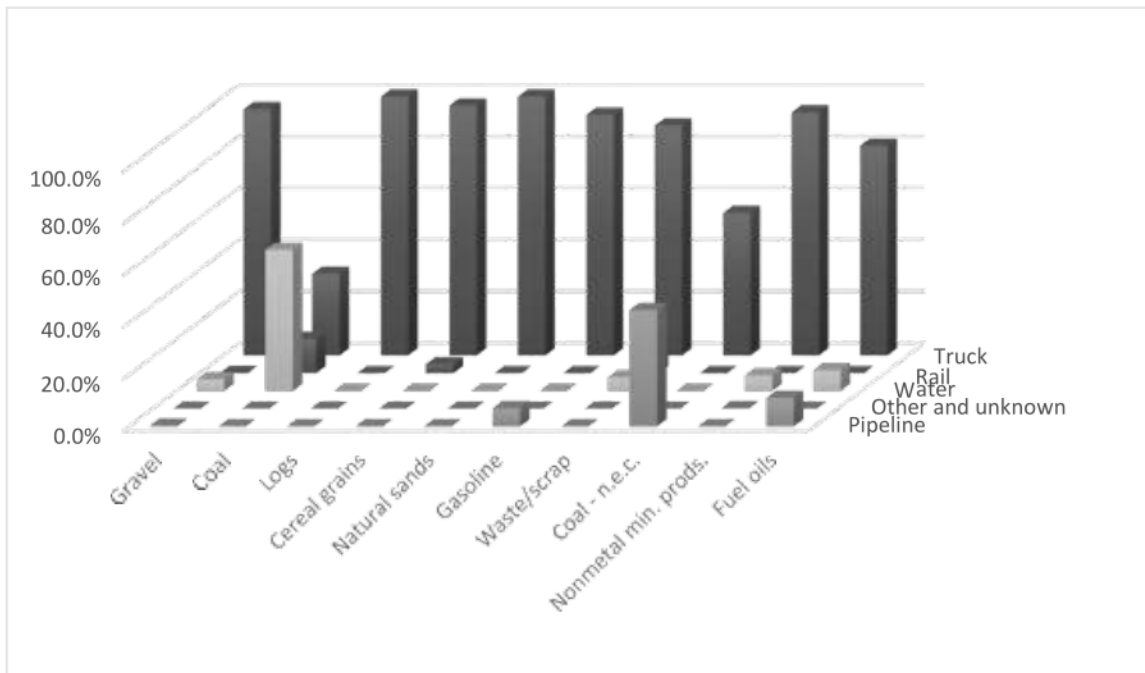
As discussed, intrastate movement of commodities is of critical importance to Kentucky and its economy. Of the top ten commodities originating and destined within Kentucky, there is an even greater emphasis on trucking as the key mode for shipping goods. Only coal and coal – n.e.c. were moved with any regularity by more than one mode with the former relying on both rail and water while the latter more on pipelines. Part of the reason for the reliance on trucking is that most of the top five commodities moving intrastate are being hauled 100 miles or less. Table 19 shows the top five commodities by tonnage and the percentage of the tonnage moved less than 100 miles and the percentage moved less than 250 miles.

Table 19: Top Five Commodities Originating and Destined within Kentucky Distance Moved, 2018

Commodity	Intrastate Movements % < 100 miles	Intrastate Movements % < 250 miles
Gravel	96.3%	100.0%
Coal	31.4%	94.7%
Logs	99.9%	100.0%
Cereal grains	91.4%	100.0%
Natural sands	95.2%	100.0%

The modal choices for commodities originating and destined within Kentucky reflect the distance goods are moved and the bulk nature of the commodities involved. Figure 34 shows the top ten commodities moved within the State by tonnage by mode. None of the tonnage of the top ten intrastate commodities moved by multiple modes/mail or air.

Figure 34: Top Ten Commodities Originating and Destined within Kentucky by Tonnage by Mode, 2018



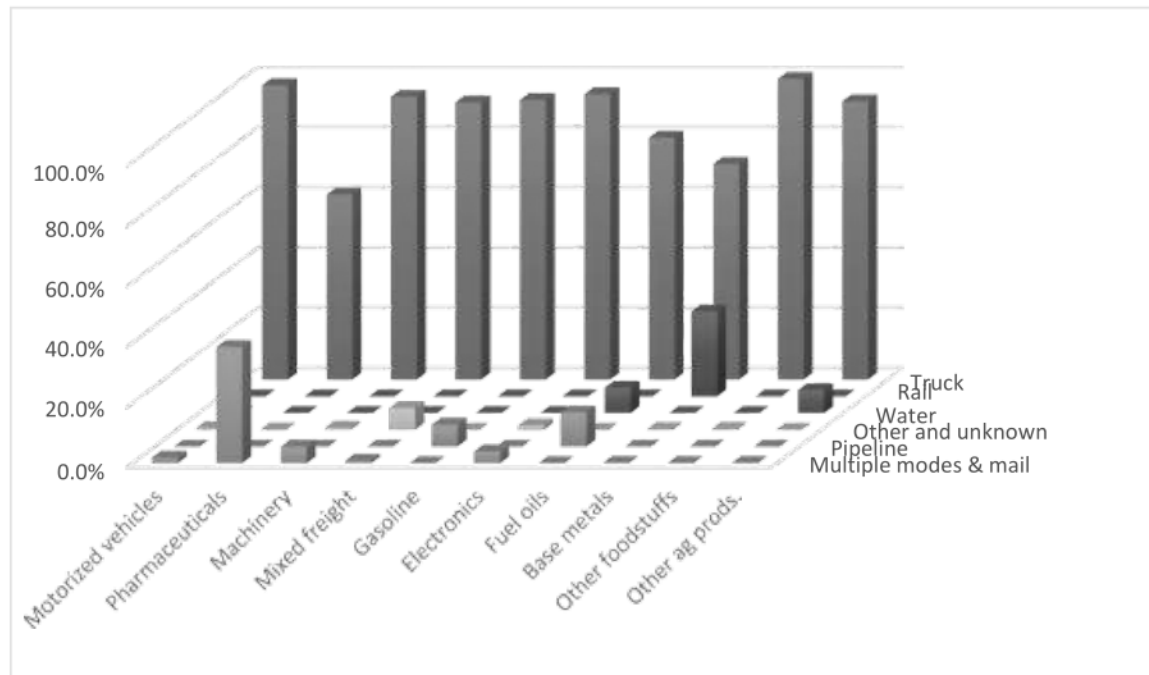
Kentucky moves valuable intrastate freight using all modes but air. Like the top freight by tonnage, much of what is moved is moved by truck and is hauled less than 250 miles from origination to destination. Table 20 shows the distance bands for the top ten commodities.

Table 20: Top Ten Commodities by Value Originating and Destined within Kentucky and Distance Hauled, 2018

Commodity	< 100 miles	< 250 miles
Motorized vehicles	92.6%	97.8%
Pharmaceuticals	35.4%	100.0%
Machinery	28.8%	99.5%
Mixed freight	63.8%	100.0%
Gasoline	90.1%	100.0%
Electronics	52.9%	96.5%
Fuel oils	87.8%	100.0%
Base metals	4.5%	99.9%
Other foodstuffs	26.6%	100.0%
Other ag products	93.6%	100.0%

The mode of choice for intrastate movements reflects the type of commodity and distance travelled. Fuel oils and gasoline are easily moved through pipelines. However, truck movements are required for last mile connections. Fuel oils and other ag products, which includes soybeans, are moved by water as well as trucks, base metals have some movements by rail while pharmaceuticals, machinery and electronics use multiple modes/mail to some extent for intrastate deliveries. Figure 35 shows the top ten commodities by value originating in and destined for Kentucky by mode.

Figure 35: Top Ten Commodities Originating in and Destined for Kentucky by Value by Mode, 2018



In looking at freight movements that originate, terminate or both in Kentucky, movements for bulk items or other goods that can easily be moved by water that travel more than 500 miles can be considered as prime candidates for a modal shift to make the movements more cost effective. Future year projections will provide additional insights into areas for growth opportunities for movement on the inland waterways of Kentucky.

Top Trading Partners

ROK

The top ten trading partner states for the ROK region based on tonnage originating in the ROK in 2018 are in order; Kentucky, Ohio, West Virginia, Indiana, Louisiana, Tennessee, Illinois, South Carolina, Georgia, and Florida. These top ten states account for 89.8% of the tonnage shipped from the ROK area. Kentucky alone accounts for just under 48% of the tonnage originating in the ROK. Ohio and West Virginia, the next two largest trading partners, receives only 8.9% and 7.7%, respectively, of the tonnage. Figure 36 illustrates the tons originating in the ROK and destined for the other states.

Figure 36: Destination States by Tonnage for Freight Originating in the ROK, 2018

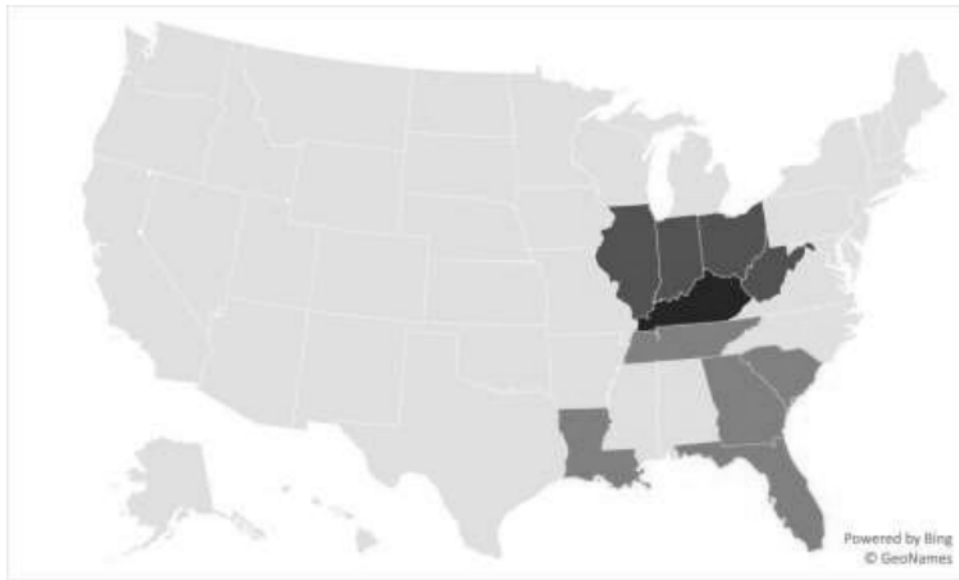


The top trading partners shipping commodities to the ROK are illustrated in Figure 37. The states sending the most products to the ROK are led again by Kentucky which ships over 118 million tons to the ROK area. The next nearest partner, Tennessee ships only 27% as much as Kentucky to the ROK area. The rest of the states shipping products to the ROK, ship relatively minor amounts to the top two states. Rounding out the top ten states are Ohio, Texas, Indiana, Wyoming, Illinois, North Dakota, Colorado, and West Virginia.

Figure 37: States Originating Tonnage of Freight Destined for the ROK, 2018



Figure 38: Top Commodity Shipped from ROK to Top Ten Destination States



- Coal
- Coal-n.e.c.
- Gravel

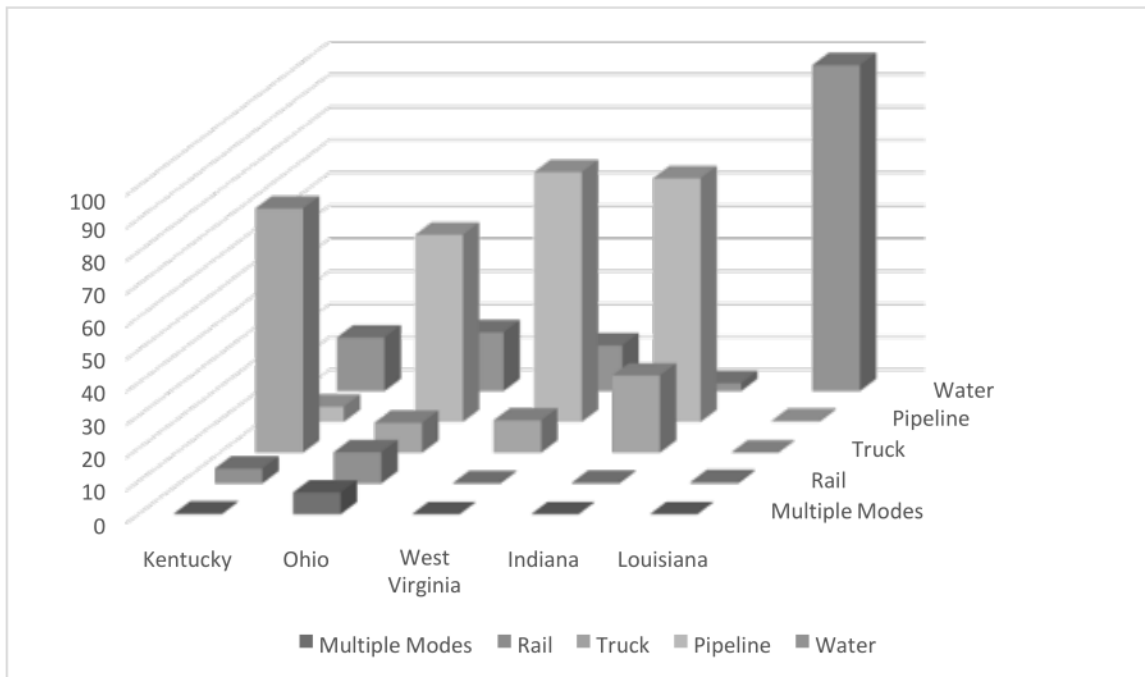
As shown in Figure 38, in the ROK area coal and coal products are the number one originating commodities by tonnage destined for the top ten state trading partners. As the map shows, coal is sent to the Southeast and coal-n.e.c. is destined to Midwestern markets. Gravel coming from the ROK area is the top intrastate commodity.

Coal is the number one commodity in five of the top nine destination states outside of Kentucky and coal-n.e.c. is the number one commodity coming from the ROK in the other four destination states. Gasoline is an important product coming from the ROK in Ohio and West Virginia and base metals are important commodities destined for the Midwest and South Carolina. Louisiana is the destination for bulk commodities (coal, gravel, cereal grains, and other ag products) likely headed to foreign markets through its Gulf Coast deep water ports.

There is a steep drop off in commodities by tonnage destined for states that rank as the 6th to 10th (TN, IL, SC, GA, FL) trading partners after coal or coal-n.e.c. Ohio, the ROK's number 1 destination trading partner outside of Kentucky receives over 3 million tons of gasoline and 2 million tons of base metals, representing the highest amount of commodities outside of coal. Following Ohio is West Virginia with gasoline and fuel oils being significant commodities outside of coal and coal-n.e.c., coming from the ROK. Indiana's (number 3 destination trading partner outside of Kentucky and 4th overall) only significant commodity coming from the ROK outside of coal-n.e.c. are base metals and in Louisiana (5th overall destination trading partner), gravel and cereal grains are the next most important, most likely destined to Gulf Coast ports for export.

The mode of travel most used for products originating in the ROK region destined for the region's top five trading partners is dominated by pipeline and water for commodities headed outside of Kentucky. Trucking moves freight to neighboring states and within Kentucky. Products in Kentucky mostly move by trucks. Almost all of the commodities destined for Louisiana are shipped over the inland waterways, an indication that much of it will be transloaded to ocean carriers for export. Figure 39 illustrates the percentage of the top five commodities by mode in the top five destination states for the ROK.

Figure 39: Top Five ROK Originating Trading Partners Top Five Commodities by Mode, 2018

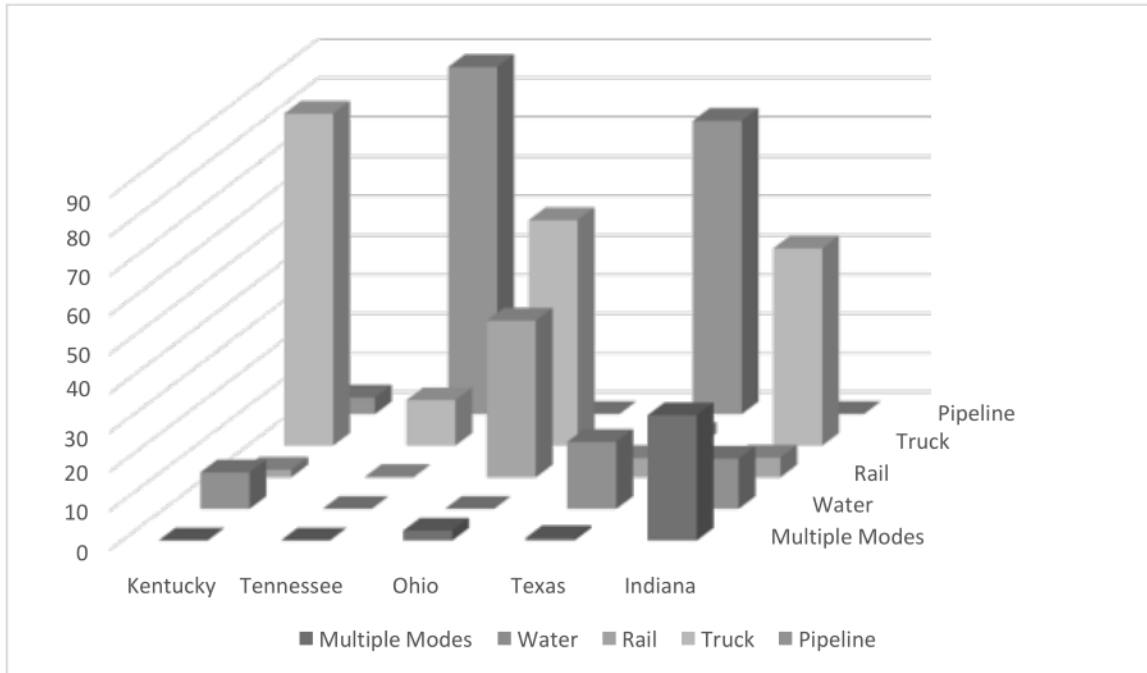


The top ten trading partners sending commodities into the ROK are Kentucky, Tennessee, Ohio, Texas, Indiana, Wyoming, Illinois, North Dakota, Colorado, and West Virginia. Tennessee's top commodities sent to the ROK include almost 24 million tons of coal-n.e.c. and 1.2 million tons of gasoline. Ohio ships in over 2 million tons of coal-n.e.c. and just under 1.5 million tons of base metals and waste/scrap. Texas ships almost 6 million tons of crude petroleum and 1.4 million tons of base metals. Indiana is shipping 1.7 million tons of coal and 1.1 million tons of nonmetal mineral products. Wyoming, Colorado, and West Virginia originates mainly coal, Illinois basic chemicals and North Dakota crude petroleum headed to the ROK.

The mode of travel for the top five commodities from the top five originating state trading partners reveals a diverse pattern depending on the product being shipped into the ROK area. Intrastate movements are predominantly truck movements for the top five commodities, accounting for 84.6% followed by water, pipeline, and rail. The top five inbound commodities from Tennessee are moved predominantly via pipeline with 88.4% of movements occurring through pipelines due to coal n.e.c. accounting for 88.5% of the top five commodities destined for the ROK area. Commodities coming into the ROK from Ohio are more balanced between trucking and rail. Texas, like Tennessee ships almost 75% of commodities destined for ROK by pipeline due to the shipment of crude petroleum, with base metals more dependent on water transportation. The top five commodities shipped from Indiana arrive

by truck, multiple modes/mail, and water. Figure 40 depicts the top five commodities from the ROK top five state trading partners by mode.

Figure 40: Top Five Originating Trading Partners Top Five Commodities by Mode, 2018



While commodities moving through pipelines is significant for Texas and Tennessee, none of the other top five originating trading partners use pipeline, except Indiana which ships an insignificant amount of crude via pipeline. By volume, air cargo and the other/unknown modes carry little freight from the top five originating partners.

Kentucky

The top ten trading partners for commodities originating in Kentucky are enumerated in Table 21. Like the ROK area, there is a significant drop off in the tonnage of commodities originating in Kentucky between intrastate and interstate freight. The top ten states account for 89.2% of the tonnage of commodities originating in Kentucky. If intrastate movements are not considered, the top nine destination states after Kentucky account for 78.3% of interstate freight originating in Kentucky.

Table 21: Top Ten Destination Trading Partners for Kentucky Commodities, 2018

State	Tonnage (in thousands)
Kentucky	174,669.02
Ohio	30,866.66
West Virginia	25,167.88
Indiana	23,950.69
Tennessee	12,178.78
Illinois	11,769.77
Louisiana	11,530.42
South Carolina	8,177.12
Georgia	6,403.78
Florida	4,905.85

Kentucky's top ten trading partners shipping commodities into Kentucky are enumerated in Table 22. The top ten states originate 89.5% of the tonnage destined for Kentucky. If intrastate tonnage is not included, the top 9 states account for 77.4% of the freight inbound to the state. There is a steep drop between intrastate and interstate shipments. The top three states originating freight for interstate movement into Kentucky are all neighboring states.




Table 22: Top Ten Originating Trading Partners Shipping to Kentucky, 2018

State	Tonnage (in thousands)
Kentucky	174,669.02
Tennessee	45,337.46
Ohio	17,165.84
Indiana	13,803.38
Texas	10,440.79
Illinois	10,255.58
Wyoming	7,672.65
Louisiana	5,120.69
North Dakota	4,198.61
Michigan	3,675.62

Kentucky's number one interstate commodity headed to its top nine destination trading partners is coal (5 states) and coal-n.e.c. Figure 41 illustrates the top commodity by tonnage originating in Kentucky destined for the State's top 10 trading partners. Note that it is the same as it is for the ROK area, illustrating the dominance of the coal industry.

Figure 41: Top Commodities Originating in Kentucky Destined for Top Ten Trading Partners, 2018



-  Coal
-  Coal-n.e.c.
-  Gravel

Ohio, Kentucky’s largest interstate destination, receives over 1 million tons each of six commodities including coal, gasoline, gravel, base metals, and nonmetallic mineral products in addition to coal – n.e.c. Kentucky sends more than 1 million tons of 5 commodities to West Virginia, 4 commodities to Indiana and Louisiana, and 3 commodities to Tennessee. As with the ROK area, commodities destined for Louisiana include coal, gravel, cereal grains (which includes corn), and other ag products (which includes soybeans) which are likely destined for deep sea transport to foreign markets.

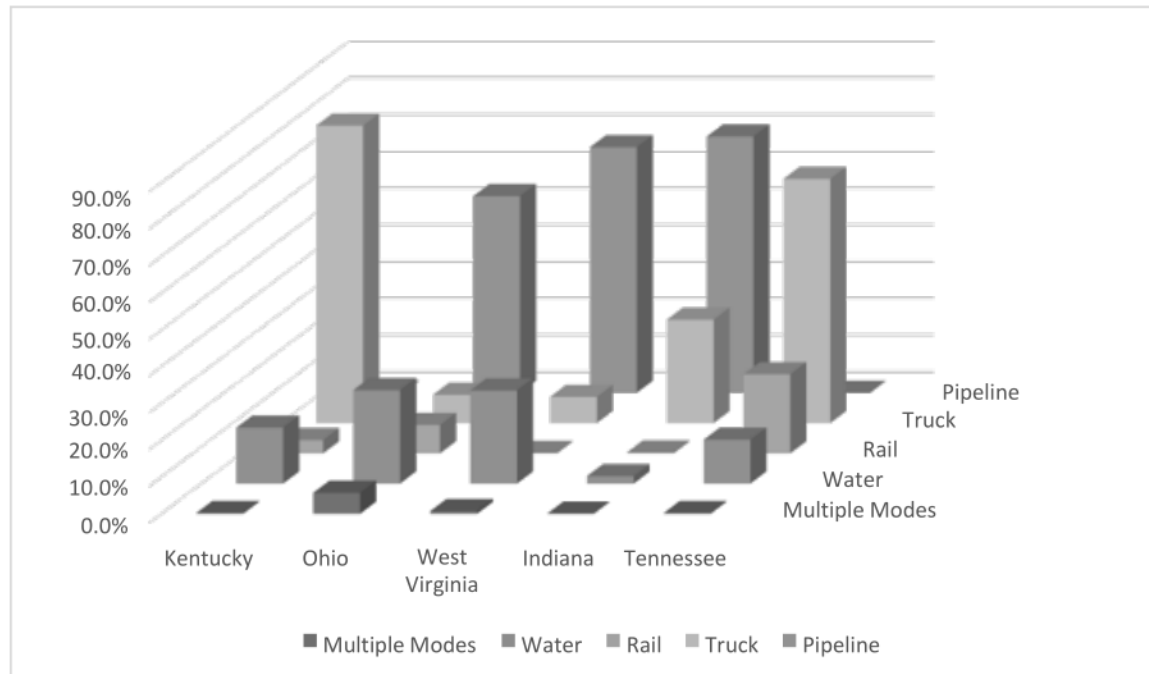
Movements by truck are the predominant mode of moving freight for seven of the top ten commodities originating in Kentucky bound for its top ten trading partners. This includes gravel, cereal grains, logs, motorized vehicles, nonmetallic mineral products, waste/scrap, and base metals. Coal, the number one commodity sent to the State’s top ten trading partners, is shipped primarily by water and rail while coal not elsewhere classified, and gasoline are primarily shipped via pipeline.

Figure 42 illustrates the top five trading partners’ top five commodities mode of transportation by tonnage for 2018. For products moving within Kentucky, trucking is the predominant mode of choice moving 80.9% of the State’s top five commodities by ton. The inland waterways of Kentucky carry the next largest share of the top five commodities, carrying 15.2%.

Kentucky’s top 4 interstate trading partners for goods originating in the State are heavily dependent on the pipeline network to move liquefied coal products (n.e.c.) and gasoline. Ohio, West Virginia and

Indiana, Kentucky's largest receiving interstate trading partners rely heavily on pipelines. For Ohio and West Virginia, the second most important mode of transport is water and in Indiana it is trucking. The State's fifth largest trading partner, Tennessee, receives freight from Kentucky primarily on trucks followed by rail and water transportation. In Tennessee, the top commodity coming from Kentucky is coal which travels by rail (42.9%), truck (35.2%) and on the inland waterways (21.9%) Rounding out Tennessee's top 5 commodities are motorized vehicles, mixed freight, animal feed and base metals each moving mostly by trucks.

Figure 42: Top 5 Trading Partners for Top 5 Kentucky Commodities by Ton by Mode, 2018



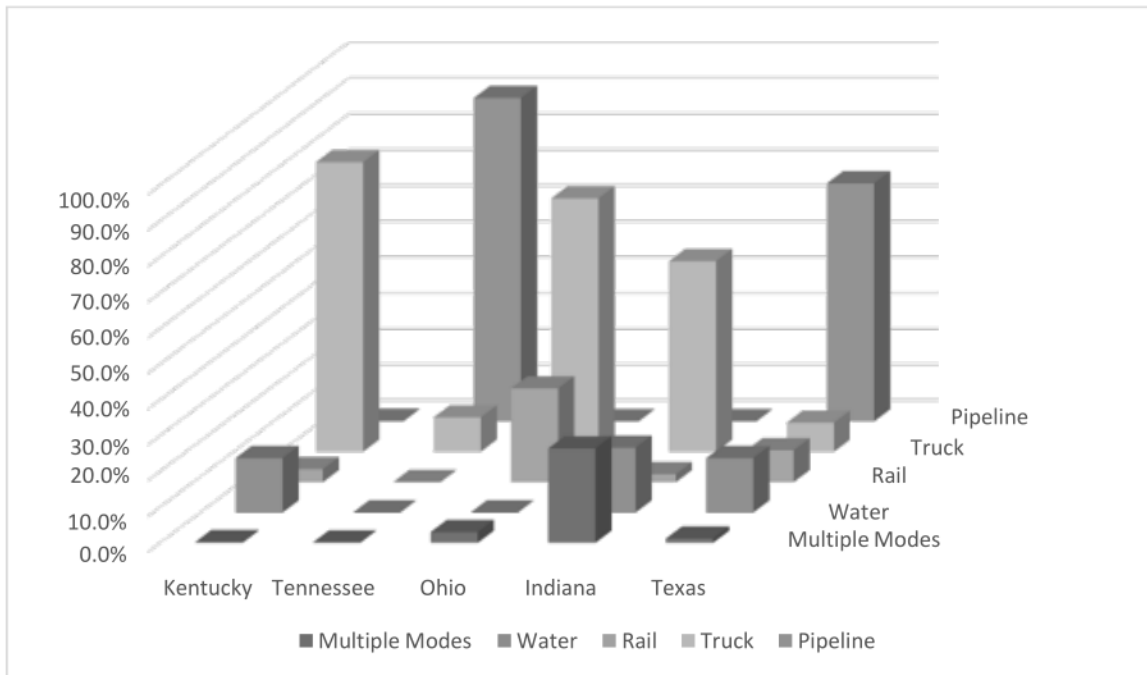
Kentucky's top five trading partners for cargo destined for Kentucky are Kentucky, Tennessee, Ohio, Indiana, and Texas. Kentucky receives a variety of commodities from these states and the mode of transportation most used varies by the products being shipped. Tennessee, the State's largest originating interstate trading partnerships 90.3% of its top five commodities imported into Kentucky via pipeline. This reflects the large amount of liquified coal products destined for Kentucky. Freight representing the second through fifth largest shipments to Kentucky are almost exclusively shipped by truck.

Much of the freight from Ohio is coming via truck and rail with four of the top five commodities heavily reliant on trucking including waste/scrap, base metals, gravel, and other foodstuffs. Coal-n.e.c. coming from Ohio is shipped primarily by rail. For cargo shipped from Indiana into Kentucky, coal, and gravel, the top two commodities originating in Indiana destined for Kentucky, multiple modes, and water transportation, respectively, are the leading modes. For nonmetal mineral products, base metals, and other agriculture products (which includes soybeans) coming from Indiana, trucks carry the most.

The number one product coming into Kentucky out of Texas is crude petroleum, which moves solely by pipelines. Base metals are shipped primarily via waterways, plastics/rubber and base chemicals are

hailed by rail and electronics arrive mostly by trucks. Figure 43 illustrates the mode share of the top five commodities coming from Kentucky's top 5 trading partners for goods shipped into Kentucky.

Figure 43: Top 5 Trading Partners Top 5 Commodities Destined for Kentucky by Ton by Mode, 2018



Forecast Year: 2040

The forecast period used for this analysis is 2040, which is 22 years beyond the base year of 2018. The Master Plan is a tool to assist the ERIDA Board of Directors with setting a strategic direction for both the Riverport and the Industrial Park. By identifying trends in transportation and logistics over the forecast period, this analysis can provide insights into opportunities to grow and diversify the types of businesses that can benefit from the suite of services and infrastructure offered by these facilities. Based on a data supported examination of future trends, the Board can prioritize investments made into infrastructure, equipment and operations based on a market driven approach.

The FAF4 forecast data is built on a model of the US Economy developed, calibrated, and updated regularly by IHS Global, Inc. According to the *Freight Analysis Framework Inter-Regional Commodity Flow Forecast Study Final Forecast Results Report*⁶ :

The FAF4 Forecasts are driven by the most up-to-date macroeconomic assumptions on the short- and long-term trends of the United States (U.S.) economy at the time of the FAF4 Forecasts development (January 2016) as the basis for inter-regional domestic and international freight flows tonnage and value forecasts. These assumptions about the national economy form the basis of national-level forecasts of output, consumption, and trade, by industry for the various FAF regions, which are ultimately applied to the FAF4 base-year database to drive the FAF4Forecasts.

The forecast used predates the COVID-19 pandemic, response, and economic interruption, but is the most current available for use to analyze future trends. It will be important to update the forecast information when the next Commodity Flow Survey data for 2017 is released in late 2020 with a new forecast based on updated expectations for the economy, both nationally and globally.

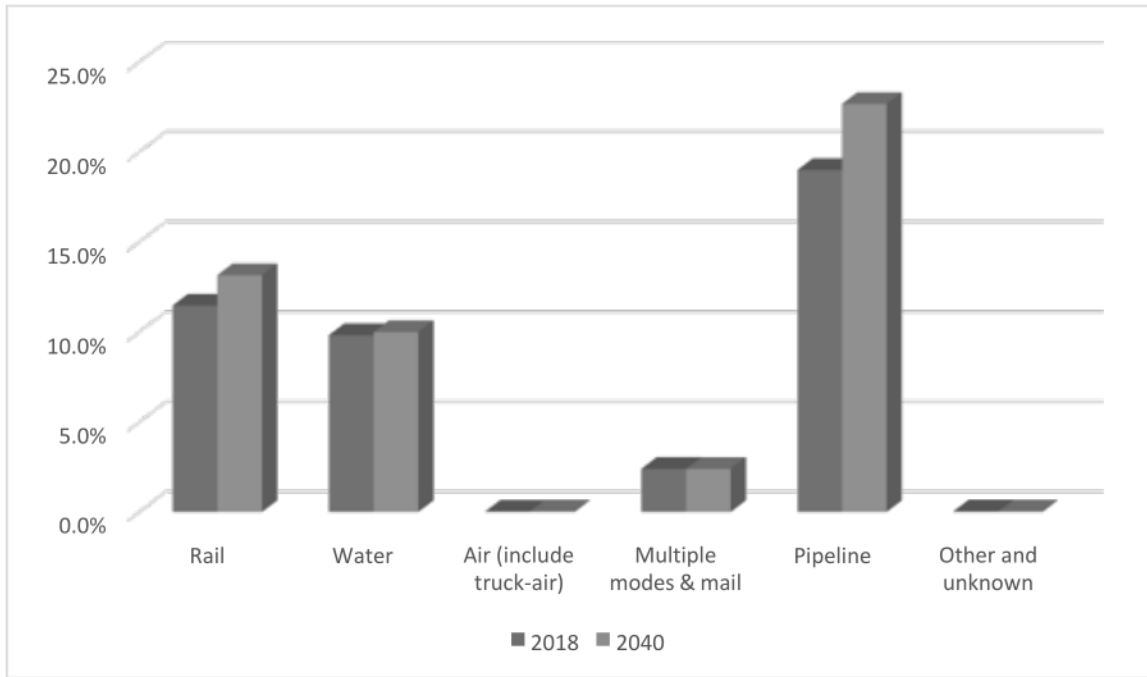
Total Freight Movements by Mode

ROK

The projected level of freight originating and destined for the ROK area is over 636 million tons, an increase of 30.0% from 2018 levels. The value of the freight that is moved is expected to total \$508 billion, an increase of 42.6%. The modal shares of tonnage moved shifts between 2018 and 2040. The share of freight hauled by trucks drops from 57.3% to 51.7%. Each of the other meaningful modes increase as shown in Figure 44.

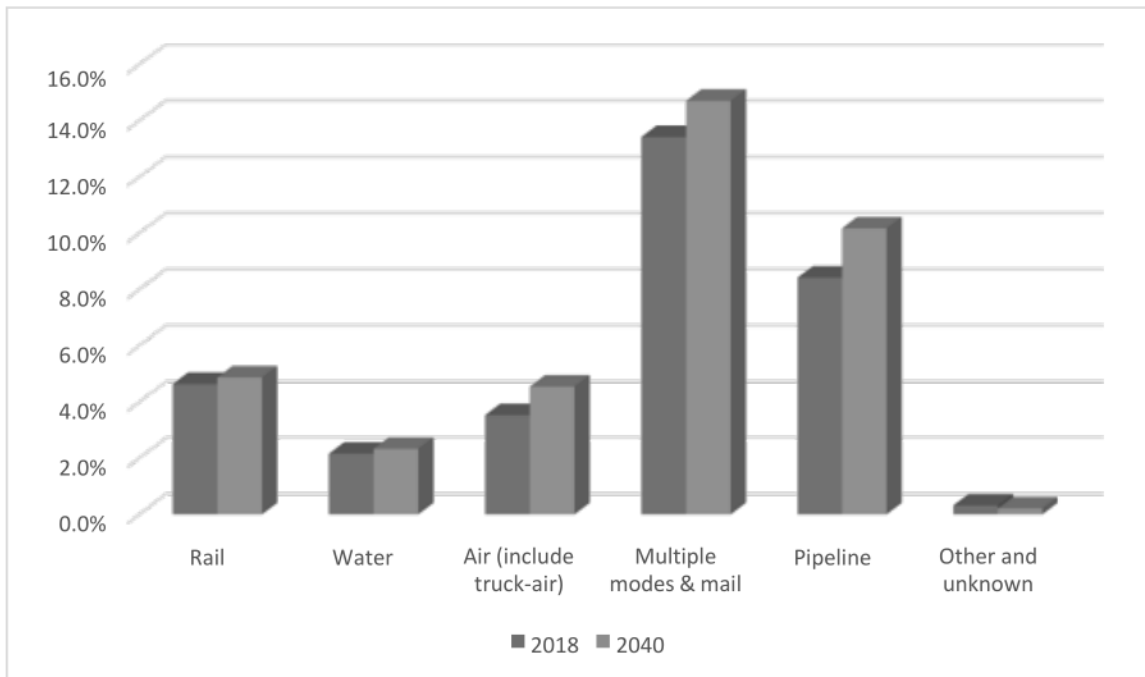
⁶ United States Department of Transportation Federal Highway Administration. 2016. *Freight Analysis Framework Inter-Regional Commodity Flow Forecast Study: Final Forecast Results Report*. Downloaded June 22 2020. <https://ops.fhwa.dot.gov/publications/fhwahop16043/fhwahop16043.pdf>

Figure 44: Modal Changes in Share of Tonnage of Freight Originating and Destined for ROK, 2018 - 2040



A similar shift occurs by the modal share of the value of freight, not surprisingly. Trucking share by value drops from 67.5% to 63.2%. Despite decreases in shares of freight movements by both tonnage and value, the total amount of freight moving by truck is projected to increase 17.5% by tonnage and 33.4% by value. This creates additional stresses on highways that are congested with large trucks creating safety and maintenance issues for highway agencies at the state and local levels. Figure 45 illustrates the shift in shares of freight moved by value.

Figure 45: Modal Changes in the Share of the Value of Freight Originating and Destined for the ROK, 2018 - 2040



The share of commodity tonnage moved by water increases from 9.8% to 10.0%. This represents a 32.4% increase in tonnage shipped on the inland waterways. Pipeline movements are expected to increase the most, 55.1% followed by air cargo which is projected to increase 53.6%.

Inbound/Outbound/Intraregional Freight Movements

Freight that originates and is destined for the ROK region is projected to be 116 million tons in 2040, which represents 18.2% of the tonnage moved in the ROK region compared 22.9% of the tonnage moved in 2018. Trucking is projected to move 86.7% of the intraregional tonnage in 2040. Pipeline is expected to account for 6.1%, water transportation 4.2%, rail 2.9% and multiple modes 0.1% of intraregional tonnage. Interestingly, water tonnage is projected to decrease 29.7% from 2018 levels.

Based on projections, 73.6% of intraregional freight will travel less than 100 miles and 97.9% will travel less than 250 miles. Because of the short distances the intraregional freight moves, trucking is the predominant mode of transporting it. Intraregional commodities traveling less than 100 miles make up 82.5% of all truck movements while 83.5% of the water movements are for freight traveling between 100 and 250 miles. These projections are consistent with 2018 where freight traveling shorter distances require more speed and flexibility which leads to a larger share of trucking compared to water and rail.

The top five intraregional commodities moved are gravel, coal, coal-n.e.c., waste/scrap and nonmetal mineral products. All of the coal-n.e.c. moves between 100 and 250 miles. The share of the other top

five commodities that move less than 100 miles are: gravel – 99.6%; coal – 51.9%; waste/scrap – 100%; and nonmetal mineral products – 100%. Of the gravel, coal and nonmetal mineral products moving less than 100 miles, 100% of it is moved by truck and 90% of the waste/scrap moving less than 100 miles is hauled by trucks.

Freight originating in the ROK is projected to be just under 324 million tons valued at \$248 billion. This is an increase of 59 million tons or 22.3% with an increased value of \$68.6 billion or 38.2%. The share of commodities coming out of the ROK hauled by trucks will be 49.1% of tonnage and 66.1% of the value. Pipeline, water, and rail account for 19.2%, 14.7% and 14.4% of tonnage transported from the ROK. Multiple modes/mail is expected to move 13.5% of the value of commodities originating in the ROK.

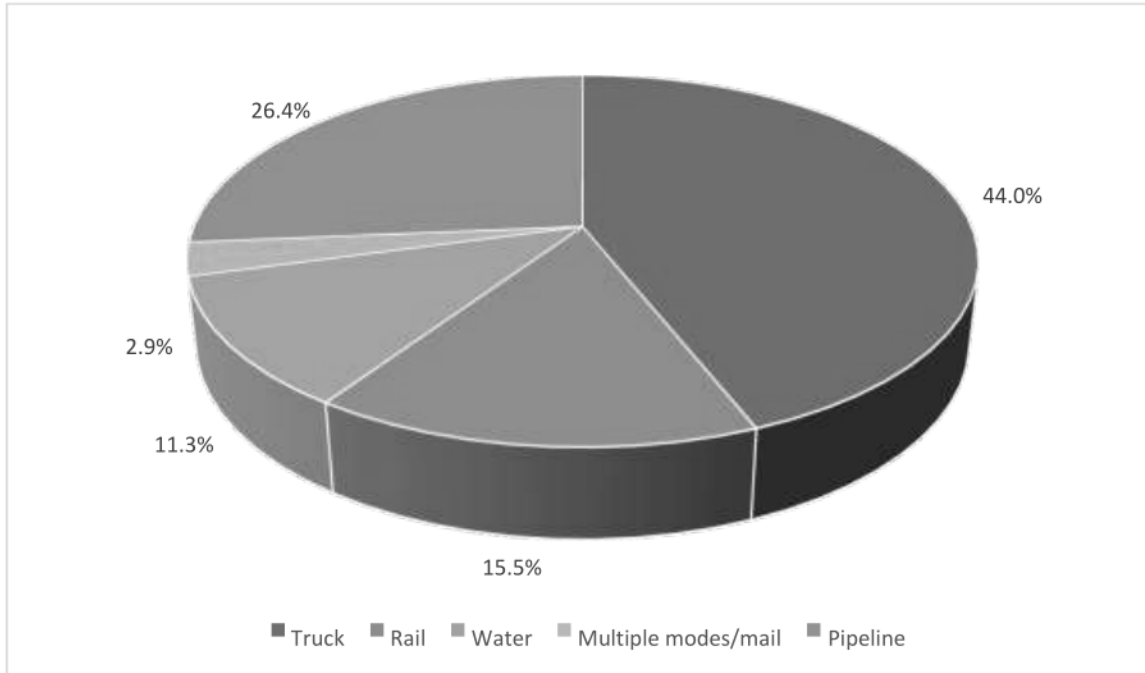
Freight destined for the ROK is estimated to total 312 million tons valued at just under \$260 billion, which is an increase of 88 million tons and \$83 billion. This represents an increase of 39.2% in tonnage and 47.0% in value from 2018. Trucks account for a greater share of tonnage coming into the ROK at 65.5% followed by pipeline at 31.5%. Table 23 shows the modal share of freight destined for the ROK region by tonnage and value.

Table 23: Modal Share of Freight Destined for the ROK by Tonnage and Value, 2040

Mode	Share of Tonnage of Freight Destined for the ROK (2040)	Share of Value of Freight Destined for the ROK (2040)
Truck	65.5%	60.4%
Rail	14.3%	4.7%
Water	6.2%	2.9%
Air	0.0%	5.7%
Multiple modes/mail	2.6%	15.8%
Pipeline	31.5%	10.2%
Other/unknown	0.1%	0.4%

After netting out intraregional freight movements from total movements in 2040, 38.0% more tons of freight will either originate or terminate in the ROK region with an increase in value of 45.3%. The share of the freight originating or destined outside of the ROK region carried by mode is illustrated in Figure 46 and shows that the modal split is a little more balanced that for the intraregional movements in 2040.

Figure 46: Modal Share of Freight Originating or Destined for Outside of the ROK Moving in the ROK, 2040



Kentucky

The total tonnage of commodities expected to be originated in or destined for Kentucky in 2040 is 883 million tons which is an increase of 209 million tons or 31.1% over 2018. The value of this freight will be just under \$1.3 trillion, an increase of \$518 million or 68.1% more than 2018. Table 24 illustrates the modal split for commodities originating in or destined for Kentucky in 2018 and 2040.

Table 24: Modal Share of Freight Originating or Destined for Kentucky, 2018 - 2040

Mode	Share of Tonnage of Freight Originating or Destined for KY (2018)	Share of Tonnage of Freight Originating or Destined for KY (2040)	Share of Value of Freight Originating or Destined for KY (2018)	Share of Value of Freight Originating or Destined for KY (2040)
Truck	61.1%	54.8%	67.1%	54.8%
Rail	9.4%	11.3%	2.9%	3.0%
Water	10.5%	11.1%	1.3%	1.3%
Air	0.1%	0.2%	12.9%	25.0%
Multiple modes /mail	2.3%	2.7%	10.9%	11.2%
Pipeline	16.5%	19.9%	4.5%	4.6%
Other/unknown	0.0%	0.0%	0.3%	0.2%

As Table 22 demonstrates, the share of the tonnage of commodities moving from and to Kentucky, inclusive of intrastate movements, shifts away from trucks to the other modes. By value, there is a drop in the share hauled by truck, which is picked up mostly by air and multiple modes/mail. Despite the shift in shares, trucks are project to carry 72 million tons of freight more than in 2018. This is the equivalent of 3.6 million more truck trips assuming trucks carry 40 tons of freight, the current legal limit. Waterways are projected to carry almost 28 million more tons of freight than in 2018.

Intrastate movements will total 192 million tons valued at \$150 billion, which is 21.8% and 11.7% of total freight movements, respectively. The tons of commodities moved within the State will primarily be moved by trucks, which will haul 78.5% of the tonnage and water will carry the second largest share at 12.1%. Trucks will haul 84.3% of the value followed by multiple modes/mail at 5.0% and air at 4.7%, again illustrating that high value, low tonnage commodities typically are time-sensitive and require faster modes of transport.

Top Commodities Moved

ROK

In analyzing the top ten commodities moved in both directions combined in the ROK, there is a shift between 2018 and 2020. Based on the FAF4 projections there are some notable changes that could impact operations at the Eddyville Riverport. Probably the most important is that cereal grains moving into and out of the ROK area are expected to drop 5.8 million tons or 23.4% from 2018. The commodities with the largest projected increases in the amount shipped are basic chemicals, coal-n.e.c. and waste/scrap. Commodities falling out of the top ten from 2018 are logs dropping to number 17 due to a 66.5% drop in tonnage and crude petroleum to number 12 due to a 6.4% drop in tonnage. Table 25 lists the top ten commodities in 2040 with the 2040 tonnage, tonnage change from 2018 and percent change in tonnage from 2018.

Table 25: Top Ten Commodities Originating and Destined for the ROK by Tons, 2040

Commodity	2040 Ktons	Change in Ktons 2018 – 2040	% Change in Tons 2018-2040	2018 Rank
Coal – n.e.c.	137,163.96	59,065.70	75.6%	2
Coal	119,963.03	24,368.71	25.5%	1
Gravel	76,567.04	12,575.21	19.7%	3
Waste	28,034.18	11,062.16	65.2%	8
Base metals	27,928.18	7,582.47	37.3%	6
Nonmetal min. products	21,450.57	9,048.12	73.0%	10
Basic chemicals	20,374.90	11,201.19	122.1%	13
Cereal grains	18,893.54	(5,766.86)	-23.4%	4
Gasoline	18,085.11	(934.23)	-4.9%	7
Other foodstuffs	17,947.23	6,563.84	57.7%	12

Breaking down the top ten commodities originating in the ROK, logs drop from the 6th greatest tonnage shipped to 16th due to a projected decline in tonnage shipped of 66.5% or 8.2 million tons. The amount of cereal grains (corn) shipped out of the ROK is expected to decline 2.6 million tons dropping it from number 5 to number 7. Both of these commodities are prime candidates for movements on the inland

waterways, highlighting the importance of diversifying the types of commodities moving by water. Table 26 illustrates the top ten commodities originating in the ROK by tonnage in 2040 along with the change in tons, percent change in tons and rank.

Table 26: Top Ten Commodities Originating in ROK by Tons, 2040

Commodity	2040 Ktons	Change in Ktons 2018 – 2040	% Change in Tons 2018-2040	2018 Rank
Coal	85,595.04	19,030.39	28.6%	1
Coal-n.e.c.	55,429.34	11,867.50	27.2%	2
Gravel	39,813.87	7,360.30	22.7%	3
Base metals	15,953.33	5,858.90	58.0%	7
Waste/scrap	14,098.91	6,594.13	87.9%	8
Gasoline	11,077.91	(2,374.96)	-17.7%	4
Cereal grains	10,779.46	(2,626.45)	-19.6%	5
Other foodstuffs	8,550.72	3,306.67	63.1%	10
Nonmetal min. prods.	8,057.21	3,506.31	77.0%	15
Fuel oils	6,912.26	(218.71)	-3.1%	9

The top ten commodities by tons destined for the ROK also move around with logs, the 5th largest commodity by tons shipped into the ROK in 2018, drops to number 17 because of a projected 66.5% decline in tonnage while basic chemicals tonnage jumps from number 12 to number five with a 148.7% increase in tonnage destined for the ROK. Table 27 demonstrates the top ten commodities destined for the ROK by tons in 2040.

Table 27: Top Ten Commodities Destined for the ROK by Tons, 2040

Commodity	2040 Ktons	Change in Ktons 2018 – 2040	% Change in Tons 2018-2040	2018 Rank
Coal-n.e.c.	81,734.62	47,198.20	136.7%	1
Gravel	36,753.17	5,214.91	16.5%	2
Coal	34,367.99	5,338.32	18.4%	3
Waste/scrap	13,935.26	4,468.03	47.2%	8
Basic chemicals	13,666.62	8,171.09	148.7%	12
Nonmetal min. prods.	13,393.36	5,541.81	70.6%	9
Crude petroleum	12,482.64	(740.40)	-5.6%	4
Base metals	11,974.86	1,723.57	16.8%	7
Other foodstuffs	9,396.50	3,257.17	53.1%	10
Cereal grains	8,114.08	(3,140.41)	-27.9%	6

The top ten intraregional commodities are those that originate in and are destined for the ROK region. These are shown in Table 28. The same patterns are evident in the intraregional movements with coal-n.e.c. surpassing coal, waste/scrap tonnage moving up in prominence, cereal grains and logs declining, and the rest being a mix of commodities moving up or down slightly.

Table 28: Top Ten Commodities by Tonnage Moving Within ROK, 2040

Commodity	2040 Ktons	Change in Ktons 2018 – 2040	% Change in Tons 2018-2040	2018 Rank
Gravel	32,229.49	4,759.85	17.3%	1
Coal-n.e.c.	10,269.78	3,508.52	51.9%	5
Coal	9,847.51	(4,807.89)	-32.8%	2
Waste/scrap	8,737.91	3,424.49	64.4%	6
Nonmetal min. prods.	6,674.30	2,950.01	79.2%	8
Cereal grains	6,624.52	(2,814.58)	-29.8%	4
Fuel oils	4,205.41	(20.30)	-0.5%	7
Other foodstuffs	4,107.45	1,538.90	59.9%	11
Logs	3,873.09	(8,022.95)	-67.4%	3
Animal feed	3,644.93	1,170.04	47.3%	13

As we saw in the top ten commodities by tons in the ROK for the combined originating and destination freight, the top ten commodities by value in the ROK for the combined originating and destination freight includes some changes between 2018 and 2040. Gasoline and textiles/leather fall out of the top ten commodities by value being replaced by basic chemicals and precision instruments. The most significant change is the expected movement of precision instruments which jumps from 27th in 2018 to 10th in 2040 with a 375.7% increase in the value of shipments. Table 29 shows the top ten commodities by value for products either originating in or destined for the ROK.

Table 29: Top Ten Commodities Originating in or Destined for the ROK by Value, 2040

Commodity	2040 Million \$s	Change in Million \$s 2018 – 2040	% Change in Value 2018-2040	2018 Rank
Electronics	\$ 43,217.6	\$ 23,767.90	122.2%	6
Motorized vehicles	\$ 42,673.8	\$ 5,300.65	14.2%	2
Pharmaceuticals	\$ 40,920.5	\$ 2,274.06	5.9%	1
Coal-n.e.c.	\$ 38,992.1	\$ 19,781.17	103.0%	7
Machinery	\$ 37,500.3	\$ 11,384.55	43.6%	4
Base metals	\$ 35,192.2	\$ 7,741.54	28.2%	3
Mixed freight	\$ 23,651.5	\$ 4,150.88	21.3%	5
Plastics/rubber	\$ 20,372.0	\$ 8,780.44	75.7%	10
Basic chemicals	\$ 19,369.8	\$ 9,500.94	96.3%	12
Precision instruments	\$ 18,113.9	\$ 14,305.83	375.7%	27

For commodities that the ROK is originating, the top ten commodities account for 66.7% of the value of all of the commodities in 2040. Motorized vehicles, valued at over \$29 billion will be the top commodity originating in the ROK in 2040 followed by base metals, \$23.2 billion and pharmaceuticals valued at \$21.8 billion. Textiles/leather which ranked 10th in 2018 drops to 22nd in the value of goods shipped dropping 46% in estimated value or \$2.5 billion. Other foodstuffs climb into the top ten from 12th

increasing by \$3.1 billion or 63.8%. Table 30 shows the projected top ten commodities by value originating in the ROK in 2040.

Table 30: Top Ten Commodities by Value Originating in the ROK, 2040

Commodity	2040 Million \$s	Change in Million \$s 2018 – 2040	% Change in Value 2018- 2040	2018 Rank
Motorized vehicles	\$ 29,152.4	\$ 9,217.41	46.2%	1
Base metals	\$ 23,198.2	\$ 7,777.95	50.4%	3
Pharmaceuticals	\$ 21,843.8	\$ 3,752.65	20.7%	2
Electronics	\$ 18,767.0	\$ 11,566.43	160.6%	8
Machinery	\$ 18,464.9	\$ 5,784.27	45.6%	4
Coal-n.e.c.	\$ 13,561.6	\$ 3,633.93	36.6%	5
Plastics/rubber	\$ 12,448.3	\$ 6,224.94	100.0%	9
Gasoline	\$ 10,643.5	\$ 2,081.50	24.3%	6
Mixed freight	\$ 9,339.0	\$ 799.51	9.4%	7
Other foodstuffs	\$ 8,067.1	\$ 3,142.74	63.8%	12

The top ten commodities by value destined for the ROK in 2040 account for 63.6% of the total value of inbound commodities. The value of three of the top ten commodities destined for the ROK are expected to more than double in value between 2018 and 2040 including the value of incoming precision instruments increasing more than four-fold (461.5%) or \$13.2 billion, coal-n.e.c. increases 173.9% and basic chemicals increase 137.7%. Table 31 provides the information on the top ten commodities by value destined for the ROK in 2040.

Table 31: Top Ten Commodities by Value Destined for the ROK, 2040

Commodity	2040 Million \$s	Change in Million \$s 2018 – 2040	% Change in Value 2018- 2040	2018 Rank
Coal-n.e.c.	\$ 25,430.5	\$ 16,147.24	173.9%	7
Electronics	\$ 24,450.7	\$ 12,201.48	99.6%	4
Pharmaceuticals	\$ 19,076.6	\$ (1,478.59)	-7.2%	1
Machinery	\$ 19,035.4	\$ 5,600.29	41.7%	3
Precision instruments	\$ 16,074.8	\$ 13,211.89	461.5%	20
Mixed freight	\$ 14,312.5	\$ 3,351.37	30.6%	6
Motorized vehicles	\$ 13,521.4	\$ (3,916.76)	-22.5%	2
Basic chemicals	\$ 12,055.1	\$ 6,984.42	137.7%	12
Base metals	\$ 11,994.0	\$ (36.41)	-0.3%	5
Other foodstuffs	\$ 9,287.9	\$ 3,294.84	55.0%	9

Products that move within the region are expected to total almost \$90 billion in 2040, accounting for 9.8% of the total value of cargo transported in the ROK. There are two commodities jumping into the top ten intraregional commodities by value in 2040 – basic chemicals moved from 17th to 7th, with an increase in value of commodities moved of 176.9% and machinery moved from 16th to 10th with an

increase in value of commodities moved of 101.8%. Falling out of the top ten between 2018 and 2040 are other ag products falling from 6th to 14th based on a drop in value of shipments of 28.8% and newspaper/print which falls from 7th to 16th due to a drop in value of shipments of 37.5%. Table 32 shows the top ten intraregional commodities by value in 2040.

Table 32: Top Ten Commodities Moving within the ROK by Value, 2040

Commodity	2040 Million \$s	Change in Million \$s 2018 – 2040	% Change in Value 2018-2040	2018 Rank
Motorized vehicles	\$ 3,835.1	\$ (422.74)	-9.9%	1
Fuel oils	\$ 3,706.2	\$ 950.65	34.5%	3
Base metals	\$ 3,312.9	\$ (52.98)	-1.6%	2
Other foodstuffs	\$ 3,027.4	\$ 1,118.56	58.6%	8
Electronics	\$ 2,943.7	\$ 1,414.80	92.5%	9
Mixed freight	\$ 2,656.6	\$ 35.26	1.3%	4
Basic chemicals	\$ 2,650.9	\$ 1,693.53	176.9%	17
Coal-n.e.c.	\$ 2,430.7	\$ 931.42	62.1%	10
Pharmaceuticals	\$ 2,201.2	\$ (287.69)	-11.6%	5
Machinery	\$ 1,977.8	\$ 997.80	101.8%	16

Kentucky

The top three commodities originating or destined for the State is not expected to change much between 2018 and 2040. Coal and gravel slip from first and second, respectively to second and third while coal-n.e.c. goes from third to first with a projected increase in tonnage shipped of 77.5%, for a total of almost 172 million tons. Cereal grains and logs drop out of the top ten falling to 11th and 21st respectively because of significant declines in projected shipments. Almost 6 million fewer tons of cereal grains and 18 million fewer tons of logs are expected to ship in 2040. These shifts are important to consider when developing a growth strategy for the Riverport and the Industrial Park. Cereal grains are an important commodity moving through the Port currently and with the projected declines, a growth strategy should take into account these projections and limit resources committed to adding capacity for shrinking shipments. Table 33 provides details on the top ten commodities by tonnage in Kentucky.

Table 33: Top Ten Commodities Originating or Destined for Kentucky by Tons, 2040

Commodity	2040 Ktons	Change in Ktons 2018 – 2040	% Change in Tons 2018-2040	2018 Rank
Coal-n.e.c.	171,525.98	74,879.13	77.5%	3
Coal	145,344.54	38,953.11	36.6%	1
Gravel	119,703.00	16,322.10	15.8%	2
Waste/scrap	42,203.67	16,538.06	64.4%	7
Nonmetal min. prods.	41,140.62	15,891.51	62.9%	8
Base metals	33,286.37	9,887.52	42.3%	9
Gasoline	27,391.64	(5,415.12)	-16.5%	4
Basic chemicals	26,774.47	14,651.99	120.9%	16
Other foodstuffs	26,513.25	9,970.42	60.3%	13
Motorized vehicles	22,621.87	1,397.95	6.6%	10

The top ten commodities by tonnage originating in Kentucky changes between 2018 and 2040 with logs falling precipitously out of the top ten from 6th to 20th. The tonnage of logs originating in Kentucky is projected to decline 8.8 million tons or 66.3% to a total tonnage of just under 4.5 million tons. Moving up on the list is other foodstuffs going from 13th to 8th with an increase of 71.5% in tons originating in Kentucky. The tonnage of waste/scrap is expected to increase the most or 73.0%. Closely following the increase in the tonnage of other foodstuffs is nonmetallic mineral products, up 68.7% and base metals, up 63.8%. Nonmetallic mineral products include table salt, other salt, calcium phosphates, sulfur, gypsum, and anhydrite among other things. Table 34 illustrates the top ten commodities originating in Kentucky by tonnage in 2040.

Table 34: Top Ten Commodities Originating in Kentucky by Tons, 2040

Commodity	2040 Ktons	Change in Ktons 2018 – 2040	% Change in Tons 2018-2040	2018 Rank
Coal	87,073.64	20,508.95	30.8%	1
Gravel	65,321.22	10,611.35	19.4%	2
Coal-n.e.c.	60,376.65	11,686.55	24.0%	3
Nonmetal min. prods.	20,010.55	8,147.00	68.7%	8
Waste/scrap	19,784.25	8,350.53	73.0%	9
Base metals	18,031.06	7,020.19	63.8%	10
Gasoline	15,347.03	(3,375.17)	-18.0%	4
Motorized vehicles	14,136.59	1,885.01	15.4%	7
Other foodstuffs	12,319.39	5,134.96	71.5%	13
Cereal grains	12,058.98	(2,745.67)	-18.5%	5

For the commodities destined for Kentucky, a similar theme emerges. Both cereal grains and logs fall from the top ten to 11th and 23rd respectively. Coal-n.e.c. shipments are expected to increase by 63 million tons or 131.8%, making it the number one commodity destined for Kentucky by tonnage. Breaking into the top ten are basic chemicals up 143.3% and being 16th in 2018 and other foodstuffs up

51.7% and the 12th largest tonnage of commodities in 2018. Basic chemicals include caustic soda, caustic potash, sulfur, hydrochloric acid, sulfuric acid, carbon dioxide and chlorine among other chemicals. Other foodstuffs includes: dairy products; processed or prepared vegetables, fruits and nuts; coffee, tea and spices; animal or vegetable fats and oils; sugars; cocoa; tomato sauces, soups, syrups, processed eggs and other edible preparations; and, non-alcoholic beverages like carbonated soft drinks, sweetened or flavored water, and water. Table 35 illustrates the top ten commodities by tonnage destined for Kentucky in 2040.

Table 35: Top Ten Commodities Destined for Kentucky by Tons, 2040

Commodity	2040 Ktons	Change in Ktons 2018 – 2040	% Change in Tons 2018-2040	2018 Rank
Coal-n.e.c.	111,149.33	63,192.58	131.8%	2
Coal	58,270.89	18,444.16	46.3%	3
Gravel	54,381.79	5,710.75	11.7%	1
Waste/scrap	22,419.42	8,187.53	57.5%	4
Nonmetal min. prods.	21,130.07	7,744.51	57.9%	6
Basic chemicals	16,565.56	9,755.94	143.3%	16
Base metals	15,255.31	2,867.33	23.1%	9
Other foodstuffs	14,193.87	4,835.45	51.7%	12
Crude petroleum	12,482.64	(740.41)	-5.6%	7
Gasoline	12,044.61	(2,039.94)	-14.5%	5

The top ten commodities moving within Kentucky by tonnage reflects significant decreases in tons shipped of logs, cereal grains, natural sands and gasoline and significant increases in nonmetallic mineral products, other foodstuffs, and waste/scrap. Tonnage originating and destined within the state account for 21.7% of tonnage moved in Kentucky, which is down from 25.8% in 2018 indicating a combination of more products being shipped out of and into the State. Table 36 provides information on the top ten intrastate commodities by tonnage.

Table 36: Top Ten Commodities Moving Within Kentucky by Tons, 2040

Commodity	2040 Ktons	Change in Ktons 2018 – 2040	% Change in Tons 2018-2040	2018 Rank
-	49,170.51	5,637.32	12.9%	1
Coal	30,045.11	5,797.79	23.9%	2
Waste/scrap	13,925.98	5,101.16	57.8%	7
Nonmetal min. prods.	13,216.42	5,111.79	63.1%	9
Coal-n.e.c.	12,201.01	3,643.29	42.6%	8
Cereal grains	7,076.21	(2,904.37)	-29.1%	4
Natural sands	5,834.79	(9,211.75)	-99.9%	5
Other foodstuffs	5,780.84	2,205.56	61.7%	13
Fuel oils	5,422.10	(981.79)	-15.3%	10
Gasoline	5,100.89	(3,885.22)	-43.2%	6

Shifting to look at the top ten commodities moving in Kentucky by value it is important to remember that there are two factors that impact value, tonnage moved and price. The data set provides an implicit look at price if tonnage is considered. For instance, coal originating in or destined for Kentucky is expected to total 145.3 million at a value of \$6.4 billion, meaning the projected price for a ton of coal in 2040 is \$44.19, which is a drop from the similarly calculated price of coal in 2018 of \$46.36 per ton. With that in mind the following is an analysis of the top ten commodities by value. First looking at all tonnage either originating or destined for Kentucky, then look at commodities originating in Kentucky, then destined for Kentucky and finally products moving within Kentucky (both originating and destined).

An analysis of commodities originating in or destined for Kentucky by value shows that the value of half of the top ten commodities by value in 2040 has more than doubled. None of the top ten commodities by value show a decline in value shipped between 2018 and 2040. The only commodity falling out of the top ten commodities shipped in Kentucky by value in 2040 is textiles/leather, which drops from 7th to 13th on the list. Moving into the top ten by value shipped are basic chemicals moving into 10th from 14th. Table 37 shows the top ten commodities by value shipped originating or terminating in Kentucky in 2040.

Table 37: Top Ten Commodities Originating or Destined for Kentucky by Value, 2040

Commodity	2040 Million \$s	Change in Million \$s 2018 – 2040	% Change in Value 2018-2040	2018 Rank
Electronics	\$ 210,097.13	\$ 137,441.62	189.2%	3
Motorized vehicles	\$ 157,952.73	\$ 9,667.13	6.5%	1
Machinery	\$ 140,872.55	\$ 73,847.24	110.2%	4
Pharmaceuticals	\$ 115,952.70	\$ 42,156.19	57.1%	2
Precision instruments	\$ 77,860.44	\$ 54,172.12	228.7%	9
Coal-n.e.c.	\$ 49,170.88	\$ 25,482.56	107.6%	8
Base metals	\$ 44,802.53	\$ 11,905.14	36.2%	6
Mixed freight	\$ 44,380.23	\$ 10,855.71	32.4%	5
Plastics/rubber	\$ 41,621.38	\$ 19,850.95	91.2%	10
Basic chemicals	\$ 39,000.96	\$ 22,550.81	137.1%	14

For commodities originating in Kentucky, the top commodity by value of shipments is electronics followed by motor vehicles. Those commodities changed places between 2018 and 2040 due to a surge in the value of electronics originating in Kentucky increasing 189.6% and the value of motor vehicles shipped only increasing 14.7% over the 22 years. The value of machinery and pharmaceuticals shipped keep them in the third and fourth spot respectively. Falling out of the top ten commodities shipped by value are coal-n.e.c., gasoline and textiles/leather being replaced by precision instruments, basic chemicals, and miscellaneous manufactured products. Table 38 shows the top ten commodities originating in Kentucky by value for 2040.

Table 38: Top Ten Commodities Originating in Kentucky by Value, 2040

Commodity	2040 Million \$s	Change in Million \$s 2018 – 2040	% Change in Value 2018-2040	2018 Rank
Electronics	\$ 105,895.52	\$ 69,331.28	189.6%	2
Motorized vehicles	\$ 103,517.80	\$ 13,233.72	14.7%	1
Machinery	\$ 66,048.77	\$ 34,648.20	110.3%	3
Pharmaceuticals	\$ 50,803.75	\$ 21,189.04	71.5%	4
Precision instruments	\$ 28,635.20	\$ 19,112.76	200.7%	11
Base metals	\$ 28,160.30	\$ 10,207.68	56.9%	5
Plastics/rubber	\$ 23,137.48	\$ 12,343.02	114.3%	10
Mixed freight	\$ 18,590.19	\$ 3,595.61	24.0%	7
Basic chemicals	\$ 18,019.65	\$ 9,280.38	106.2%	12
Misc. mfg. prods.	\$ 16,893.90	\$ 9,395.41	125.3%	13

The top ten commodities destined for Kentucky by value account for 71.7% of the value of shipments destined for the State in 2040. This compares to the top ten making up 68.2% of the value of shipments destined for Kentucky in 2018. The value of motorized vehicles destined for Kentucky falls from the number one spot to the 4th spot due to a 6.1% decline in the value of motorized vehicles shipped to destinations in Kentucky. Base metals drop from the 6th spot to the 11th spot and textiles/leather drops from 10th to 13th replaced by plastics/rubber (moving up from 11th to 10th) and basic chemicals (jumping to 8th from 15th). Table 39 provides the details.

Table 39: Top Ten Commodities Destined for Kentucky by Value, 2040

Commodity	2040 Million \$s	Change in Million \$s 2018 – 2040	% Change in Value 2018- 2040	2018 Rank
Electronics	\$ 104,201.61	\$ 68,110.34	188.7%	3
Machinery	\$ 74,823.79	\$ 39,199.05	110.0%	4
Pharmaceuticals	\$ 65,148.95	\$ 20,967.15	47.5%	2
Motorized vehicles	\$ 54,434.93	\$ (3,566.59)	-6.1%	1
Precision instruments	\$ 49,225.24	\$ 35,059.37	247.5%	7
Coal-n.e.c.	\$ 34,036.94	\$ 21,028.77	161.7%	8
Mixed freight	\$ 25,790.04	\$ 7,260.10	39.2%	5
Basic chemicals	\$ 20,981.30	\$ 13,270.43	172.1%	15
Misc. mfg. prods.	\$ 18,777.64	\$ 7,455.89	65.9%	9
Plastics/rubber	\$ 18,483.90	\$ 7,507.93	68.4%	11

The value of intrastate shipments is projected to be just 11.7% of the total value of shipments in Kentucky which shows promise for growing interstate commerce. In 2018 the total value of intrastate shipments was 15.3% of the total. Of the top ten commodities by value in 2040, the value of shipments for motor vehicles, pharmaceuticals, and gasoline decline. Falling out of the top ten, other ag products which includes soybeans, also drop in value 17.7%. Table 40 illustrates the top ten commodities by value both originating in and destined for Kentucky.

Table 40: Top Ten Intrastate Commodities by Value, 2040

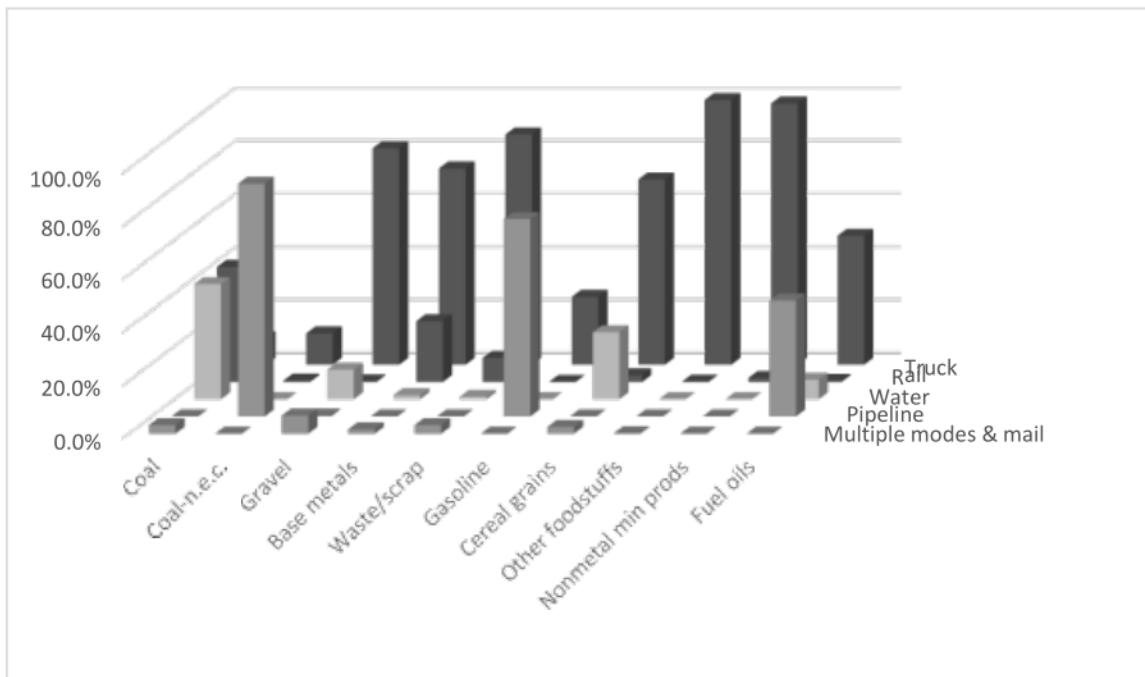
Commodity	2040 Million \$s	Change in Million \$s 2018 – 2040	% Change in Value 2018- 2040	2018 Rank
Motorized vehicles	\$ 30,223.93	\$ (1,052.92)	-3.4%	1
Machinery	\$ 20,109.44	\$ 10,095.06	100.8%	3
Electronics	\$ 13,077.64	\$ 8,095.72	162.5%	6
Pharmaceuticals	\$ 12,358.48	\$ (138.47)	-1.1%	2
Mixed freight	\$ 7,876.37	\$ 1,033.28	15.1%	4
Fuel oils	\$ 4,784.29	\$ 604.44	14.5%	7
Other foodstuffs	\$ 4,772.51	\$ 1,768.84	58.9%	9
Gasoline	\$ 4,748.12	\$ (865.91)	-15.4%	5
Base metals	\$ 4,304.96	\$ 375.36	9.6%	8
Basic chemicals	\$ 4,074.06	\$ 2,558.42	168.8%	17

Top Commodities Moved by Direction and Mode

ROK

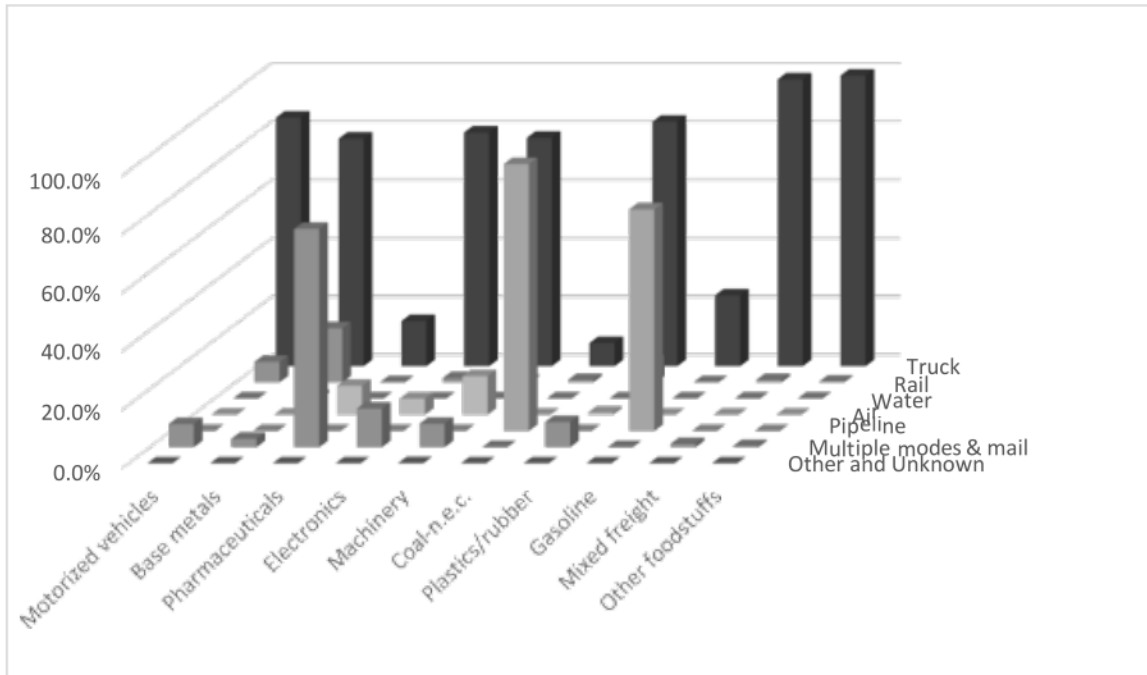
As in 2018, trucking continues to haul the majority of freight for five of the top ten commodities in 2040. Gravel, waste/scrap, other foodstuffs, nonmetal mineral products and cereal grains are moved mostly by truck. That said, gravel and cereal grains also rely on the inland waterways in addition to trucking. Waterways will also carry almost half of the coal originating in Kentucky and 7.3% of the fuel oils. Pipelines are expected to be the major mover of coal-n.e.c., gasoline, and to a lesser extent, fuel oils. In looking more closely at the movement of gravel originating in Kentucky, water will carry 11.1% which is all of the gravel moving over 750 miles. Trucking will carry 99.8% of the gravel moving less than 100 miles with railroads moving the remaining 0.2%. Gravel moving less than 100 miles is 80.6% of the tonnage of gravel moved. Figure 47 illustrates the top ten commodities by tonnage originating in the ROK by mode. Air and other/unknown move little or none of the commodities in the top ten by tons and are not included.

Figure 47: Top Ten Commodities Originating in the ROK by Tonnage and Mode, 2040



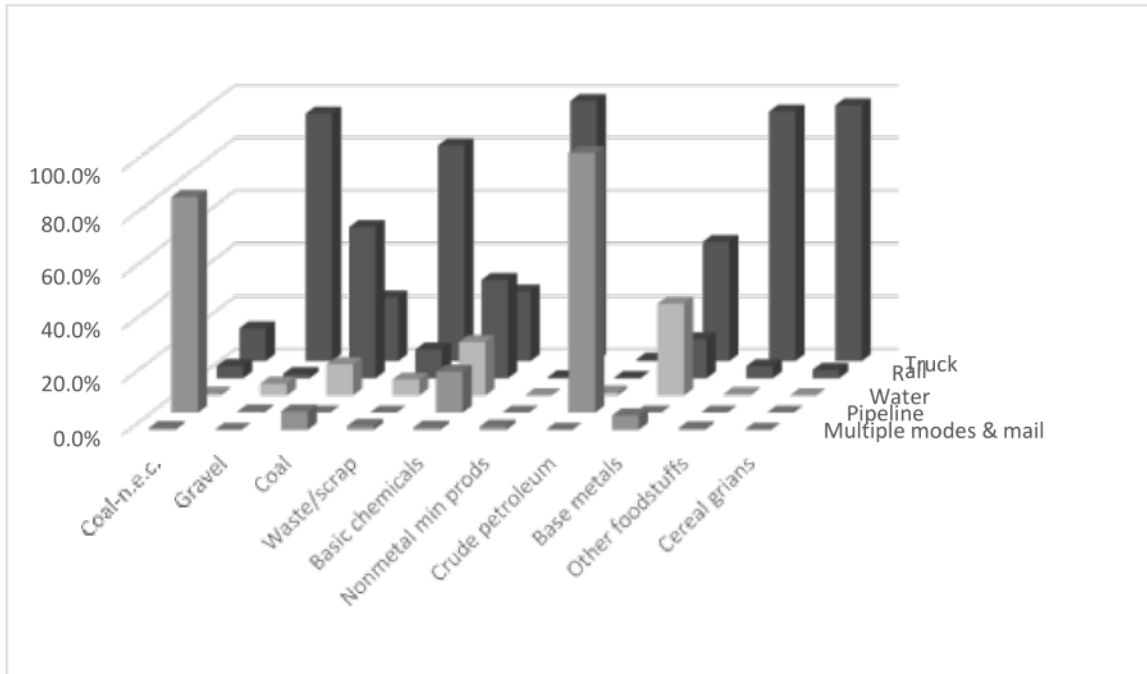
An analysis of the top ten commodities by value originating in the ROK shows an even greater reliance on trucking compared to tonnage. Seven out of the top ten commodities by value are more than 75.0% reliant on trucking. The exceptions are pharmaceuticals, mostly reliant on multiple modes/mail, and coal-n.e.c. and gasoline which are heavily dependent on pipelines. Air cargo is important based on the value of the commodities moved for pharmaceuticals, electronics, and machinery. Figure 48 shows the top ten commodities by value originating in the ROK by mode.

Figure 48: Top Ten Commodities by Value Originating in ROK by Mode, 2040



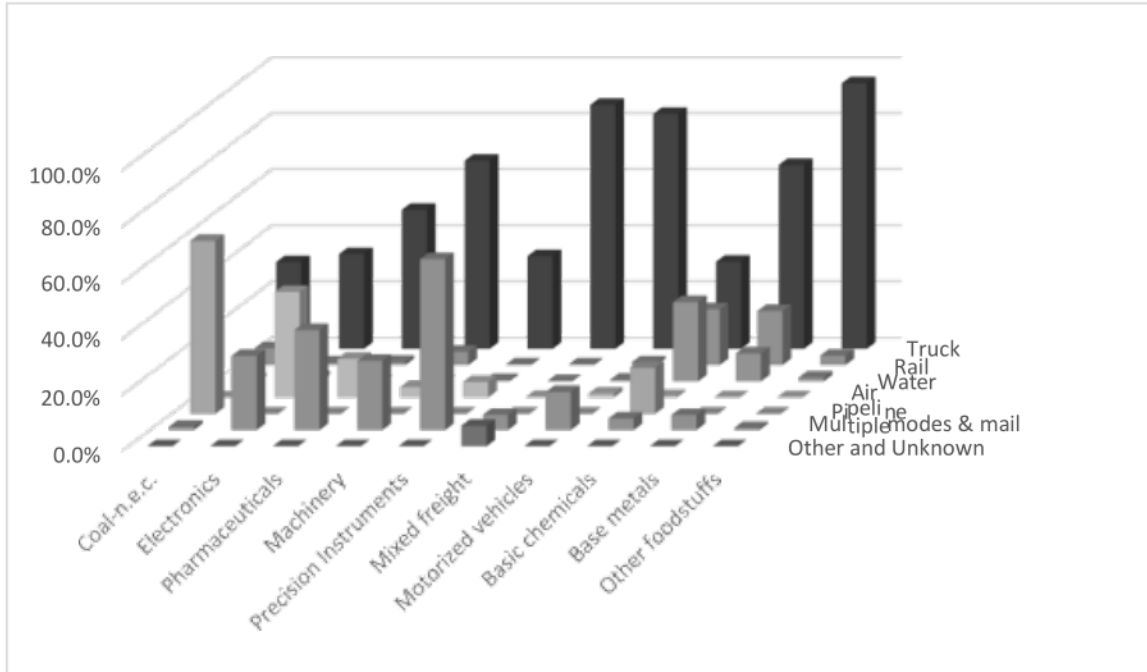
For products destined for the ROK, trucking is the leading form of transportation for gravel, waste/scrap, nonmetal mineral products, other foodstuffs, and cereal grains. Pipelines carry the vast majority of coal-n.e.c. and crude petroleum and railroads carry more than half of the coal originating in Kentucky. The inland waterways will move coal (11.8%), waste/scrap (6.0%), basic chemicals (20.2%) and base metals (34.7%) destined for the ROK area. Figure 49 captures the modal shares for the top ten commodities by tonnage destined for the ROK.

Figure 49: Top Ten Commodities by Tonnage Destined for ROK by Mode, 2040



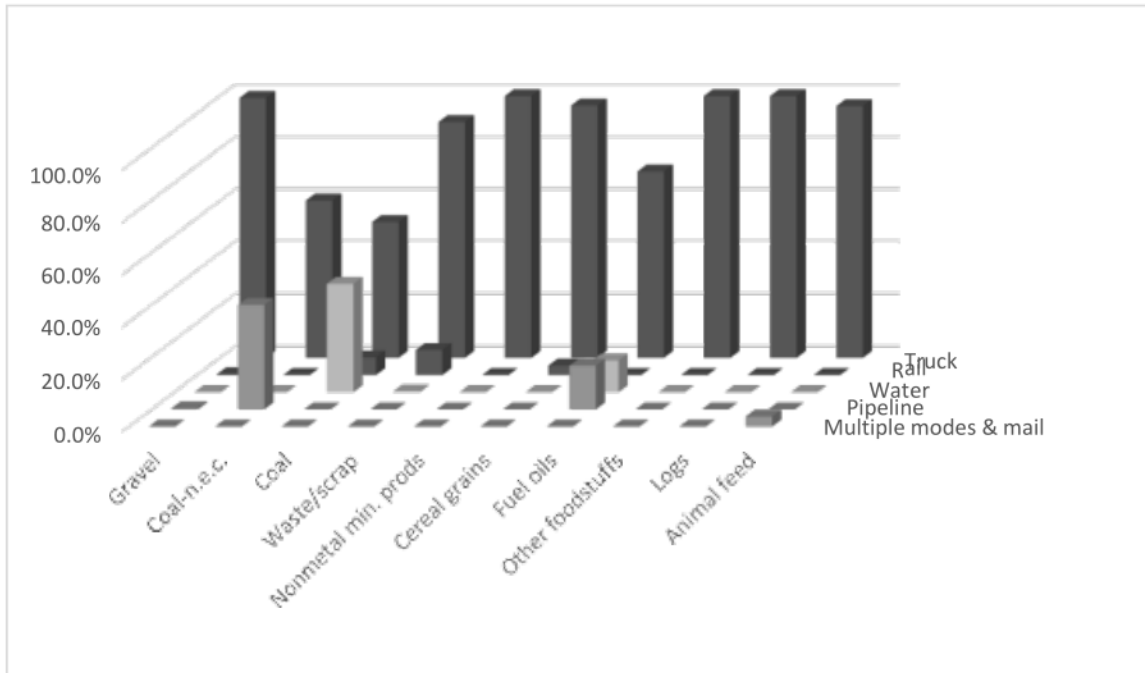
The top ten commodities destined for ROK based on the value of shipments are less concentrated in truck movements. Mixed freight (86.9%), motorized vehicles (83.7%) and other food stuffs (94.6%) by value rely heavily on trucks. The top commodity by value, coal not elsewhere classified, is moved primarily by pipeline (61.6%) and trucks (30.9%). Precision instruments are most reliant on multiple modes/mail while basic chemicals and pharmaceuticals will rely on multiple means of transport. Figure 50 presents the top ten commodities by value of shipments destined for ROK by mode.

Figure 50: Top Ten Commodities by Value Destined for ROK by Mode, 2040



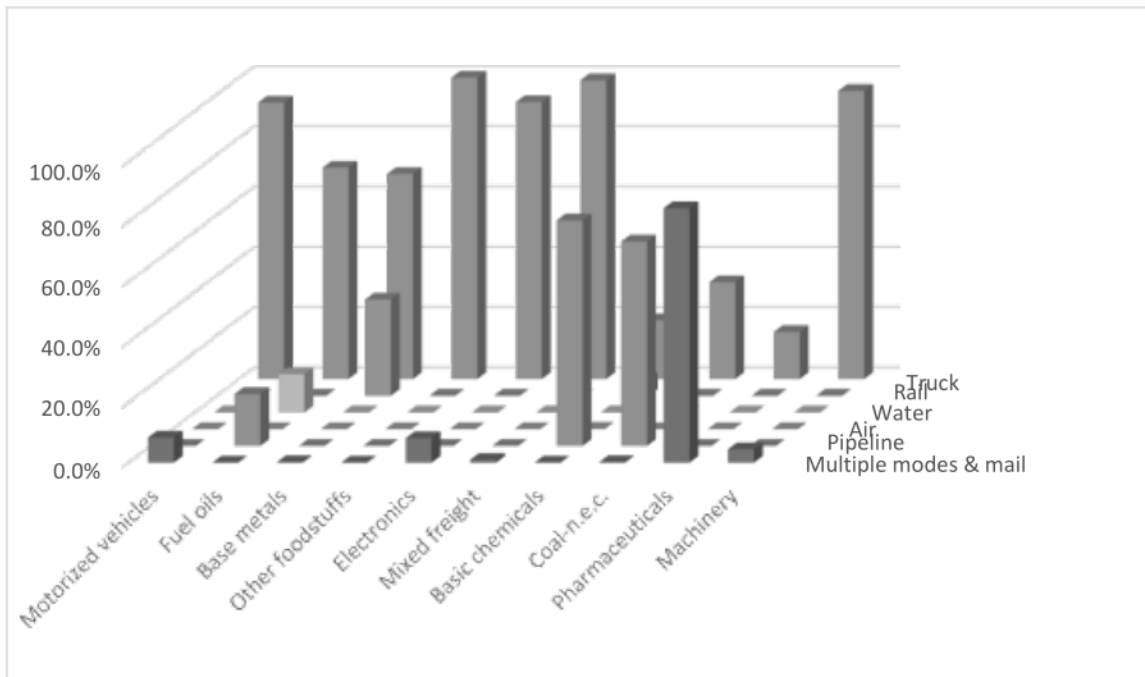
Intraregional movements in 2040 for the top ten commodities by tonnage in the ROK are heavily reliant on the highway network and trucks. Coal not elsewhere classified and fuel oils use pipelines to augment trucking and coal and fuel oils use water transportation in addition to trucking. Railroads move some coal, cereal grains, and waste/scrap. Figure 51 provides the detail on freight tonnage originating in and destined for ROK by mode.

Figure 51: Top Ten Commodities by Tonnage Originating in and Destined for ROK, 2040



Similar to the top ten commodities by tonnage moving within ROK, the top ten commodities by value are vastly reliant and trucks and the Kentucky highway system. All of the commodities but basic chemicals, coal not elsewhere classified, and pharmaceuticals are primarily moved by trucks. Basic chemicals and liquefied coal products move mostly via the pipeline system and pharmaceuticals by multiple modes/mail. All but basic chemicals travel less than 250 miles from origination to destination. Figure 52 illustrates the top ten commodities by value moving intraregional by mode.

Figure 52: Top Ten Commodities Originating and Destined for ROK by Value by Mode, 2040

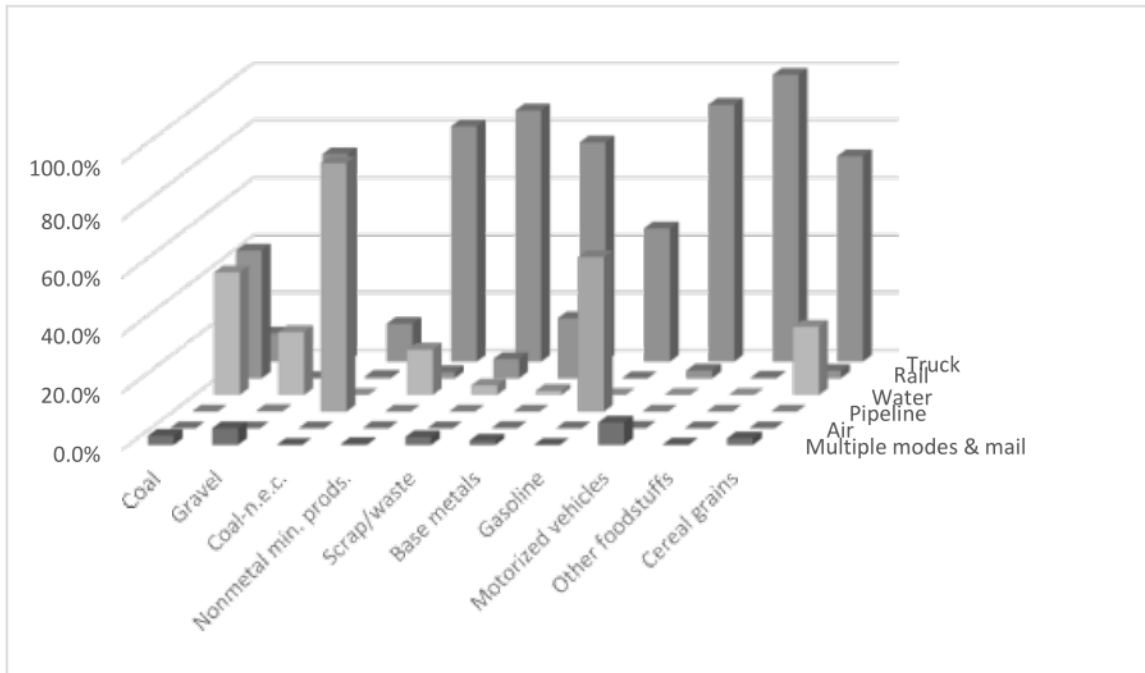


Kentucky

Commodities Originating in Kentucky

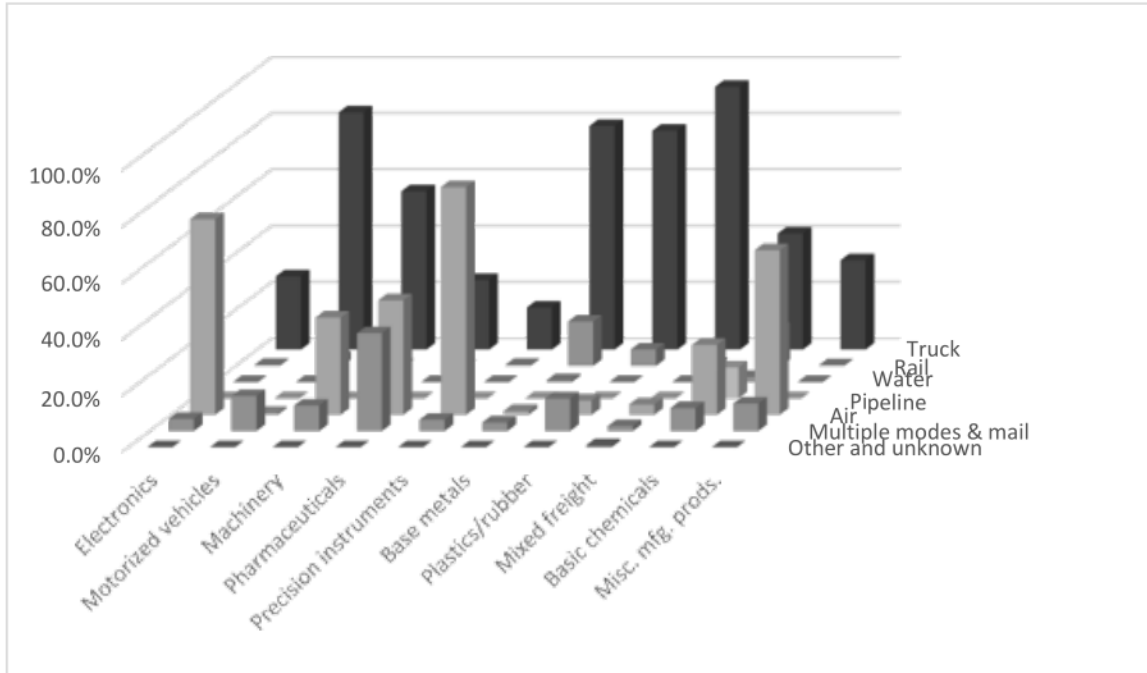
Coal is king in Kentucky. It is projected to be the largest commodity originating in Kentucky by tonnage making Kentucky the 3rd largest originator of coal in the U.S. in 2040. The State is expected to ship more than 1 million tons of coal to 11 states, all in the Southeast except for Ohio. How Kentucky coal will be moved in 2040 is of critical importance to the State’s economy. Coal originating in Kentucky will rely on diversified modes of transport with 44.4% of the tonnage being hauled by rail, 42.6% by water and 9.8% by trucks. The next largest commodity by tonnage originating in Kentucky is gravel. Gravel tonnage is three-fourths of the coal tonnage with 72.1% moved by truck, 21.7% moved by water and the other 6.2% by all the other modes combined. This has important implications for port development to accommodate the demand for water transportation for these key commodities. Figure 53 shows the top ten commodities originating in Kentucky by tonnage and the modal share of transporting that cargo.

Figure 53: Top Ten Commodities by Tonnage Originating in Kentucky by Mode, 2040



The top ten commodities by value of shipment originating in Kentucky rely more heavily on air and multiple modes/mail for shipping. Only motorized vehicles and mixed freight rely more than 80% on trucking. Water movements are not significant based on value of shipments. Figure 54 provides the details on how the top ten commodities originating in Kentucky by value are moved.

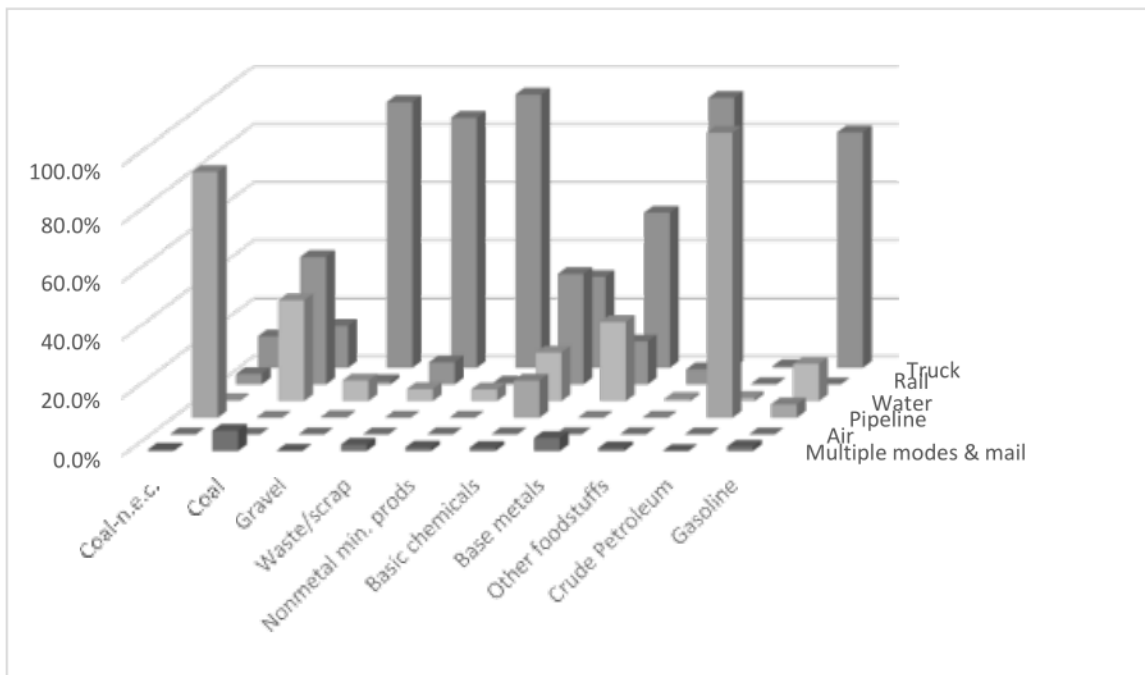
Figure 54: Top Ten Commodities by Value Originating in Kentucky by Mode, 2040



Commodities Destined for Kentucky

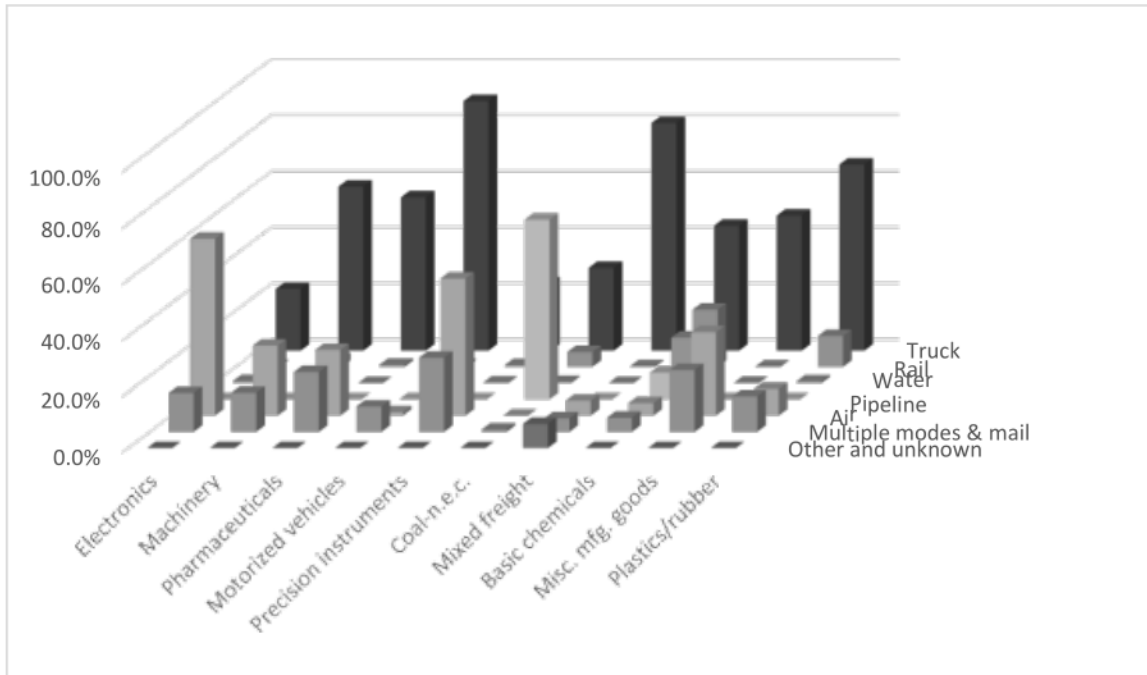
For the top ten commodities destined for Kentucky, half of them rely on trucks to move more than 80.0% of the tonnage including gravel, waste/scrap, nonmetallic mineral products, other food stuffs and gasoline. The inland waterways are also an important transportation option for hauling some of the tonnage of all of the top ten commodities destined for Kentucky. Seven of the top ten commodities destined for the State have more than 4.0% of tonnage moving by water. Having a balance of commodities originating and destined by a single mode is important to ensure steady capacity for goods moving in both directions. Figure 55 illustrates the top ten commodities by tonnage destined for Kentucky by mode of transport in 2040.

Figure 55: Top Ten Commodities by Tonnage Destined for Kentucky by Mode, 2040



The top ten commodities by value destined for Kentucky use diverse means of transportation with a lesser emphasis on trucking and a greater emphasis on air cargo and multiple modes/mail, much like the leading cargo by value originating in the State. Basic chemicals, the 8th largest commodity by value of shipments, uses the inland waterways to move 16.2% of its freight and only pharmaceuticals and machinery do not use water as a means to move goods to Kentucky. Figure 56 illustrates the top ten commodities by value that are destined for Kentucky by modal shares as projected for 2040.

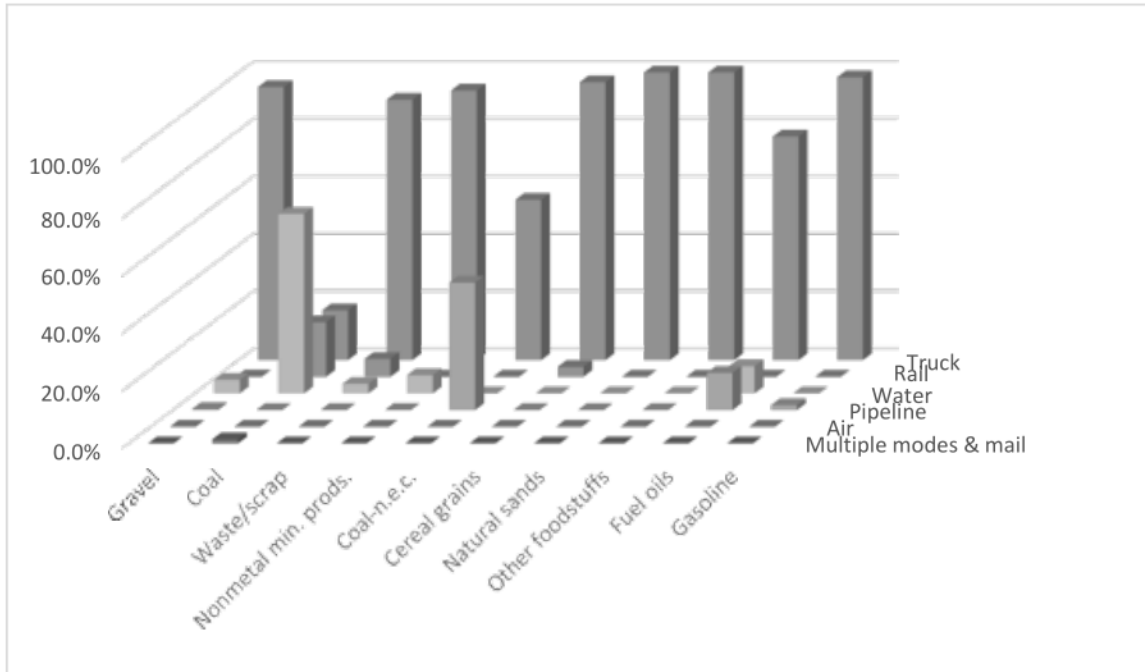
Figure 56: Top Ten Commodities by Value Destined for Kentucky by Mode, 2040



Intrastate Commodities

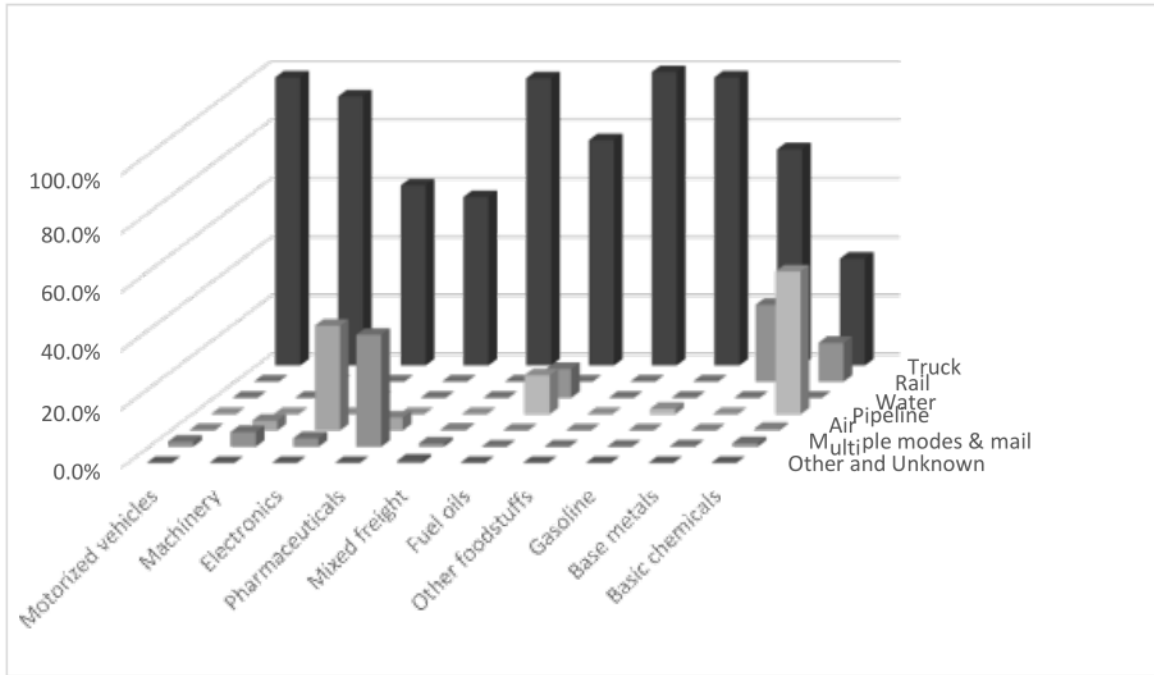
Cargo both originating in and destined for Kentucky will continue to be dominated by trucking in 2040. The top ten commodities by tonnage originating in Kentucky and destined for Kentucky will total almost 148 million tons with trucks moving 75.3% of that tonnage, water will move 15.5%, railroads will move 4.7%, pipelines 4.3% and the other modes combined account for the other 0.3%. All of the commodities but coal will use trucks to move over half of the tonnage. Coal will be hauled predominantly by water (62.4%). Figure 57 illustrates the top ten commodities by tonnage moving intrastate by mode.

Figure 57: Top Ten Intrastate Commodities by Tonnage by Mode, 2040



Intrastate movements of the top ten commodities by value reflect the dominance of trucking as means of transport as seen by tonnage. Only pharmaceuticals (4th largest by value) and basic chemicals (10th largest by value) are moved by trucks less than 60% of the time. The former relies on multiple modes/mail while the latter relies to a greater extent on pipelines. These patterns are highlighted in Figure 58.

Figure 58: Top Ten Intrastate Commodities by Value by Mode, 2040



Top Trading Partners

ROK

The top ten trading partners for commodities originating in the ROK area based on tonnage are not expected to change between 2018 and 2040, although there is some shifting in how they rank. The top ten states will account for 89.6% of all the freight originating in the ROK. Kentucky continues to be the dominant trading partner for the ROK, highlighting the importance of in-state movement of goods. Kentucky is the projected destination for 43.9% of goods originating in the ROK. Table 41 shows the top ten receiving trading partners for ROK commodities.

Table 41: Top Ten Trading Partners for Commodities Originating in the ROK based on Tonnage, 2040

Destination State	2040 KTONs	2040 Share of Originating Commodities	2018 Rank
Kentucky	142,102	43.9%	1
West Virginia	26,217	8.1%	3
Ohio	25,422	7.8%	2
Indiana	24,129	7.4%	4
Louisiana	21,301	6.6%	5
South Carolina	17,147	5.3%	8
Tennessee	14,544	4.5%	6
Illinois	8,509	2.6%	7
Georgia	5,849	1.8%	9
Florida	4,947	1.5%	10

The top ten trading partners for commodities destined for Kentucky based on tonnage for 2040 will include Michigan and Louisiana moving into the top ten with North Dakota and West Virginia dropping to 15th and 12th, respectively. Table 42 illustrates the top ten states originating the most tonnage of freight destined for the ROK area.

Table 42: Top Ten Trading Partners Originating Tonnage Destined for the ROK, 2040

Originating State	2040 KTONs	2040 Share of Originating Commodities	2018 Rank
Kentucky	123,755.76	39.6%	1
Tennessee	77,105.24	24.7%	2
Wyoming	14,146.34	4.5%	6
Illinois	13,823.24	4.4%	7
Indiana	12,620.25	4.0%	5
Texas	11,242.28	3.6%	4
Ohio	11,191.54	3.6%	3
Colorado	4,944.48	1.6%	9
Michigan	4,744.28	1.5%	14
Louisiana	4,305.36	1.4%	13

The top two commodities originating in the ROK being shipped to its top ten trading partners in 2040 is projected to be coal and liquefied coal products (coal-n.e.c.). Together, 60.2% of the tonnage of the top 5 commodities shipped to the ROK top ten trading partners is coal and liquefied coal products. This reflects the same patterns as in 2018 and is illustrated in Figure 59. Base metals are in the top five commodities sent to each of 7 of the top 9 destination states outside of Kentucky. Waste/scrap and cereal grains are in the top 5 commodities in 3 of the top 9 destination states outside of Kentucky. Commodities destined for Louisiana and Florida are most likely destined for export to foreign markets. Because of the way data is collected for exports, the originating state may appear to be the home state of the port loading out the product for export.

Figure 59: Top Commodity Shipped from ROK to Top Ten Destination States, 2040

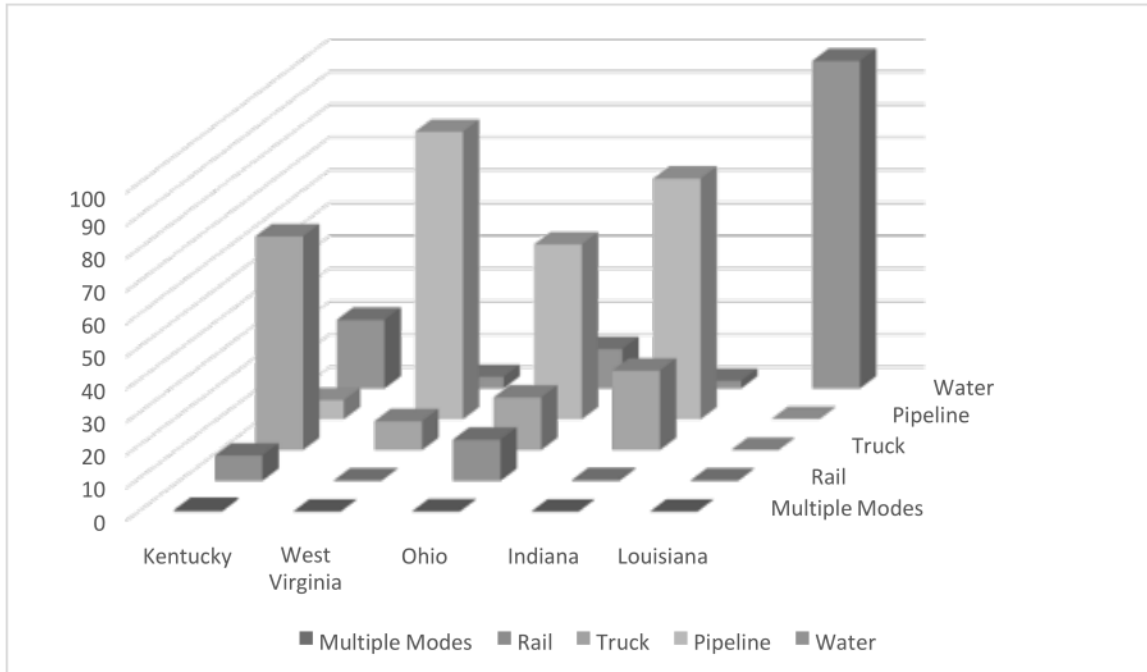


- Coal
- Coal-n.e.c.
- Gravel

It is interesting that in one of the largest coal producing states that the ROK region is the destination for coal and liquefied coal originating in its top ten trading partner states. It is projected that the ROK is the destination for almost 21 million tons of coal coming from Wyoming (13.3 million tons), Colorado (4.4 million tons), Indiana (2.4 million tons) and Illinois (800 thousand tons). Liquefied coal destined for the ROK totals almost 69 million tons with over 62 million tons coming from Tennessee. Crude petroleum is the third largest commodity destined for the ROK from its top ten state trading partners (Texas, Michigan, Louisiana, Wyoming, and Colorado) followed by base metals (Texas, Ohio, Indiana, and Michigan). From Illinois the ROK receives basic chemicals and fertilizers in addition to coal-n.e.c. and coal.

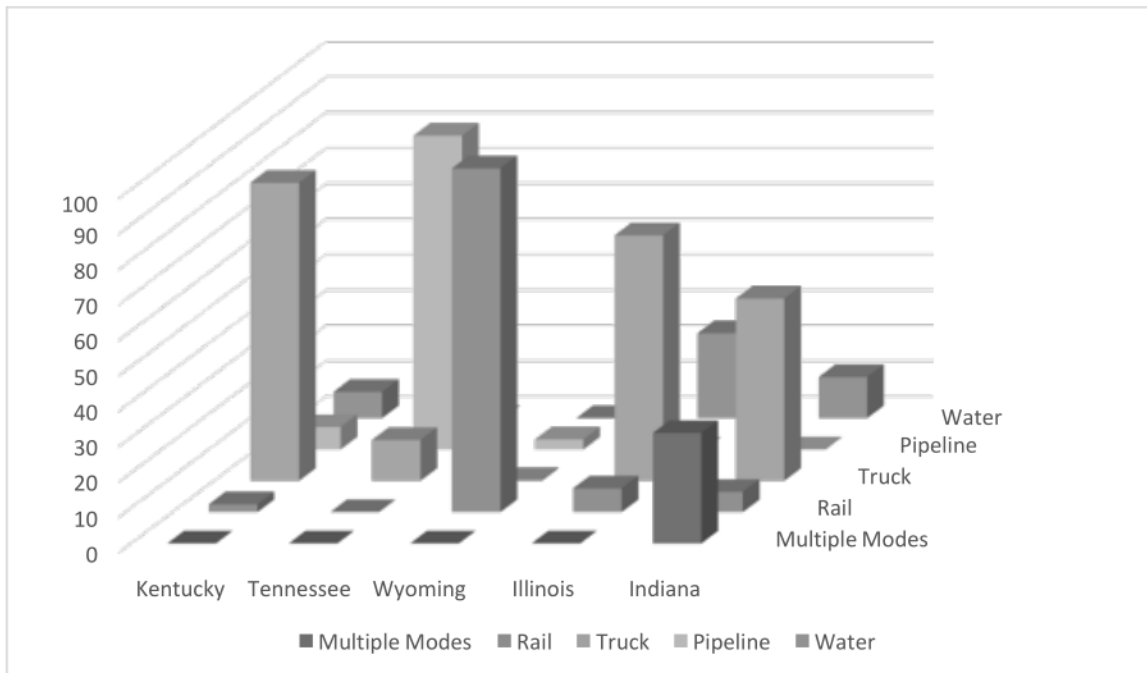
In looking at the top five trading partners for ROK top five originated goods, only goods destined for the State of Kentucky are moved predominantly by truck, 65.1%. The next three trading partners, West Virginia, Ohio, and Indiana, receive liquified coal, gas, and fuel oils through the pipeline network. Louisiana, the fifth largest trading partner for ROK originated goods, receives 99.8% via the inland waterways and only a token amount split between pipeline and rail. Goods destined for Louisiana include cereal grains (corn), other ag products (soybeans), gravel, coal, and a small amount of crude petroleum. Figure 60 shows the top five trading partners' top five commodities by mode in 2040.

Figure 60: Top Five ROK Originating Trading Partners Top Five Commodities by Mode, 2040



The top five trading partners originating goods going to the ROK use a more diversified mix of transportation for the top five commodities. More than half of the cargo from Kentucky (84.0%), Illinois (69.3%) and Indiana (51.5%) come by truck. Shipments from Tennessee are mostly liquefied coal products resulting in 88.5% coming via pipeline. Wyoming originates coal moving to the ROK all by rail. How the top five commodities from the top five trading partners is hauled is important since the top five account for the following of all shipments coming from ROK's trading partners: Kentucky (57.6%), Tennessee (91.3%), Wyoming (99.9%), Illinois (73.0%) and Indiana (59.9%). Figure 61 illustrates the mode for the top five commodities combined originating in the top five trading partner states in 2040.

Figure 61: Top Five Originating Trading Partners Top Five Commodities by Mode, 2040



Kentucky

The top ten destination trading partners for commodities originating in Kentucky is not expected to change between 2018 and 2040, except for shifting within the top 10. The top ten states, including Kentucky, will be the destination for over 374 million tons or 88.0% of all goods originating in Kentucky. Intrastate freight is expected to account for 45.2% of freight originating in Kentucky. Table 43 shows the top ten destination states for Kentucky commodities in 2040.

Table 43: Top Ten Trading Partners for Commodities Originating in Kentucky Based on Tonnage, 2040

Destination State	2040 Ktons	2040 Share of Originating Commodities	2018 Rank
Kentucky	192,264.28	45.2%	1
Ohio	36,631.57	8.6%	3
West Virginia	33,281.10	7.8%	2
Indiana	31,545.10	7.4%	4
Louisiana	22,031.62	5.2%	7
South Carolina	17,946.98	4.2%	8
Tennessee	16,992.15	4.0%	5
Illinois	10,487.23	2.5%	6
Georgia	6,910.63	1.6%	9
Florida	6,144.93	1.4%	10

For states shipping commodities destined for Kentucky, North Dakota drops out of the top ten between 2018 and 2040 falling to 15th. West Virginia moves from 11th to 10th the remaining nine of the top ten states from 2018 change with some position shifting by 2040. The top ten trading partners that originate cargo destined for Kentucky account for 88.9% or over 407 million tons of freight. Commodities originating and destined for Kentucky make up 42.0% of the tonnage terminating in the state. Table 44 illustrates the top ten trading partners originating products destined for Kentucky.

Table 44: Top Ten Trading Partners Originating Tonnage Destined for Kentucky, 2040

Originating State	2040 Ktons	2040 Share of Commodities Destined for KY	2018 Rank
Kentucky	192,264.28	42.0%	1
Tennessee	105,601.08	23.1%	2
Ohio	20,824.83	4.5%	3
Indiana	20,448.11	4.5%	4
Illinois	18,276.66	4.0%	6
Texas	14,886.71	3.3%	5
Wyoming	14,317.23	3.1%	7
Michigan	7,896.43	1.7%	10
Louisiana	6,630.90	1.4%	8
West Virginia	5,945.50	1.3%	11

As in 2018, coal and liquefied coal products (coal not elsewhere classified), represent the most significant traded commodity originating in Kentucky together totaling 37.1% of all the tonnage shipped to the top ten partner states listed in Table 41. Gravel originating in the State accounts for 15.6%. Outside of Kentucky, three of the other top four destinations are neighboring states. The 4th state, 5th largest destination by tonnage, is Louisiana with coal, gravel, cereal grains, and other agriculture products making up the bulk of cargo presumably for export through Gulf Coast ports.

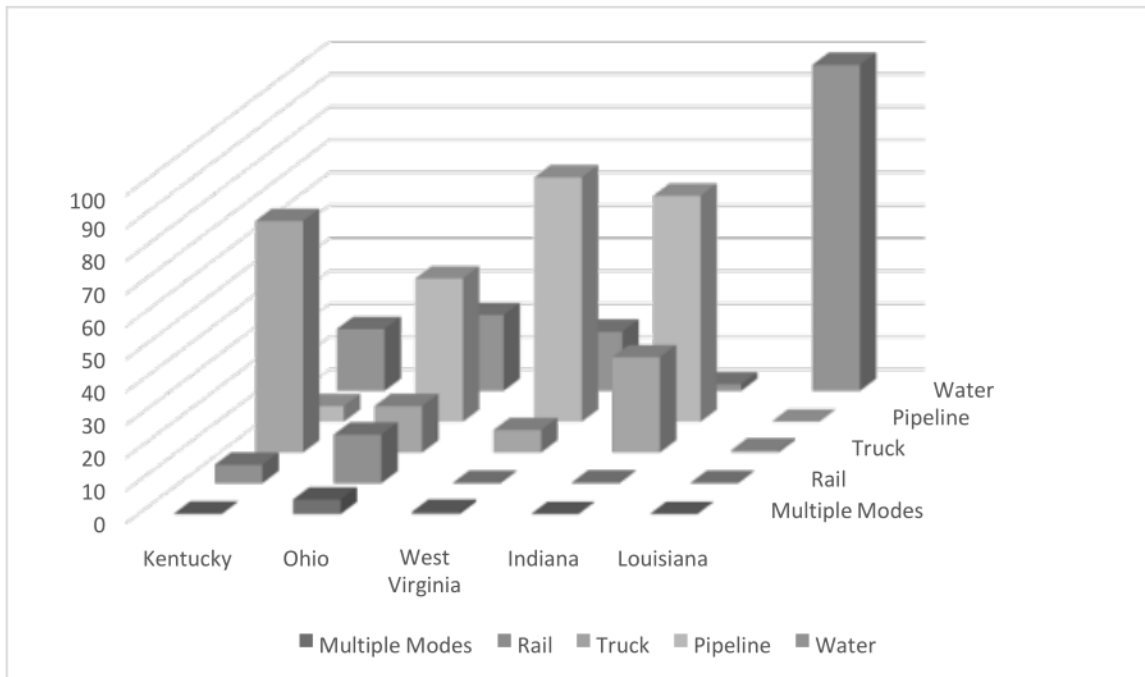
The commodities projected to be the largest by tonnage destined for Kentucky from its top ten trading partners are liquefied coal products followed by gravel, coal, and waste/scrap. However, that includes intrastate movements. Taking Kentucky out of the top ten originating states, the greatest tonnage of commodities sent to Kentucky by the other nine states is still coal and liquefied coal (coal not elsewhere classified) followed by basic chemicals, base metals, and scrap/waste. Table 45 provides details on the top commodities coming to Kentucky from the top ten originating states.

Table 45: Top Commodities by Tonnage Destined for Kentucky from Top Ten Originating State Trading Partners, 2040

Commodity	2040 Ktons	Rank	2040 Ktons w/out KY	Rank w/out KY Ktons
Coal-n.e.c.	109,776.34	1	20,934.47	2
Gravel	53,314.22	2	4,143.71	9
Coal	51,785.81	3	21,740.70	1
Waste/scrap	21,329.71	4	7,403.73	5
Nonmetal min. prods.	19,161.06	5	5,944.64	6
Basic chemicals	12,484.50	6	7,735.56	3
Base metals	11,741.44	7	7,695.92	4
Other foodstuffs	11,556.95	8	5,776.11	7
Cereal grains	8,846.32	9	1,770.11	14
Crude petroleum	8,568.28	10	4,364.77	8
Fuel oils	8,349.71	11	2,927.61	12
Motorized vehicles	7,434.70	12	3,564.33	10
Animal feed	6,423.01	13	1,952.65	13
Mixed freight	6,114.15	14	2,928.11	11

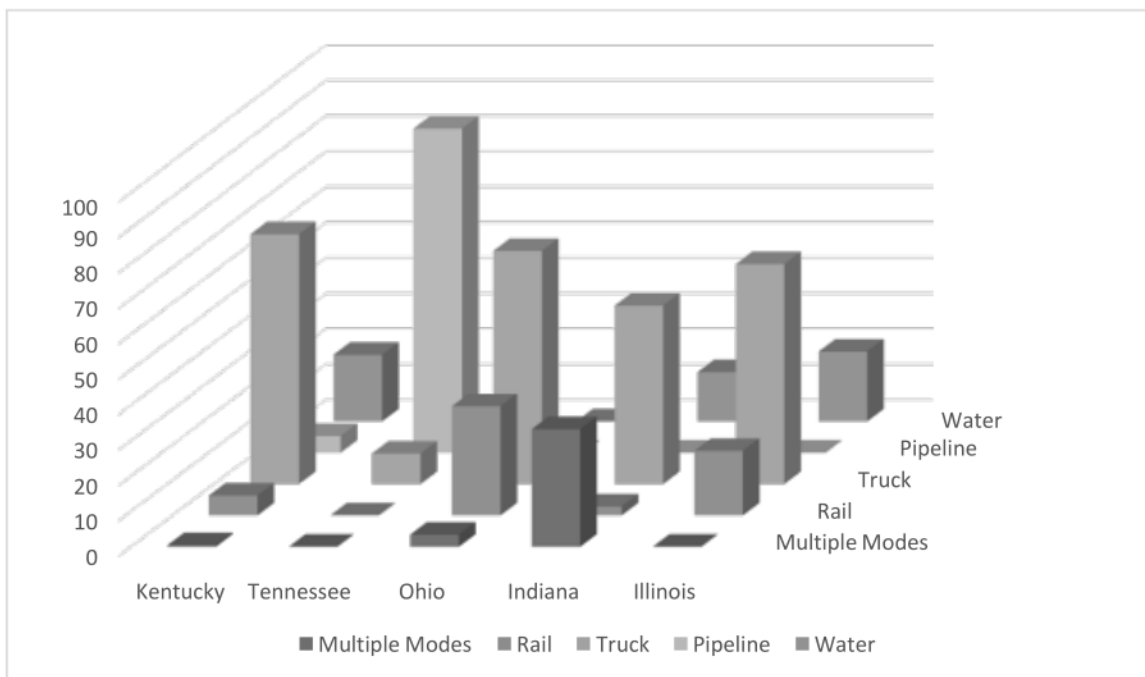
The top five trading partners for commodities originating in Kentucky are dependent on many modes of transport. For goods destined within the state, trucks carry the bulk of the freight (70.5%), however, water has a meaningful role as it is forecast to move 18.8% of the tonnage. Freight destined for Ohio, Kentucky's largest interstate destination by tonnage, relies on pipelines (43.6%) and the waterways (23.1%). Likewise, freight destined for West Virginia will move through pipelines (74.4%) and the waterways (18.0%). Freight moving to Indiana will use pipelines (68.8%) and trucks (29.0%). Commodities destined for Louisiana will move almost exclusively by water. Figure 62 shows the top five destination trading partners' top five commodities by mode in 2040.

Figure 62: Top Five Kentucky Originating Trading Partners Top Five Commodities by Mode, 2040



In considering top five state originating the top five commodities destined for Kentucky, trucking is a predominant mode, reflecting the commodities shipped and the proximity of the states sending products to the State. As discussed previously, freight originating in and destined for Kentucky typically travels less than 250 miles and is expected to continue to move mainly by trucks. Tennessee predominantly originates liquefied coal products destined for Kentucky, which moves by pipeline. The other four of the top five commodities represent far less tonnage, but is almost exclusively moved by truck. More than half of the commodities moving in Kentucky from neighboring states to the north – Ohio, Indiana, and Illinois – will move by truck, 65.8%, 50.4% and 62.1%, respectively. Waterway movements are important for commodities destined for Indiana (13.9%) and Illinois (19.7%). Figure 63 details the mode for the top five commodities combined originating Kentucky’s top five trading partner states in 2040.

Figure 63: Top Five Originating Trading Partners Top Five Commodities by Mode, 2040



Projected Growth Areas by 2040: FAF4

ROK

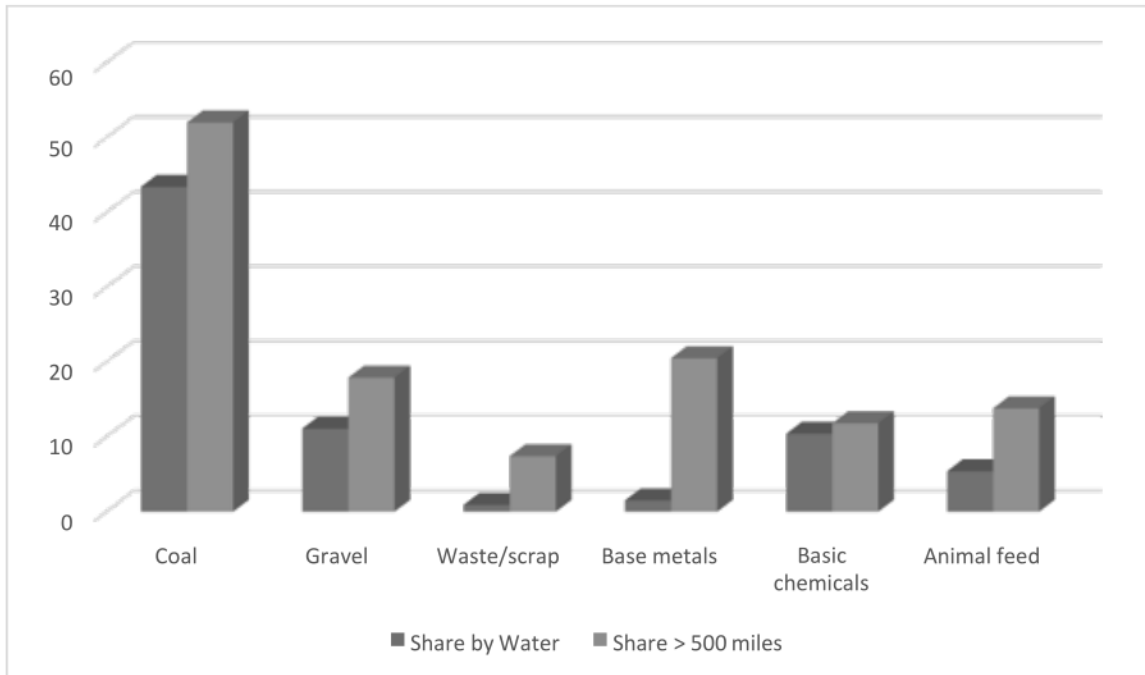
In 2040 the 15 greatest growing commodities by tonnage originating in the ROK area, regardless of the dominant mode, are industries that should be considered economic development opportunities for the Eddyville Riverport. Table 46 provides details on the 15 commodities that are projected to grow the most in tons moved in the ROK area. The table delineates the tonnage in 2018, the projected tonnage in 2040, the growth in tons and the predominant mode of transportation projected for 2040.

Table 46: Top 15 Growing Commodities by Tonnage Originating in ROK, 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Coal	66,564.64	85,595.04	19,030.39	Rail/Water (43.4%)	43.4%
Coal-n.e.c.	43,561.85	55,429.34	11,867.50	Pipeline (87.7%)	0.0%
Gravel	32,453.57	39,813.87	7,360.30	Truck (81.6%)	11.1%
Waste/scrap	7,504.79	14,098.91	6,594.13	Truck (86.8%)	0.9%
Base metals	10,094.42	15,953.33	5,858.90	Truck (74.0%)	1.5%
Nonmetal min. prods.	4,550.90	8,057.21	3,506.31	Truck (98.4%)	0.0%
Other foodstuffs	5,244.06	8,550.72	3,306.67	Truck (99.8%)	0.0%
Basic chemicals	3,678.17	6,708.28	3,030.11	Truck (37.5%)	10.4%
Chemical prods.	2,652.50	5,011.59	2,359.09	Truck (92.0%)	0.0%
Plastics/rubber	2,098.19	4,025.72	1,927.53	Truck (74.7%)	0.0%
Animal feed	4,000.76	5,909.87	1,909.11	Truck (89.0%)	5.4%
Motorized vehicles	4,617.87	6,027.04	1,409.17	Truck (94.6%)	0.0%
Machinery	876.50	2,073.43	1,196.93	Truck (94.9%)	0.0%
Electronics	827.78	1,966.38	1,138.60	Truck (94.9%)	0.0%
Live animals/fish	1,849.46	2,643.90	794.44	Truck (100.0%)	0.0%

Table 46 illustrates riverport opportunity areas based on projections for 2040 in the ROK area. Coal, gravel, waste/scrap, base metals, basic chemicals, and animal feed show significant growth and existing use of waterway travel. Looking at the distance bands associated with those commodities, those with a large share moving over 500 miles are ideal candidates for more efficient movements if done via the waterways. For the commodities with a share of tonnage moved by water, the share of tonnage by distance bands illustrates the opportunity to attract additional tonnage to the waterways. Figure 64 illustrates the projected water share and the percentage of tonnage moved more than 500 miles; the difference is the tonnage that could be transported more efficiently on the waterways. The share of the tonnage of those commodities destined for states that could easily be served via the inland waterways are as follows: base metals (66.2%); animal feed (59.0%); basic chemicals (83.3%); coal (45.4%); gravel (100%); and, waste/scrap (44.6%).

Figure 64: Six Commodities of Top 15 Growth by Tonnage Originating in ROK Transported by Water by Distance, 2040



Commodities originating in the ROK area that are projected to see declines of 100,000 or more tons by 2040 are listed in Table 47. These projections are important to consider for future development opportunities at the Riverport and Industrial Park. Given the significant declines in cereal grains (corn) and other ag products (soybeans), key commodities shipped out of the Riverport, it will be important to diversify commodities that move through the facility. The drops in crude petroleum and fuel oils will also impact river commerce, however the declines in the former are not significant in terms of tonnage and in the latter by tonnage or percentage of tons. This analysis is also instructive on industries that might provide short-term gains, but could face long-term challenges.

Table 47: Commodities Originating in the ROK Projected to Decline > 100K Tons, 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Crude petroleum	505.49	360.53	(144.97)	Water (41.8%)	41.8%
Fuel oils	7,130.97	6,912.26	(218.71)	Truck (48.6%)	7.3%
Other ag prods.	4,456.45	4,055.81	(400.64)	Truck (71.1%)	28.8%
Natural sands	3,211.03	2,262.28	(948.76)	Truck (100.0%)	0.0%
Newsprint/paper	4,737.66	3,486.05	(1,251.62)	Truck (84.5%)	0.0%
Gasoline	13,452.87	11,077.91	(2,374.96)	Pipeline (74.4%)	0.0%
Cereal grains	13,405.91	10,779.46	(2,626.45)	Truck (69.8%)	25.2%
Logs	12,291.77	4,113.73	(8,178.05)	Truck (99.8%)	0.0%

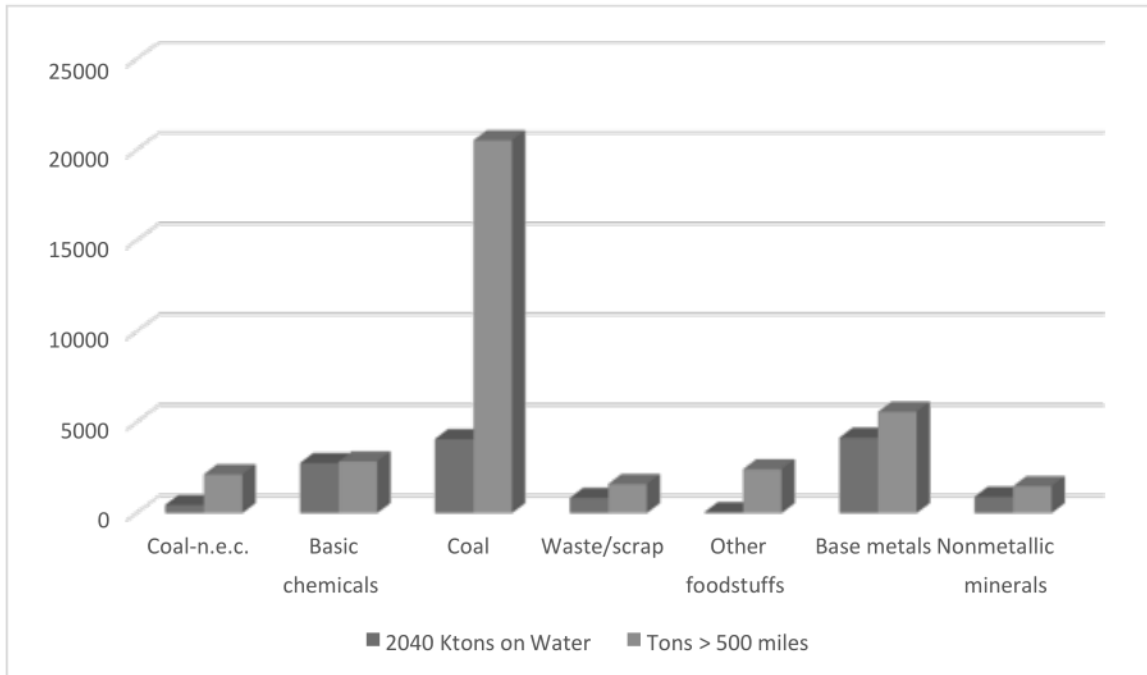
The balance of movements is important to maximize efficiencies and keep costs low. It is important to consider commodities that will arrive through the riverport to be transported from there to the final destination. Commodities that require similar equipment as products being shipped out from the riverport could create more efficient movements for area shippers. For commodities destined for the ROK area, 18 are expected to increase by more than one million tons. Table 48 lists the 18 commodities, the projected predominant mode of transport and the share expected to be moved by water.

Table 48: Commodities Destined for ROK > 1 Million Ton Increase in 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Coal-n.e.c.	34,536.42	81,734.62	47,198.20	Pipeline (81.6%)	0.6%
Basic chemicals	5,495.53	13,666.62	8,171.09	Rail (37.2%)	20.2%
Nonmetal min. prods.	7,851.56	13,393.36	5,541.81	Truck (98.4%)	0.0%
Coal	29,029.67	34,367.99	5,338.32	Rail (57.2%)	11.9%
Gravel	31,538.26	36,753.17	5,214.91	Truck (93.6%)	4.4%
Waste/scrap	9,467.23	13,935.26	4,468.03	Truck (81.6%)	6.6%
Other foodstuffs	6,139.33	9,396.50	3,257.17	Truck (94.4%)	0.5%
Fertilizers	1,864.51	5,095.21	3,230.70	Truck (78.9%)	0.0%
Fuel oils	4,710.57	7,293.42	2,582.85	Truck (83.4%)	7.0%
Animal feed	4,023.84	5,970.77	1,946.92	Truck (91.8%)	0.0%
Base metals	10,251.29	11,974.86	1,723.57	Truck (45.1%)	34.7%
Wood prods.	3,850.52	5,555.40	1,704.88	Truck (89.4%)	0.0%
Chemical prods.	1,976.50	3,558.63	1,582.13	Truck (93.1%)	0.0%
Building stone	116.31	1,656.41	1,540.10	Truck (95.4%)	0.0%
Gasoline	5,566.46	7,007.20	1,440.74	Truck (97.2%)	0.0%
Nonmetallic minerals	1,532.26	2,754.85	1,222.59	Truck (64.9%)	32.6%
Machinery	1,265.92	2,305.20	1,039.27	Truck (71.5%)	0.0%
Mixed freight	3,188.54	4,199.70	1,011.17	Truck (95.2%)	0.0%

Table 48 highlights commodities destined for the ROK in 2040 that would be potential areas to increase tonnage through the riverport. Nine of the 18 commodities shipped into the ROK with tonnage expected to increase more than one million tons from 2018 have some portion shipped on water. These commodities include liquefied coal products, basic chemicals, coal, gravel, waste/scrap, other foodstuffs, fuel oils, base metals and nonmetallic minerals. Infrastructure needed to support the offloading of these products should be considered to broaden the potential tenant base and diversify operations. Looking at these commodities there are seven that ship more than one million tons more than 500 miles. Products moving more than 500 miles potentially can be shipped more efficiently on waterways. Figure 65 illustrates those seven commodities and the tonnage that is projected to move by water and the tonnage projected to be shipped in from 500 miles away or more. The difference represents potential opportunities for riverport growth.

Figure 65: Commodities Destined for ROK Moving by Water with Tonnage moving more than 500 miles, 2040



Kentucky

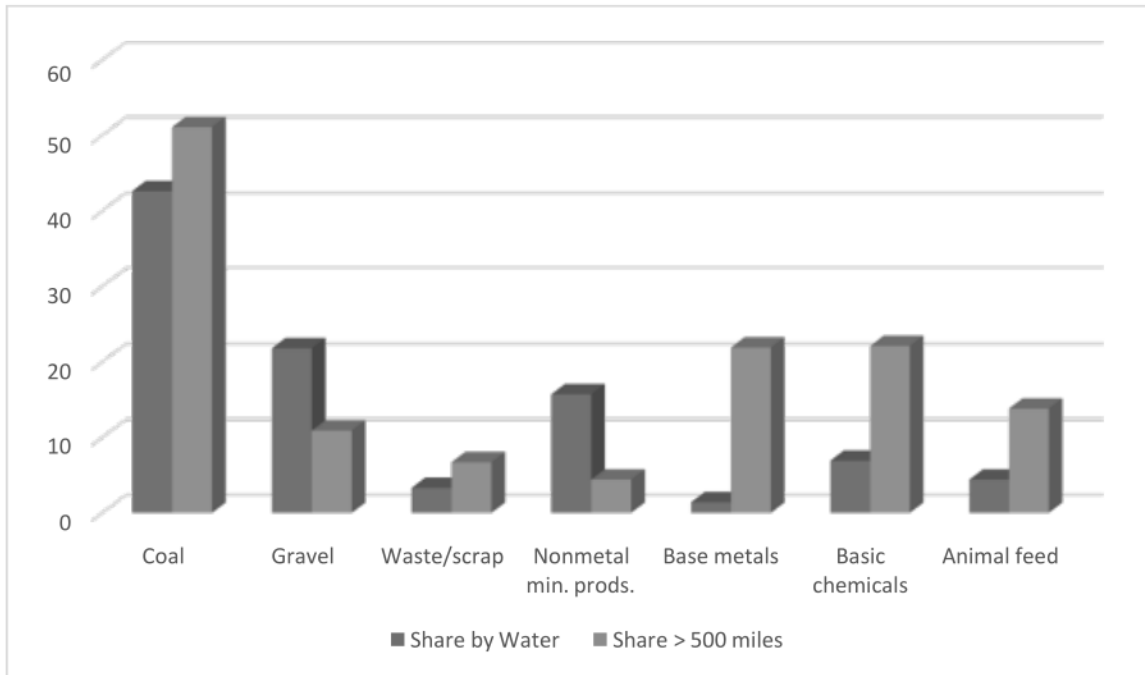
In 2040 there are 15 commodities originating in Kentucky that are expected to ship one million or more additional tons compared to 2018. There are two other commodities that are expected see more than 900 KTONs, which are important to consider for economic development opportunities for the Eddyville Riverport. Table 49 provides details on the 17 commodities originating in the State that are projected to grow the most in tons moved. The table includes the tonnage in 2018, the projected tonnage in 2040, the growth in tons and the predominant mode of transportation projected for 2040.

Table 49: Fastest Growing Commodities Originating in Kentucky by Tons, 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Coal	66,564.70	87,073.64	20,508.95	Rail (44.4%)	42.6%
Coal-n.e.c.	48,690.10	60,376.65	11,686.55	Pipeline (86.4%)	0.0%
Gravel	54,709.87	65,321.22	10,611.35	Truck (72.1%)	21.8%
Waste/scrap	11,433.72	19,784.25	8,350.53	Truck (87.3%)	3.3%
Nonmetal min. prods.	11,863.56	20,010.55	8,147.00	Truck (81.8%)	15.7%
Base metals	11,010.87	18,031.06	7,020.19	Truck (76.2%)	1.4%
Other foodstuffs	7,184.42	12,319.39	5,134.96	Truck (99.7%)	0.0%
Basic chemicals	5,312.87	10,208.92	4,896.05	Truck (43.5%)	6.9%
Chemical prods.	3,479.45	6,600.89	3,121.43	Truck (90.9%)	0.0%
Plastics/rubber	3,243.83	6,283.50	3,039.67	Truck (78.2%)	0.0%
Animal feed	4,895.37	7,287.93	2,392.55	Truck (90.8%)	4.4%
Machinery	1,474.34	3,396.00	1,921.66	Truck (89.7%)	0.0%
Motorized vehicles	12,251.58	14,136.59	1,885.01	Multiple modes/mail (97.6%)	0.0%
Electronics	1,160.92	2,840.48	1,679.56	Truck (82.0%)	0.0%
Mixed freight	5,278.12	6,778.76	1,500.64	Truck (99.3%)	0.0%
Milled grain products	1,178.92	2,098.20	919.29	Truck (99.6%)	0.0%
Live animals/fish	2,072.81	2,988.62	915.80	Truck (100.0%)	0.0%

Table 49 illustrates riverport opportunity areas based on projections for 2040 in Kentucky. Coal, gravel, waste/scrap, nonmetallic mineral products, base metals, basic chemicals, and animal feed show significant growth and existing use of waterway travel. Looking at the distance bands associated with those commodities, those with a large share moving over 500 miles are ideal candidates for more efficient movements if done via the waterways. For the commodities with a share of tonnage moved by water, the share of tonnage by distance bands illustrates the opportunity to attract additional tonnage to the waterways. Figure 66 illustrates the projected water share and the percentage of tonnage moved more than 500 miles; the difference is the tonnage that could be transported more efficiently on the waterways. Two of the commodities, gravel, and nonmetallic mineral products, are moved by water for distances less than 500 miles leaving coal, waste/scrap, base metals, basic chemicals, and animal feed as commodities that could be more efficiently moved by water. The share of the tonnage of those commodities destined for states that could easily be served via the inland waterways are as follows: base metals (65.2%); animal feed (54.6%); basic chemicals (83.8%); coal (41.9%); and, waste/scrap (55.9%).

Figure 66: Seven of the Fastest Growing Commodities by Tonnage Originating in Kentucky Moving by Water, 2040



Commodities originating in Kentucky that are projected to see declines of 100,000 or more tons by 2040 are listed in Table 50. These projections are important to consider for future development opportunities at the Riverport and Industrial Park. Given the significant declines in cereal grains (corn) and other ag products (soybeans), key commodities shipped out of the Riverport, it will be important to diversify commodities that move through the facility. The drops in crude petroleum and fuel oils will also impact river commerce, however the declines in the former are not significant in terms of tonnage and in the latter by tonnage or percentage of tons. This analysis is also instructive on industries that might provide short-term gains, but could face long-term challenges.

Table 50: Commodities Originating in Kentucky with Shipments Projected to Decline by 100K Tons or More, 2040

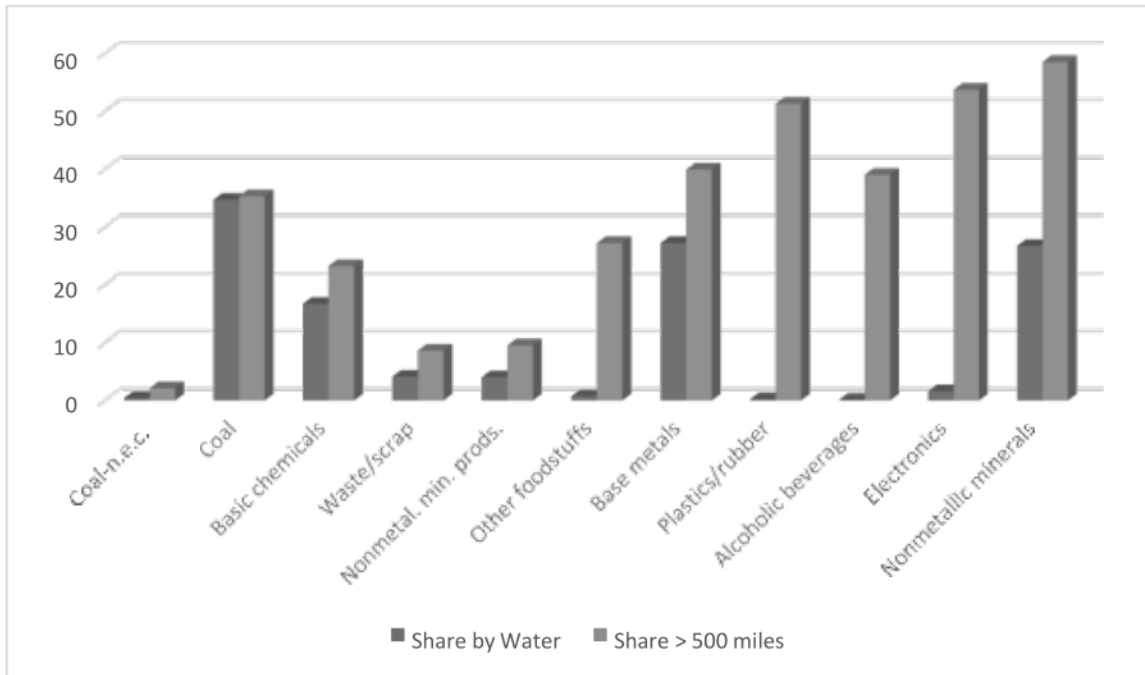
Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Crude petroleum	505.49	360.53	(144.97)	Pipeline (56.0%)	41.8%
Other ag prods.	6,619.11	6,155.64	(463.47)	Truck (76.9%)	22.6%
Fuel oils	9,450.07	8,248.01	(1,202.06)	Truck (56.9%)	6.2%
Newsprint/paper	4,976.36	3,693.21	(1,283.15)	Truck (84.6%)	0.0%
Cereal grains	14,804.65	12,058.98	(2,745.67)	Truck (71.4%)	23.7%
Gasoline	18,722.20	15,347.03	(3,375.17)	Pipeline (53.7%)	0.0%
Natural sands	9,695.57	6,019.36	(3,676.21)	Truck (100.0%)	0.0%

Table 51: Fastest Growing Commodities Destined for Kentucky by Tons, 2018 - 2040

Commodity	2018 Ktons	2040 Ktons	Increase in Ktons	Predominant Mode	Water Share
Coal-n.e.c.	47,956.75	111,149.33	63,192.58	Pipeline (84.7%)	0.4%
Coal	39,826.73	58,270.89	18,444.16	Rail (43.9%)	34.7%
Basic chemicals	6,809.62	16,565.56	9,755.94	Rail (38.0%)	16.7%
Waste/scrap	14,231.89	22,419.42	8,187.53	Truck (86.1%)	4.1%
Nonmetal min. prods.	13,385.56	21,130.07	7,744.51	Truck (94.1%)	4.0%
Gravel	48,671.04	54,381.79	5,710.75	Truck (91.5%)	7.1%
Other foodstuffs	9,358.42	14,193.87	4,835.45	Truck (93.0%)	0.7%
Fertilizers	2,061.08	5,785.04	3,723.96	Truck (79.5%)	0.0%
Base metals	12,387.97	15,255.31	2,867.33	Truck (53.4%)	27.2%
Plastics/rubber	3,325.31	5,871.53	2,546.22	Truck (63.1%)	0.2%
Machinery	2,215.58	4,745.64	2,530.06	Truck (69.9%)	0.0%
Animal feed	4,845.34	7,247.66	2,402.33	Truck (93.1%)	0.0%
Wood prods.	5,245.73	7,617.37	2,371.64	Truck (87.9%)	0.0%
Chemical prods.	2,878.99	5,232.20	2,353.21	Truck (91.6%)	0.0%
Alcoholic beverages	1,381.63	3,254.61	1,872.98	Truck (84.0%)	0.1%
Mixed freight	5,342.32	7,086.63	1,744.31	Truck (94.3%)	0.0%
Electronics	1,794.95	3,380.36	1,585.41	Truck (71.8%)	1.6%
Building stone	205.91	1,678.93	1,473.02	Truck (95.5%)	0.0%
Fuel oils	7,207.60	8,513.16	1,305.56	Truck (85.4%)	6.0%
Nonmetallic minerals	2,205.16	3,367.46	1,162.30	Truck (57.5%)	26.7%

Table 51 highlights commodities destined for Kentucky in 2040 that would be potential areas to increase tonnage through the riverport. Of the 20 commodities destined for Kentucky that are expected to increase by one million tons or more compared to 2018, thirteen will move at least some portion on the waterways. These commodities include liquefied coal products, coal, basic chemicals, waste/scrap, nonmetallic mineral products, gravel, other foodstuffs, base metals, plastics/rubber, alcoholic beverages, electronics, fuel oils and nonmetallic minerals. Infrastructure needed to support the offloading of these products should be considered to broaden the potential tenant base and diversify operations. Looking at these commodities there are eleven that ship more than one million tons more than 500 miles. Products moving more than 500 miles potentially can be shipped more efficiently on waterways. Figure 67 illustrates those eleven commodities and the tonnage that is projected to move by water and the tonnage projected to be shipped in from 500 miles or more. The difference represents potential opportunities for riverport growth.

Figure 67: Commodities Destined for Kentucky Moving by Water with Tonnage Moving > 500 miles, 2040



There are nine commodities destined for Kentucky with tonnage expected to decline between 2018 and 2040. Declines in movement of these commodities could negatively affect Kentucky riverports. It is important to consider the potential impacts of declines in these commodities offloading at the port. Table 52 lists these commodities and the expected drop in tonnage destined for Kentucky. Tobacco products destined for Kentucky are also projected to decline, but tonnage is minimal, so it is not included in the table.

Table 52: Commodities Destined for Kentucky with Tonnage Declines Projected between 2018 and 2040

Commodity	2018 KTONs	2040 KTONs	Increase in KTONs	Predominant Mode	Water Share
Motorized vehicles	8,972.34	8,485.28	(487.06)	Truck (92.1%)	0.3%
Other ag prods.	7,124.02	6,413.74	(710.28)	Truck (88.3%)	8.3%
Crude petroleum	13,223.04	12,482.64	(740.41)	Pipeline (98.2%)	1.1%
Newsprint/paper	4,722.31	3,604.78	(1,117.54)	Truck (77.3%)	0.0%
Gasoline	14,084.55	12,044.61	(2,039.94)	Truck (81.1%)	12.8%
Cereal grains	12,282.09	9,145.16	(3,136.93)	Truck (92.7%)	0.0%
Natural sands	10,021.90	6,177.10	(3,844.79)	Truck (99.5%)	0.3%
Logs	12,182.83	4,351.72	(8,831.11)	Truck (99.9%)	0.0%

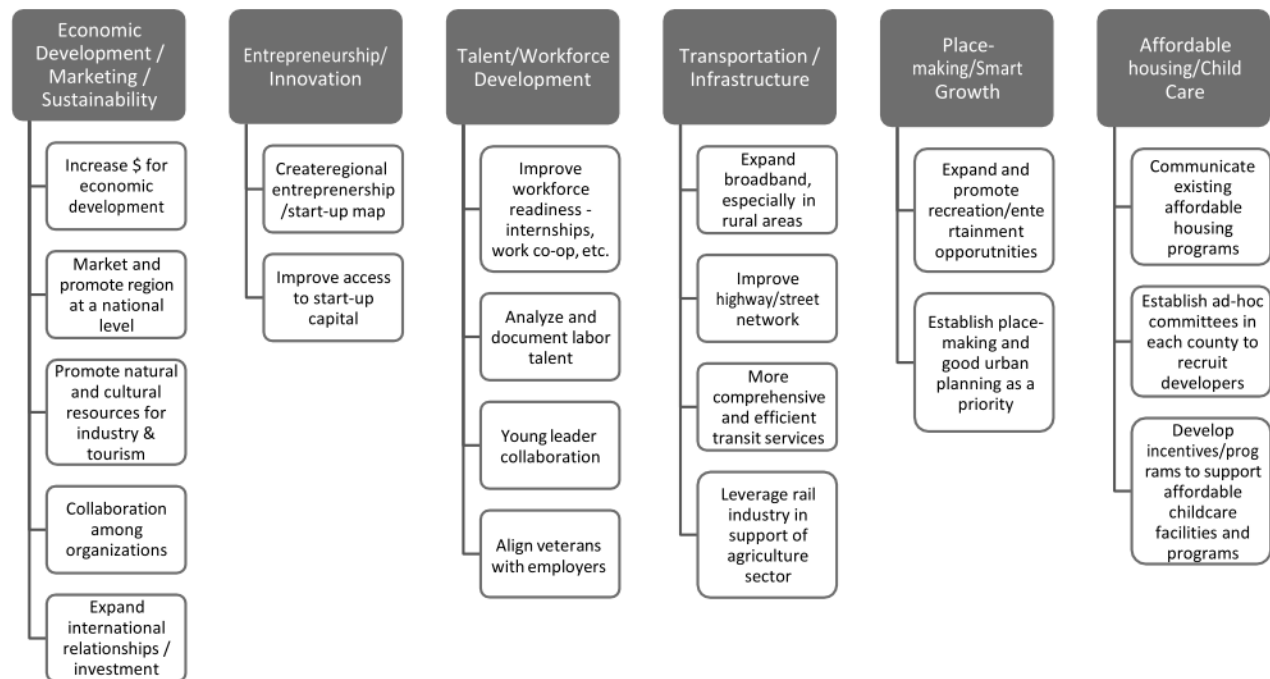
Pennyrile Comprehensive Economic Development Strategy 2019 and ERIDA Master Plan In November 2019, the Pennyrile Area Development District (PADD), covering nine counties in Western Kentucky, released its Comprehensive Economic Development Strategy (CEDS). The CEDS is an action plan for PADD to guide economic growth in the area. It establishes program priorities and provides a foundation of performance measures used to track progress in achieving the goals established. The Eddyville Riverport and Industrial Park are centrally located in the PADD providing critical development opportunities that align with the CEDS. In considering the transportation and logistics trends for the area, it is important that the recommendations resulting from extensive data analysis align with the strategies, goals, and objectives for the region.

The economic base for the region includes rich mineral resources, prime agriculture opportunities and an ideal tourist destination created by Kentucky and Barkley Lakes.

Strategic Direction

The CEDS developed goals and objectives as part of the strategic direction for economic development in the PADD region. Six goals were identified, which are supported by a series of objectives that should be pursued to implement the economic development plan. The goals are listed in Figure 68.

Figure 68: PADD CEDS 2019 Goals and Objectives



The CEDS highlights regional economic clusters important to future economic opportunities and growth including automotive suppliers, coal mining and energy, agriculture, forestry, tourism, and military support for Fort Campbell. In the trend analysis performed, coal mining was expected to be a driver of freight movements in the ROK region and the State while agriculture and forestry were expected to

decline over the next 20 years. The importance of tourism is not captured by the analysis of the movement of goods, but is an industry that needs to be considered as the Riverport develops.

Strategic projects included in the plan for Lyon County includes a rail spur at the Riverport along with other infrastructure improvements. Infrastructure improvements should be guided by growth industries that rely on water transportation for goods movement, which were highlighted in the section on projected growth areas.

Economic Resilience

Economic disruptions that could impact operations in the region generally in addition to the Riverport and Industrial Park include economic downturns, downturns in particular industries in the area, earthquakes, floods and for the broader region, a base closure or extended deployment of troops from the base. The plan identifies six strategic goals for making the local economy and businesses more resilient in the face of these threats. These goals are important to consider in the development of the ERIDA properties and investments in infrastructure and equipment.

1. Improve Economic Development climate, being flexible enough to adapt to changing circumstances. Diversification of industry is important.
2. Maximize tourism potential of the region by protecting natural and historic resources that draw tourists to the area and enhancing the advertising and marketing of the area.
3. Strengthen, expand, and diversify the existing economic base (mining, agriculture, forestry).
4. Leverage transportation planning to improve the economic base, ensuring that the highway network is able to accommodate growing truck traffic that might be generated by additional industrial activity. This is key to the success of ERIDA industrial development.
5. Target global economy by helping local business diversify their market outside of the U.S. when feasible. ERIDA should consider ways to assist local industry in efforts to connect them with global markets. This can include partnerships with blue water ports in the Gulf of Mexico or on the East Coast, partnerships with ocean carriers, railroads, a port contract operator, etc. ERIDA should consider membership in associations that support ports by providing education and services that can help the port help its tenants. Organizations include the Inland Rivers, Ports and Terminal Association and American Association of Port Authorities.
6. Develop strategies for business resiliency in disaster situations. Highlight how the Riverport can maintain operations during high water periods for other locations.

The future growth of the Riverport and Industrial Park aligns with the PADD CEDS which opens the door for potential funding opportunities for the improvements needed to ensure success.

Economic Clusters

The U.S. Department of Commerce provides information on economic clusters within a defined geographic area. According to the Department’s website⁷

“A cluster is a regional concentration of related industries in a particular location. Clusters are a striking feature of economies, making regions uniquely competitive for jobs and private investment. They consist of companies, suppliers, and service providers, as well as government agencies and other institutions that provide specialized training and education, information, research, and technical support . . . It is useful to view economies through the lens of clusters rather than specific types of companies, industries, or sectors because clusters capture the important linkages and potential spillovers of technology, skills, and information that cut across firms and industries. Viewing a group of companies and institutions as a cluster highlights opportunities for coordination and mutual improvement”.

Traded clusters are important. Traded clusters represent what a region sells to other regions or nations generating value add for local economies. Local clusters sell locally, recirculating economic benefits within the local area. Lyon County has one traded cluster identified – hospitality and tourism.

Figure 69: Lyon County Kentucky Economic Clusters 2017, US Department of Commerce



⁷ U.S. Department of Commerce. <http://www.clustermapping.us/content/clusters-101>

The traded clusters in neighboring counties may be leveraged to generate additional economic development opportunities for ERIDA. Table 53 lists the traded commodities in counties contiguous to Lyon County.

Table 53: Traded Clusters in Counties Contiguous to Lyon County 2017, U.S. Department of Commerce

County	Traded Clusters
Caldwell	Distribution and eCommerce Financial Services Hospitality and Tourism Wood Products
Crittendon	Nonmetal Mining Wood Products
Livingston	Nonmetal Mining Hospitality and Tourism
Marshall	Construction Upstream Chemicals
Trigg	Hospitality and Tourism Wood Products

Future Trends Impacting Growth

It is important for ERIDA to effectively leverage economic opportunity while maintaining the rich character of the region. Understanding the drivers of the modern economy is important in considering the most effective and efficient approaches to grow the Riverport and Industrial Park.

Consumption Patterns

Ecommerce

E-commerce is the use of electronic devices and technologies to conduct commerce, or trade, including buying products on the internet and electronic banking. In looking at the impact of e-commerce on the retail industry, between the first quarter of 2005 and the first quarter of 2020, e-commerce increased from 2.2% of total retail activity to 11.8%⁸. The

emergence and growth of e-commerce is expected to continue particularly in light of the importance of e-commerce during the economic fallout of the COVID-19 pandemic. The growth in e-commerce has led to two major changes in the traditional supply chain for retailers including:

- Increase in the number of trucks and delivery vehicles traveling on local roads to make deliveries to residences and local businesses; and,

“The pandemic “will increase e-commerce adoption across growing categories such as grocery and essential household items . . .” William B. Cassidy, Senior Editor Journal of Commerce June 23, 2020

⁸ U.S. Census Bureau, Quarterly Retail E-Commerce Sales report. https://www.census.gov/retail/ecommerce/historic_releases.html

- Rise in demand for one- to two-day deliveries – often referred to as ‘just-in-time’ shipping. To meet the demand, major retailers have invested in additional warehouses or regional distribution centers where they can hold extra inventory.

Prior to the COVID-19 induced recession, retailers were increasing the size of their warehouse and distribution facilities to up to one million square feet in some areas. The demand for larger distribution spaces that served as regional hubs was increasing and retailers were making investments in the outer ring of urbanized areas. The growth of intermodal shipping reflected these emerging supply chain models.

Intermodal freight is the movement of goods in shipping containers and trailers across multiple modes. Typically, intermodal moves by rail with a truck or water movement at one or both ends of the trip. (Ocean carrier to Rail to Drayage truck to destination) Prior to the COVID-19 pandemic, rail intermodal had increased significantly, rising from 11.1 million containers/trailers moved in 2000 to 14.5 million moved in 2018 before falling to 13.7 million in 2019.⁹ This trend is expected to regain steam when the economy begins to recover from the current recession, however supply chain experts project that a shift in inventory management will occur. One company global supply chain leader indicates that retailers are storing more inventory in more locations nearer to stores and consumers. This has created a greater need for more “nodes” for storing inventory versus the mega warehouse developments that have grown up around the 15 largest rail intermodal facilities.

In its 2020 State of Logistics Report, the Council of Supply Chain Management Professionals indicated that:

“The pendulum that once swung toward ultra-efficient, single-source, just-in-time, and heavily cost-focused supply chains will swing back in favor of flexibility and reserve capacity to cope with uncertainty and risk” – State of Logistics Report, June 2020

This is an opportunity for ERIDA to explore relationships with regional and national retailers to establish potential distribution capacity in the Eddyville area to access nearby larger urban markets efficiently and providing a risk mitigation strategy in the face of future disruptions.

⁹ Association of American Railroads, March 2020. *Rail Intermodal Keeps America Moving*. <https://www.aar.org/wp-content/uploads/2018/07/AAR-Rail-Intermodal.pdf>

Global Trade

Global trade patterns are experiencing unprecedented upheavals and are being impacted by geopolitical, environmental, and public health factors. Adapting to these changes will be important for the continued viability and economic success of a vast array of business concerns and supply chain focused industries.

Trade tensions between the U.S. and a number of its global trading partners have resulted in tariffs and retaliatory tariffs. Tariffs can impact the flow of goods internationally by altering costs. Tariffs can also make it more cost effective to bring production closer to consumers which results in near shoring or reshoring of production facilities to lower transportation costs and avoid supply chain disruptions.

Global trade has also been impacted by the COVID-19 pandemic. In the U.S., supply chains for critical supplies like PPE, testing materials and medical devices brought to the fore a heavy reliance on foreign producers unable to meet the demand. This highlights the need for strategic reshoring of manufacturing and warehousing of ample inventory.

New Technologies

The emergence of new technologies will impact supply chain management and how products are moved. Advances in technology are rapidly changing the nature of freight movement and are allowing shippers to adapt to economic, regulatory, environmental and consumer driven challenges. Key factors driving technological innovation include increased competition between online retailers, truck driver shortages, supply chain visibility and flexibility, initiatives to improve highway safety and changing consumer expectations regarding shipping times. Considering new technologies, the impacts they will have and how to leverage investments in key technologies can help create a resilient and transformative growth strategy. Some key technologies for the future of freight include:

5G enhanced mobile broadband can move data up to 20 times faster more reliably than current networks that operate between 2G and 4G. The enhanced broadband will enable real-time data for tracking containers, trucks, or any cargo movements with SKU-level tracking. This can potentially maximize efficiency and flexibility in freight movements. So as ERIDA and the region look to expand broadband capabilities and connectivity to the more rural areas, it will be important for it to be flexible enough to adapt easily to 5G.

Artificial Intelligence (AI) and Machine Learning (ML) can be used to help anticipate market changes, predict product demands by location to allow for more localized warehouse nodes, optimize movements based on real-time conditions, identify damaged goods in-transit avoiding costly reverse delivery and automate repetitive tasks to reduce paperwork and errors and increase productivity.

Renewable energy can benefit the logistics industry by saving fuel and power, reducing emissions and even allow for additional hours of operations by reducing noise. Examples include: electric trucks that can eliminate fuel costs, operate more quietly and reduce vehicle emissions; battery powered locomotives; green facilities that can use smart lighting solutions, electric powered forklifts and other offloading equipment; and, energy generation to power facilities through renewable energy sources. These are important considerations that can keep the quality of the recreational opportunities in the area at a premium.

Autonomous vehicles/robotics offer cost saving opportunities. Autonomous trucks moving offloaded commodities on sight can reduce costs and increase productivity by avoiding idle time for drivers. Robotics can reduce inventory or commodity handling costs by supplementing human workers, allowing them to focus on higher value activities. Drones can help with remote inspections of hard to reach facilities and equipment.

Other emerging technologies to stay abreast of include: The Internet of Things (IoT); Freight Advanced Traveler Information System: freight yard automation: intelligent transportation systems: and truck parking information systems.

Population Shifts

Prior to the COVID-19 pandemic, population was growing in suburban and urban areas while more rural areas were losing population. Rural populations were aging faster than their urban and suburban counterparts, although all areas reflected the aging of the Baby Boomers. In a 2018 Pew Research Center study, it was noted that between 2000 and 2012-2016 the share of the U.S. population living in rural counties dropped from 16% to 14%. Urban areas represented 31% of the population during both time periods and suburban areas grew from 53% to 55%. The report found that during the study period more people left rural counties for urban, suburban, or small metro area counties. The report also noted that, based on U.S. Census Bureau information, the percent of people 65 years of age or older grew from 15% to 18% of population in rural counties. Conversely, urban areas share of the 65 plus population grew from 11% to 13% while the suburban share grew from 12% to 15%.¹⁰

In a more recent Bloomberg City Lab report, it was noted that “not only have young people been a driving force in the urban resurgence of the past two decades, but they favor living in central urban neighborhoods significantly more than previous generations did at the same stages in life”.¹¹ Younger people were attracted by the density of retail, entertainment, recreation and food services employment. It was noted that what mattered most to 25 - 34 and 35 - 44-year old age groups were access to transit. Those moving into densely populated urban areas were foregoing the expense of car ownership and relied on walkable amenities and transit for commuting to and from work.

The impacts on supply chains were noticeable prior to the pandemic. Supply chains became leaner and more agile. According to an article in Transport Topics, companies that can make products in varying quantities in various locations depending on demand would be more able to provide faster delivery to meet consumer expectations.¹² Collaboration in freight movements and investments in technology providing more visibility into goods movement became critical to successfully competing in the global economy.

Post pandemic, it will be important to keep abreast of population patterns that will result in changes to how commodities are consumed and transported. The biggest lesson for ERIDA is to consider how to incorporate technology capabilities into projects that can benefit potential tenants.

¹⁰Parker, K., Horowitz, J., Brown, A., Fry, R., Cohn, D. and Igielnik, R. *What Unites and Divides Urban, Suburban and Rural Communities*. 2018. Pew Research Center.

¹¹ Florida, R. *Young People's Love of Cities Isn't a Passing Fad: New research suggests that younger Americans' preference for urban living is real and not wearing off*. May 28, 2019.

¹² Peterson, R. *Opinion: Urbanization's Effect on the Supply Chain*. May 29, 2017. Transport Topics.

Planning to Avoid Unintentional Impacts of Growth

Economic development and growth create numerous benefits including growing population, increased tax base, additional cultural and recreational opportunities, and a higher standard of living, among others. However, growth can create unintentional negative impacts without proper planning. In considering potential areas for attracting new businesses and industry, it is important to not only consider the projections provided in the trends analysis, but also how they might impact the quality of life of the region. This allows area leaders to develop strategies to avoid or mitigate the negative consequences of growth.

This section of the trends analysis considers impacts that have emerged in other areas that experienced rapid economic growth from a modernizing economy. Strategies for avoiding or mitigating these impacts are included as a reference.

Bottlenecks/Congestion

The biggest impact of a growing transportation and trade sector is increased traffic. Heavy truck movements will result from expanded operations at both the Riverport and the Industrial Park. The type of traffic will be determined by the commodities that are moving. Building on the economic foundation of the region, many of the commodities that will transfer through the riverport will be high-tonnage bulk items like coal, grain, fertilizers, and basic chemicals. Trucks will be needed to bring the commodities to the Riverport to load on to barges and vice versa

A busy port and industrial park can lead to truck queues that can quickly back up on to mainline routes impacting other motorists. Compounding the potential traffic issues, the site lines near the entrance to the Riverport could create safety concerns. It will be important to plan mitigating strategies as ERIDA looks to invest in infrastructure to support additional freight movements. Consideration should be given to truck circulation and storage consistent with the level of activity anticipated for both inbound and outbound cargo.

More broadly, the local roadway and highway system will need to accommodate additional demands making it important to coordinate with the Kentucky Transportation Cabinet as the facilities grow. Planning for impacts on neighborhoods, schools, nursing homes, parks, recreation facilities, etc. should be done to segregate trucks away from sensitive areas. Truck routes need to be established collaboratively with local residents, businesses, and officials with the understanding that increased traffic from successfully growing these facilities will need to have an efficient and connected network to use.

Growth Without Planning Threatens Economic Competitiveness and Quality of Life

As discussed, congestion can be a negative side effect of increases in industrial activity, particularly activity tied to the movement of goods. As roads become more congested from the movement of goods and employees to and from expanded or new facilities, it can become a deterrent to future development if plans are not in place to accommodate the increased demands of the transportation network and the potential for additional development.

Increased truck volumes will impact roadway and highway maintenance and operations, create safety issues for other roadway users and negatively impact the environment through increased noise and emissions locally. Rapid growth can lead to conversion of valuable farmland or open spaces for development and use, which can change the character of the region and impact its economic

foundation. With increased rail served businesses, another side effect could be negative impacts on emergency access due to longer rail-highway grade crossing blockages due to longer and more frequent trains. Light pollution and aesthetics can also deteriorate the quality of life.

An area that has experienced rapid growth is Will County, Illinois where industrial space double in just 16 years and the number of containers generated by the rail intermodal facilities increase from none in 2002 to over 3 million in 2016. In response, the County prepared a Freight Plan that identified negative impacts that resulted from rapid development with measures to address them. The following two pages are taken from that study and can provide ERIDA with tools to grow the region in a way that respects the area's culture, natural environment, and quality of life.¹³

¹³ Will County. *Will County Community Friendly Freight Mobility Plan*. 2016. Downloaded 7/1/2020. [file:///C:/Users/Owner/Downloads/2017%20Will%20County%20Final%20Report%20\(1\).pdf](file:///C:/Users/Owner/Downloads/2017%20Will%20County%20Final%20Report%20(1).pdf)

TABLE 3-44. COMMUNITY ENHANCEMENT AND FREIGHT IMPROVEMENTS

Issue	Desired Future State Objectives	Measures to Address
Safety	<ul style="list-style-type: none"> Mitigate safety issues that arise from freight movement Reduce the incidence of crashes on the system, particularly at high-crash locations Reduce crashes at at-grade rail crossings Improve safety for truck drivers and other motorists 	<ul style="list-style-type: none"> Prioritize projects that address higher truck crash locations Address critical at-grade rail crossings with safety concerns Designate and clearly post truck routes to reduce conflicts particularly in residential areas Identify and develop designated truck parking facilities
Trucks on Local Roads	<ul style="list-style-type: none"> Consider freight and truck utilization impacts on adjacent land uses and environmental resources including designating preferred truck routes. 	<ul style="list-style-type: none"> Designate truck routes to reduce conflicts particularly in residential areas Enhance communication with truckers and companies so they understand the designated routes A FRATIS project as discussed in Section 3.9.10 could assist Ensure new freight related developments address traffic growth and circulation through approved traffic plans and potential private sector cost sharing for improvements needed
Congestion	<ul style="list-style-type: none"> Ensure that implementation of transportation freight projects and strategies do not contribute to congestion in adjacent jurisdictions. Review transportation improvements to ensure that they do not negatively impact neighborhood access to goods and services. 	<ul style="list-style-type: none"> Prioritize projects that address high congestion locations including consideration of both truck and passenger vehicle traffic Ensure new freight related developments address traffic growth and circulation through approved traffic plans and potential private sector cost sharing for improvements needed
Noise (also an environmental issue)	<ul style="list-style-type: none"> Consider freight and truck utilization impacts on adjacent land uses and environmental resources including noise impacts. 	<ul style="list-style-type: none"> Implement land use and zoning/site plan standards that include requirements for buffer areas and noise standards, particularly for new freight related development Further investigate potential quiet zones for rail while understanding safety requirements for trains and costs of safety improvements to put these in place
Emergency Access	<ul style="list-style-type: none"> Provide alternative routes in case of emergencies and extreme weather events 	<ul style="list-style-type: none"> Prioritize future rail grade separations on roads connecting with emergency facilities
Impacts on Agricultural Land	<ul style="list-style-type: none"> Enhance economic development by cooperatively developing regional community friendly freight solutions, projects, and policies including land use. Provide resources to help communities better mitigate the impacts of freight. 	<ul style="list-style-type: none"> Create a County land use plan and strategy that engages local communities in strategies and zoning that focuses new freight development at existing/planned freight clusters

Issue	Desired Future State Objectives	Measures to Address
Light Pollution and Aesthetics (also an environmental issue)	<ul style="list-style-type: none"> Consider freight and truck utilization impacts on adjacent land uses and environmental resources including lighting and aesthetics. 	<ul style="list-style-type: none"> Implement land use and zoning/site plan standards that include requirements for buffer areas and lighting standards, and aesthetic considerations, particularly for new freight related development

3.5.2 ADDRESSING ENVIRONMENTAL EFFECTS OF FREIGHT

Discussions with stakeholders, environmental groups and the public helped identify several key environmental issues of concern which planning for future freight related improvements needs to address. These included air quality, water quality, hazardous materials transportation, and impacts of freight uses on environmentally sensitive land. The following paragraphs briefly discuss these issues. **Table 3-15** summarizes the issues and potential means to address them.

TABLE 3-15. ADDRESSING ENVIRONMENTAL EFFECTS

Issue	Desired Future State Objectives	Measures to Address
Air Quality	<ul style="list-style-type: none"> Coordinate transportation planning activities among jurisdictions to ensure that implementation of freight transportation projects and strategies do not negatively impact regional air quality. 	<ul style="list-style-type: none"> Partner with industry to continue to enhance the use of technology to minimize air quality impacts from freight Partner on strong anti-idling regulations and technology to support anti-idling Plan for buffer zones around new /expanding freight developments, particularly intermodal sites
Water Quality	<ul style="list-style-type: none"> Avoid and minimize water quality impacts related to site selection of freight facilities and truck routing. 	<ul style="list-style-type: none"> Employ best management practices for avoidance and minimization of impacts to wetlands and for storm water management Consider water quality impacts in truck route selection Implement storm water best management practices in roadway and truck parking facility design
Hazardous Materials Transportation	<ul style="list-style-type: none"> Avoid conflicts between hazardous materials routes and residential and environmentally sensitive areas. 	<ul style="list-style-type: none"> Regularly review and update route designations with partners. Ensure emergency management plans are reviewed and updated regularly
Impacts on Sensitive Areas	<ul style="list-style-type: none"> Implement land use strategies to avoid impacts on environmentally sensitive areas. Provide resources to help communities better mitigate the impacts of freight. 	<ul style="list-style-type: none"> Create a County land use plan and strategy that engages local communities in strategies and zoning that focuses new freight development at existing/planned freight clusters Focus new freight development in to existing identified freight clusters Review truck routing to minimize impacts to adjacent environmentally sensitive areas

Chapter 5: Marketing Strategy

In developing a marketing strategy, it is important to understand the audience you are trying to reach and what they want. Knowing what differentiates ERIDA from other river ports and industrial parks is important to effectively communicating to the desired markets or businesses. Marketing is about managing expectations of what it is that ERIDA can deliver and providing clear direction to staff about what they are expected to provide in terms of customer service. Establishing a presence is the central tenet to an effective marketing strategy.

There are three key targets in marketing that ERIDA property as illustrated in Figure 70.

Figure 70: Marketing Targets



The importance of community marketing and outreach is to establish mutual understanding and cooperation between ERIDA and the community it operates in. The community becomes a piece of the communications and marketing aimed at site selectors, businesses and industries. Trade and business development is about generating leads, bringing in new tenants and customers, and growing awareness of the benefits of the ERIDA properties. It is important that customers and current clients are not forgotten in the Quest to increase activity at ERIDA sites. Additionally, it is critical for ERIDA to have a process to identify potential clients and track the relationship with an aim of finding, attracting and winning new customers.

Different marketing strategies should be complementary and consistent with customized messaging depending on the target. The recommended marketing strategies can effectively reach all three audiences. Ideally having the role of community liaison, industrial development professional and customer relationship manager filled by staff is important to support the overarching marketing efforts. The recommended marketing strategies are a combination of digital and traditional marketing to ensure the broadest coverage.

Building a Brand

ERIDA needs to start its marketing efforts by building a brand. It is important to build knowledge about the ERIDA brand and then to construct the brand through customer experience, word of mouth, marketing materials and testimonials. Branding begins with highlighting the ERIDA's core competencies. ERIDA has established itself as;

ERIDA - where River, Road and Rail Connect

A logo needs to be developed around this catch phrase that can be used on all virtual and physical marketing efforts.

Website

One of the ERIDA's peers indicated that up to 80% of their new leads were generated by the web presence. ERIDA should establish a digital presence with the creation of a website that contains information about ERIDA, the Riverport and its sites, the Industrial Park and its sites, services available, maps, documents (e.g. Master Plan, Board meeting agenda and minutes, etc.) and a way for someone to contact the ERIDA and receive a prompt response.

Content should be updated monthly to be kept current. Anyone contacting ERIDA through the website should receive an automated response thanking them for reaching out and indicating that someone will follow up with them within a specified time frame (i.e. 1 or 2 business days). It is important that someone be assigned with responding to requests as quickly as possible.

Social Media

Beyond having a website, establishing a social media presence can serve as a source of information and education as well as a tool to reach new businesses. As of the second quarter of 2020, Facebook has over 2.7 billion active users worldwide, LinkedIn has over 675 million members including every Fortune 500 company and Twitter has over 330 active monthly users according to Omnicoreagency.com. It has become easier to reach a broad audience through the various social media platforms and have a targeted impact.

It is important that ERIDA establish a social media presence. Creating a Facebook page, a LinkedIn profile or having a presence on Twitter or Instagram should be done to reach potential tenants and customers.

Marketing Materials

Marketing brochures should be produced that highlight the Master Plan build out stages, sites currently available, information about the area highlighting its strengths, information on ERIDA services and how to obtain rates, and contact information. The brochure should include photos, graphics, website, social media links, and contact information. Also provide place / link to request a site tour.

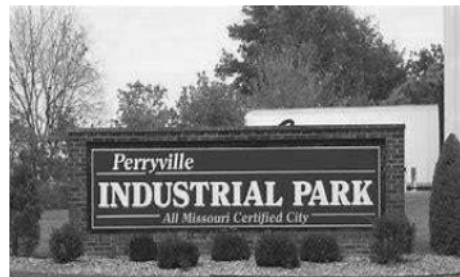
Virtual Master Plan / Augmented Reality

In a fast-moving industry, it is important to be able to illustrate available properties and highlight infrastructure in place to support potential businesses. An augmented reality map of ERIDA properties

can bring opportunities to life in settings away from the sites themselves, generating leads and identifying new business opportunities. Using marketing automation and context-driven advertising to drive audiences to appropriate opportunities and can quickly generate site visit requests. By providing Board members, staff and economic development partners virtual tools that bring the Riverport and Industrial Park to life, meetings, industry events and impromptu introductions can easily turn into marketing opportunities.

Enhanced Signage

Once the initial work of identifying and attracting potential customers to on-site visits, a physical presence is crucial to demonstrate community presence, professionalism and success. Initial impressions are important in the highly competitive site selection business. Entrance signs should highlight available properties and provide way finding information. Some examples are illustrated below.



Chapter 6: SWOT Analysis

Introduction

Strengths – Weaknesses – Opportunities – Threats (SWOT)

The Eddyville Riverport and Industrial Development Authority (ERIDA) Strategic Master Plan will provide the foundation for future operational decisions, economic development and growth. Developing a fuller awareness of the current state of ERIDA helps frame strategic plans for the future and decision-making in the short- and long-run. An analysis that explores internal strengths and weaknesses and identifies opportunities for success in context of threats to success is an important component of developing a



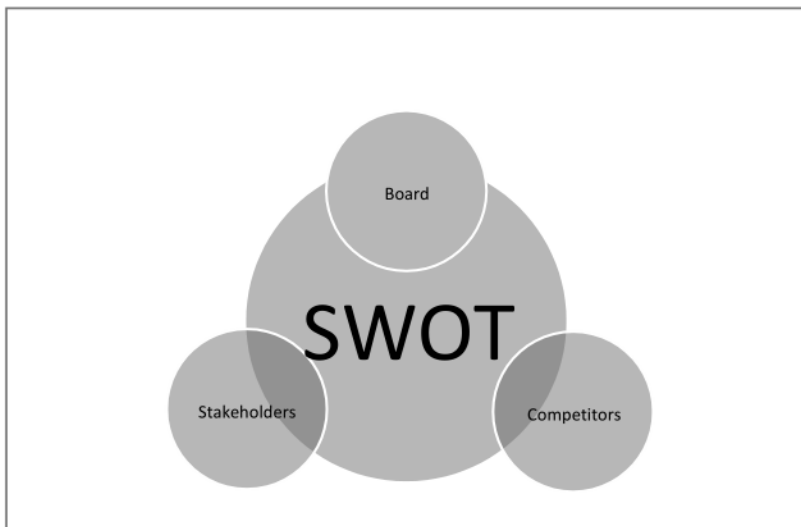
meaningful business plan for the Riverport and Industrial Park.

Two sets of factors are considered as part of the SWOT analysis. 1) Internal factors are those that can be controlled by the Board and/or the employees of the ERIDA. Strengths are the competitive advantages of the organization that should be marketed and built upon for future growth. Weaknesses are areas that once recognized, need to be shored up or improved upon. These are the operational goals that should be pursued in the near-term. 2) External

factors cannot be directly controlled by the Board or the employees. These are the social, political, environmental and economic factors, both positive and negative, that affect the ERIDA. Opportunities identified can be leveraged for future growth and identify areas that the Board should invest time, resources and effort. These are the basis for future development goals. Threats can negatively impact future growth and constrain opportunities. Thus, should be monitored. Organizations that recognize threats and build in the flexibility to allow for adjustments to operations and growth goals are better positioned for success.

Figure 71: SWOT Participants

A multiphase approach was used to conduct the SWOT analysis. By incorporating the perspective of the Board, stakeholders and, when possible, peers, the SWOT offers meaningful insights into what is working, what is not working and revealing priorities as well as possibilities. Revealing positive forces that can work together while recognizing potential problems that need to be addressed are necessary for successful growth.



The SWOT analysis for the Eddyville Riverport performed as part of the statewide Kentucky Riverport Improvement Project completed in 2008 was used as the foundation for the analysis. The SWOTs for competitor ports were compiled and, along with the 2008 results, provided to the Planning Committee prior to the initial ERIDA SWOT workshop held in July 2020. Additionally, the three Board members that were not part of the Planning Committee were interviewed or provided written input. Based upon the input received from the Planning Committee and information obtained from the Board members, a stakeholder workshop was conducted to obtain state and regional perceptions about the ERIDA.

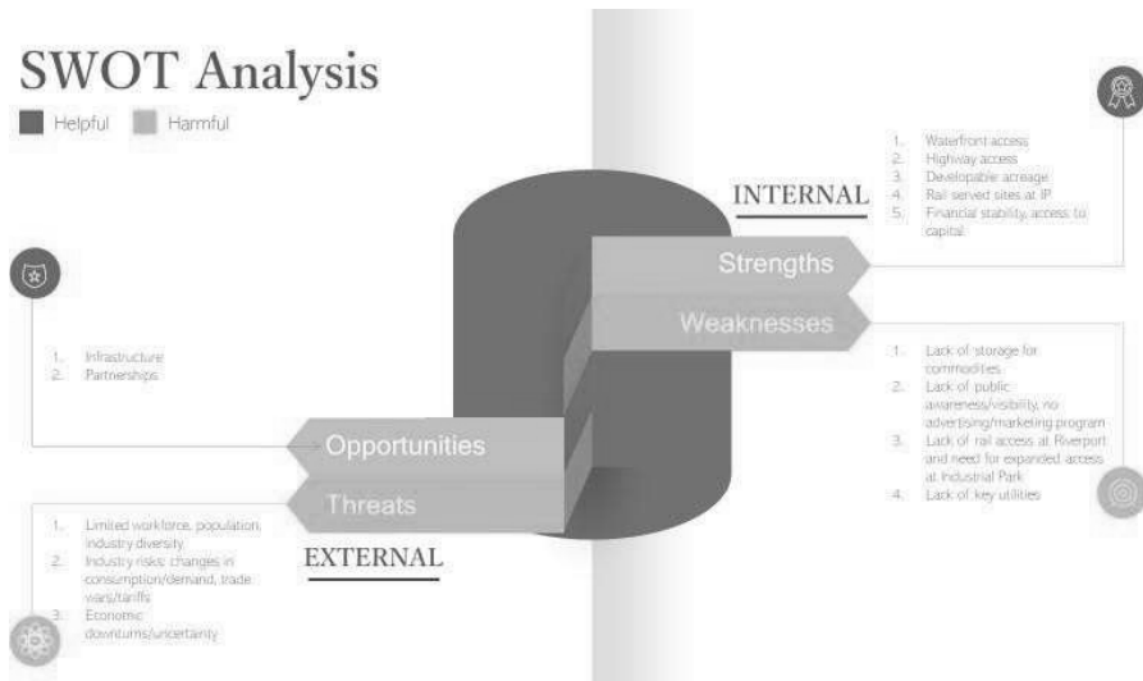
Stakeholder Engagement

A second workshop was held in early August (2020) to engage additional stakeholders. Fifty (50) stakeholders were invited to participate in the Stakeholder meeting which was presented as a combination Zoom meeting and on-ground workshop. Eight participants attended the workshop at the Murray State University campus in Paducah including 5 Board members, a State legislator and representatives from the State Economic Development Cabinet and the Paducah and Louisville Railroad. There were nine virtual participants. Given the safety requirements associated with the COVID-19 pandemic, additional stakeholder engagement in the SWOT effort was pursued through an on-line Survey Monkey. The survey was sent to all of the virtual participants in the workshop and those unable to attend virtually or in-person, for a total of 40. The survey was open for one week and the response rate of 20% was achieved. A total of 20 responses were received between the workshop and survey.

SWOT Results

Figure 72 illustrates the results of the SWOT analysis, highlighting the 5 key strengths to market to potential developers, shippers and haulers, 4 main weaknesses to be addressed by the Board, 2 broad opportunities to leverage for future growth, and the top 3 threats to monitor and mitigate.

Figure 72: SWOT Analysis Matrix for ERIDA



Strengths

Ten strengths were identified through the SWOT workshops. The strengths are listed in order of priority based on input from the Board and stakeholders.

- Access to waterfront, on Riverport in Kentucky on a Lake
- Easy access to US highways and interstates (I-24 and I-69)
- 250 + acres available for development, water frontage with new sea wall
- Rail-served sites available at Industrial Park
- Financial stability, access to capital, strong and passionate leadership and operations staff
- Affordable utilities readily available (water, natural gas, electricity)
- Recent State grants for infrastructure and equipment
- Material handler, heavy lift pad
- Master Plan
- Topographically diverse, allows diversity of development

Access to waterfront

Located on Barkley Lake as part of the Cumberland River, Eddyville Riverport provides water front access to all tenants and potential tenants. Barge transportation is more economical, safer and environmentally responsible. Barges using the Riverport easily access the Ohio, Mississippi and Tennessee Rivers providing efficient connections for products originating in or destined for the Western Kentucky region. Currently there are 60 acres of

Figure 73: U.S. Counties within a 500-mile Radius of Lyon County Kentucky



direct water front access and 190 acres of access via conveyor, pipe or short haul. The Riverport serves as a working waterfront providing access tonational and international markets for area industries. The waterfront currently supports the movement of agricultural commodities and serves as a key location for Asian carp-based businesses that aim to reduce the impact of the invasive species in Kentucky waters. Industries and businesses looking to reduce supply chain costs can take advantage of the Riverport waterfront and from anywhere on the expansive ERIDA site.

Easy highway access

Goods that are transloaded from barge to truck, rail to truck, truck to barge and truck to rail at the Riverport and Industrial Park have easy access to Interstates 24 and 69 and U.S. 62. Lyon County, home to both sites, is only a 2- hour drive from Nashville Tennessee, 3½ hours from St. Louis or Memphis, 5 hours from Indianapolis or Memphis, 5½ hours from Atlanta and just over 6 hours from Chicago. Almost one-third of the U.S. population is less than 500 miles from Lyon County. Congestion in the four-state region is minimal, allowing for the reliable and efficient movement of goods.

Figure 74: Highway Access in Lyon County Kentucky



Developable acreage

The Riverport and Industrial combined provide over 250 acres of prime development property that allows for industrial development and business location opportunities. The ERIDA Board continues to explore strategic investments in additional property at both sites to expand its land base to expand services and provide current and potential tenants with customized options to create or grow their businesses. As a result of the Master Planning process, both the Riverport and Industrial Park have been fully surveyed, documented and the environmental hazard has been prepared to allow for rapid development as needed by future tenants. The Master Plan will guide future capital investments, allowing ERIDA to fulfill its mission to bring people, resources and industry together to foster economic prosperity and family wage jobs through strategic partnerships and investments.

Rail-served sites at Industrial Park

The Eddyville Industrial Park is adjacent to the Paducah and Louisville (P&L) Railroad mainline. The authority owns a spur into the industrial park and has recently purchased additional developable acreage adjacent to the mainline. The P&L Railroad is a full service 280-mile regional Class II railroad that is 100% signaled and is compatible with any Class I railroad (long-haul). The P&L connects directly with four of the seven North American Class I carriers: the BNSF and CN (Paducah, KY), CSXT (Madisonville, KY), and NS and CSXT (Louisville, KY). According to the P&L, "having these multiple Class I connections means, in most cases, we can reach any destination market in the continental US with just one interchange switch away".¹⁴

Financially sound operations/access to capital

The ERIDA Board takes its fiduciary responsibilities seriously and takes a conservative approach to managing the assets of the Riverport and Industrial Park. Strategic investments in additional property and equipment are fully vetted by the Board and are undertaken within existing resources. The Authority

¹⁴ <https://palrr.com/>

currently is debt free which gives it the flexibility to take advantage of opportunities as they arise. The Authority has ready access to capital, allowing it invest in critical infrastructure to serve its customers. The sound fiscal management also positions ERIDA to compete effectively for public funding opportunities through state and federal grant programs.



EDDYVILLE RIVERPORT AND INDUSTRIAL DEVELOPMENT AUTHORITY
WHERE RIVER, ROAD AND RAIL MEET

Poll Question #4:

What are the top 3 threats to the future development of ERIDA?

- Regulatory requirements, environmental, open meeting act restrictions
- Limited population, workforce base and industrial diversity
- Industry: potential for drop in corn consumption due to ethanol; drop in demand for coal; trade wars/tariffs
- Economic downturns/uncertainty
- Competition from other Riverports
- Alien cargo, siltin in of channel
- Shut out from public funding opportunities

Best of Kentucky	Kentucky
409 million tons	677 million tons
264 million tons railroad (regional)	147 million tons railroad (regional)
234 million tons inland (domestic for)	327 million tons inland (domestic for)
112 million tons intermodal - 27.4% of tonnage	175 million tons intermodal - 26.0% of tonnage

Summary of Freight Movements: 2018

Weaknesses

Eleven weaknesses were initially identified during the planning process. Of the eleven, six are related to infrastructure that can be developed with focused investments based on market driven demands and contributions to future growth. Four weaknesses deal with “soft” infrastructure which includes lack of marketing, staff/leadership development and the need for greater focus and flexibility by the Board. The last weakness deals with the topography of the site, which will be addressed by the site development plan created for the Master Plan. The weaknesses listed below are in order of priorities as ranked by the Board and Stakeholders in the SWOT outreach efforts. The following have been identified as being needed to be addressed:

- Lack of storage for commodities
- Lack of public awareness and visibility into Riverport and Industrial Park, no marketing/advertising program, perception as small facility
- Lack of rail access at Riverport, need expanded rail access at Industrial Park
- Lack of key utilities – sewer and broadband, water capacity needs improvement
- Topographically diverse
- Limited focus on industrial park
- Lack of road infrastructure at both sites
- Lack of staff and leadership development, lack of professional and industrial development focused staff
- Above ground power
- Infrequent Board meetings
- Waterfront erosion

Lack of storage

Terminal operations that transload goods between modes of transportation require adequate storage for commodities. Without the ability to store products to ensure efficient loading and unloading operations, economic growth will be constrained and assets underutilized. The Riverport facility currently has limited storage. Indoor warehouse space or covered storage facility and paved or rock storage yards are integral to the development of the Riverport and Industrial Park.

Lack of public awareness/no marketing/no advertising

A general lack of public awareness of ERIDA and the Riverport and Industrial Park limits potential economic growth opportunities. In the 2008 SWOT conducted as part of a statewide riverport planning effort, the lack of a website was cited as a major weakness of the Eddyville facilities. In an interview with leadership from a nearby riverport, it was revealed that **80% of new inquiries for potential tenants and logistics companies comes through their website**. Additionally, limited signage into the entrances for both the Riverport and Industrial Park are detrimental to attracting new business. The marketing

that does take place is through a partnership with the Lake Barkley Partnership which covers a four-county area. Strengthening the partnership, creating an on-line and/or social media presence and advertising that highlights the ERIDA's strengths for logistics providers, site selectors and targeted industries would be beneficial to support the current marketing efforts .

Lack of rail access at Riverport/limited access at industrial park

Adding a third dimension of opportunity at the Riverport broadens services available for industrial users and shippers. Rail on-dock or near dock allows for direct transload between rail and barge. By providing rail connections to the Industrial Park additional storage capacity and shipping options are available allowing for a broader range of development opportunities.

At the Industrial Park, the current rail spur is limited to the northeast quadrant of the site. Based on a market driven approach to infrastructure development, additional rail served sites should be considered to broaden the targeted industrial base for future opportunities. The U.S. has the most efficient and cost-effective rail system in the world. The rail network has more than 140,000 miles of track that moved almost 10% of U.S. goods in 2018. Rail can meet growing capacity needs of shippers and can reduce environmental impacts associated with goods movement. Use of rail can mitigate vehicular traffic pressures, making the entire transportation system more reliable.

Lack of key utilities

The ERIDA sites have access to electricity, natural gas and to some extent city water. The addition of sewer at the Riverport; and expanded water capacity and broadband capabilities at both sites will provide the foundation for business location and expansion.

Opportunities

There are four broad categories of opportunities that were identified in the SWOT analysis. The components of each of the categories are included in the ranked listing below.

- Infrastructure: New Kentucky Lake lock and dam; new sea wall; I-69 expansion; availability of 2 locks; limited silting; rail spur expansion and rail access to Riverport; land acquisition opportunities
- Partnerships: IDA and Lake Barkley Partnership active in economic development; potential for strategic partnerships with blue water ports on the Gulf and East Coasts; ability to partner with Paducah to connect to Foreign Trade Zone; strong workforce training partnerships
- Quality of life in region: tourism industry; affordable; local professional and financial industry resources; Illinois business climate; Tennessee business climate
- Industrial diversity and support: agriculture; Asian carp-based businesses; ERIDA incentives; leverage EDC-type resources; e-commerce businesses; expanding hemp industry

Infrastructure

Infrastructure investments are the historical and contemporary foundation for growth of the ERIDA. The creation of the Barkley and Kentucky Lakes over half a century ago allowed for the building of the Riverport. The buildout of the interstate and arterial highway system made Eddyville the crossroads of key East-West and North-South connections while providing ease of travel regionally. Federal investments in the two lock and dams provide key navigational opportunities for the barges that access the Riverport connecting it to the major waterways of the Cumberland, Ohio, Mississippi and Tennessee Rivers. The rail spur constructed at the Industrial Park has resulted in jobs and economic benefit and provides a foothold for future activity.

Both the Riverport and the Industrial Park provide room for growth within the existing footprint and the potential for adding property strategically as it becomes available or as needed for future businesses. Bringing rail to the Riverport and expanding rail access at the Industrial Park will provide shippers options to maximize supply chain efficiencies. The new sea wall project at the Riverport will provide additional waterfront opportunities that can take advantage of being the only Riverport located on a Lake with limited silting, which minimizes the need for regular dredging.

Partnerships

Area partnership with economic development agencies are significant opportunities to build on the success of the region in marketing itself for business growth and job creation. The partnerships can help the ERIDA meet the various needs of tenants including identifying incentives to grow their business, connecting businesses to the workforce and providing employee training to meet their particular needs.

Future partnerships that can support the growth goals of the ERIDA and the region include strategic partnerships with sea ports on the Gulf and East coasts serving as a conduit for goods moving to and from the heartland. Partnering with seaports can help grow trade and build upon existing and new business relationships and allow for joint marketing efforts. Regional partnerships with Paducah's Riverport to leverage its Foreign Trade Zone designation and build on complementary business interests

will further enhance the marketability of the region to new manufacturing and industrial firms. Building on the existing structure of the State's riverports, by working in partnership with Kentucky Riverports across the State, economic benefits can be better understood and communicated to help maximize public investment in these economic drivers.



St. Louis Regional Freightway and Port of New Orleans Sign Memorandum of Understanding Aimed at Fostering Economic Growth

The Board of Commissioners of the Port of New Orleans and the St. Louis Regional Freightway today entered into a...

March 3, 2017

Strategies/Opportunities

- **Finally, the largest and probably the mostly untapped, is the domestic market.**
- **Hub ports, generally speaking, do not explore "cabotage" markets to the level that smaller ports do and as such, represents a new business opportunity that both large coastal ports and smaller coastal and inland ports can pursue jointly.**

Threats

Seven threats have been identified that could deter future growth at the Riverport and Industrial Park. It is important to consider the threats, outline potential mitigation strategies, monitor them regularly and build flexibility into operations and future goals. The seven threats are outlined in priority order as ranked by the participants in the SWOT workshop and survey.

- Limited population, limited workforce base and limited industrial diversity
- Industry: potential for drop in corn consumption due to ethanol; drop in demand for coal; trade wars/tariffs
- Economic downturns/uncertainty
- Regulatory requirements, environmental, open meeting act restrictions
- Competition from other Riverports
- Shut out from future public funding opportunities
- Asian carp, silting in of channel

Limited population, limited workforce base and limited industrial diversity

Lyon County's population is 7,943 with 35% of the population 60 years of age or older and 16.5% under the age of 19. The limited population base could hinder economic expansion in the area if it is not coupled with efforts to attract people to locate in the area. The labor force in Lyon County is 2,846 with an unemployment rate of 4.6%, meaning that there are roughly 131 people actively looking for work in the County. This further highlights the need to attract workers as new businesses look to locate to the area. Partnering with the Lake Barkley Partnership, the Pennyriple Area Development District and the Kentucky Transportation Cabinet is one-way area officials can develop strategies to address the limited number of workers and population.

There are 334 business interests within the top four industries accounting for almost 40% of the workforce. Public administration (government jobs) is the largest employer followed by accommodation and food services, health care and social services, and retail.¹⁵ The main commodities moving through the Riverport are agricultural goods, based on the strong farm economy in the region. The current mix of business and industry presents a challenge to attracting additional types of industries.

Working in partnership with area leaders in government, business and economic development, strategies should be developed to address the limitations and expand the pool of labor and businesses.

Industry Risks

Closely related to the limited industrial diversity of the region are the risks to the industrial foundation that supports the local economy. Specifically, the demand for corn could be influenced by the ethanol industry, competition from emerging farm economies outside the U.S. and weather-related impacts. Trade wars and tariffs could impose artificial limits on the demand for agriculture goods produced and

¹⁵ <https://media.zoomprospect.com/common/helps/PDFGenerator.ashx?type=PDF&ID=09569f0a-6737-4beb-a46e-437b696aa560&map=true&reporttype=COMMUNITIES>

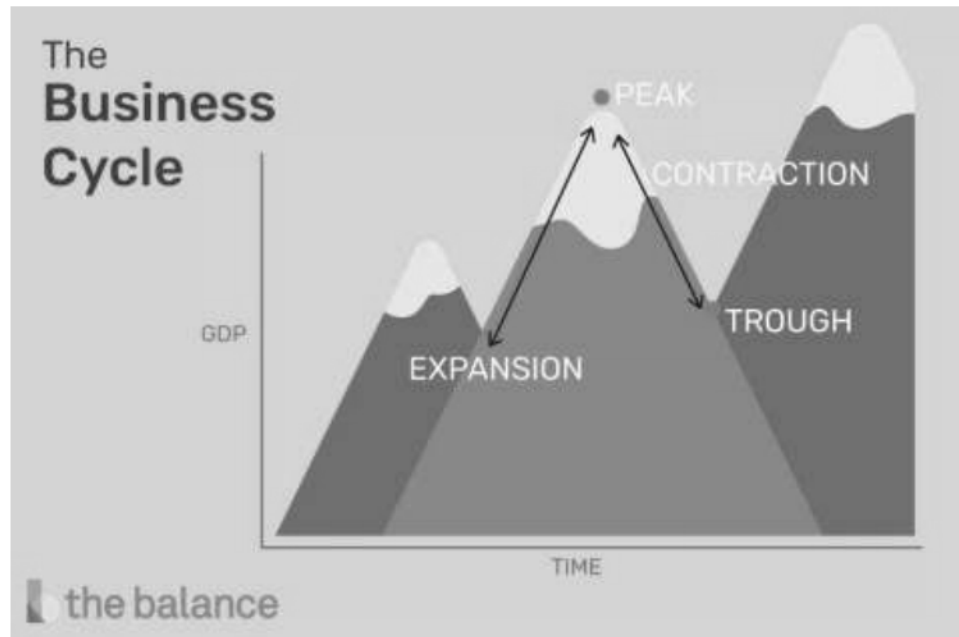
shipped from the Western Kentucky region. Coal demand, which has been in decline, could erode further depending clean air standards and power plant emission regulations. Additionally, more cost-effective fuels may be developed and/or deployed further reducing the need for coal fired facilities.

It is important to continually monitor the risks, provide for some flexibility by targeting infrastructure investments that can serve more than one type of commodity and to diversify operations as much as practical.

Economic downturns/uncertainty

Potential changes in the economy should also be monitored and, just as with industry specific risks, considered in planning efforts for infrastructure improvements and which industries to target for growth opportunities

The COVID-19 Pandemic and related economic downturn illustrates how fragile the U.S. economy can be in the face of uncertainty. In the U.S. there has historically been a cycle of economic growth and recessions. Since 1945 there have been 13 major recessions, including the current one. Recessions can have a devastating effect on local economies beyond the global and national impacts.



Depending on the cause and duration of the recession, some businesses and industries are better equipped to weather the storm as they are capable of either pivoting to the changes in the business environment or able to reinvent their business to meet new demands

Conclusion

The results of the SWOT analysis provides a basis for the development of a plan of action to build on the strengths identified and leverage the opportunities that will lead to future growth for ERIDA and Western Kentucky. By identifying and addressing operational deficiencies, the Board will maximize its strengths and position ERIDA to achieve its vision for the future. In recognition of the challenges that lie ahead, the Board needs to consider the recommendations included in the management and implementation plan to allow it to be nimble in the face of potential threats.

Chapter 7: Management Strategy and Implementation Plan

Strategic Management is an Ongoing Process, Not a One-Time Shot

Port Leadership and Managers are responsible for detecting when new developments within or outside the agency require a strategic response and when they don't. Management's job is to track progress, spot problems and issues early, monitor the winds of market and customer change, and initiate adjustments as needed. This is why the task of evaluating performance and initiating corrective adjustments is both the end and the beginning of the strategic management cycle.

Figure 75: Strategic Management Process



In the previous Tasks of this Plan, ERIDA evaluated themselves and received inputs from stakeholders to define / formulate the Port's SWOT. In this Task the Strategies are developed and presented with Implementation recommendations. It will be the ERIDA Board's responsibility to take the Recommendations offered and turn those into Actions which will then place ERIDA in a competitive advantage based upon their assets. Once the Plan of Actions is approved and are implemented, ERIDA should be on a path to repeated successes as the ERIDA is able to leverage its assets and resources into future results.

Strategies Help Managers to Make Decisions

Strategies Help Managers to plan properly by guiding them to make operational decisions. The basic principle of the strategy and policy framework is as follows:

- The more strategies and policies are clearly understood and implemented in practice, a consistent and effective framework can be implemented to achieve ERIDA plans for the future.

For example, if the Port has a major policy of engaging customers that fit its core competencies and marketing strategies, it will avoid wasting energy and resources on new cargo opportunities that do not meet this test.

To be effective, strategies and policies must be put into practice utilizing detailed plans embodying the ingredients necessary for operation.

These detailed plans, also called tactics, are the action plans through which strategies are pursued and implemented. Hence strategies must be supported by effective tactics.

Dunham and Pierce¹⁶ have defined strategic planning as leadership's active and conscious effort to design a plan to place an organization within its external environment.

Strategic Plan Elements

A strategic plan outlines a long-term perspective for the organization. It specifically states *the organization's reason for existence*, its strategic objectives, and its operational strategies. A strategic plan of an organization, therefore, answers a set of fundamental questions.

Figure 76: Strategic Plan Pyramid



- What business is the agency currently doing or does it want to do in the future?
- What kind of organization is it or does it like to be? How is it going to conduct itself to achieve this strategic position?

The strategic planning process is a comprehensive framework that guides the decisions that determine the nature and direction of organizational activities and undertakings.

Mission

An organizational mission is a statement specifying the kind of business it wants to undertake.

It puts forward the vision of management

based on internal and external environments, capabilities, and the nature of customers of the organization.

The mission statement, however, does not necessarily state specific strategic objectives or operational strategies or tactics.

Strategic Objectives / Goals

Strategic objectives or goals provide statements of definable and measurable achievements. The realization of such achievements marks the fulfillment of an organization's mission statement.

Operational Strategies

Operational strategies specify the actions that are to be taken to attain objectives.

¹⁶ Dunham and Pierce Leadership Model: The Leadership Process Model was developed by Randall B. Dunham and Jon Pierce. It was published in their 1989 book "Managing."

Therefore, Operational strategies or tactics mean the same things which are action plans designed to execute or implement strategies.

Strategic management plays a dynamic role in achieving success in today's business world. Strategic management is a stream of decisions and actions, which leads to the development of an effective strategy to help achieve organizational objectives.

Building upon Strengths and Addressing Weaknesses

The following discussion on Strengths and Weaknesses identifies the areas that are addressed in the recommended goals and expectations. Note that after each Strength or Weakness the recommended Goal is identified within the brackets.

Strengths

In the SWOT Analysis, ten Strengths were identified. The ten strengths were identified through the SWOT workshops and can be broken into two categories:

Infrastructure and Business Practices

The strengths are listed in order of priority based on input from the Board and stakeholders within the two categories:

Infrastructure (Goal I.1 and 2))

- Access to waterfront, on Riverport in Kentucky on a Lake
- Easy access to US highways and interstates (I-24 and I-69)
- 250 + acres available for development, water frontage with new sea wall
- Rail-served sites available at Industrial Park
- Affordable utilities readily available (water, natural gas, electricity)
- Topographically diverse, allows diversity of development

Business Practices (Goal II)

- Financial stability, access to capital, strong and passionate leadership and operations staff
- Recent State grants for infrastructure and equipment
- Master Plan

Weaknesses

Eleven weaknesses were initially identified during the planning process. Of the eleven, six are related to infrastructure needs that can be developed with focused investments based on market driven demand and contributions to future growth. Four weaknesses deal with "soft" infrastructure, or Business Practices, which includes lack of marketing, staff/leadership development and the need for greater focus and flexibility by the Board. The last weakness deals with the topography of the site, which will be addressed by the site development plan created for the Master Plan. The weaknesses listed below are in order of priorities as ranked by the Board and Stakeholders in the SWOT outreach efforts. The following have been broken into the relevant weakness category. In developing the strategic management strategies, there are recommendations as to how each category can be addressed:

Infrastructure

- Lack of storage for commodities (Goal I.2A)
- Lack of rail access at Riverport, need expanded rail access at Industrial Park (Goal I.2 A and B)
- Lack of key utilities – sewer and broadband, water capacity needs improvement (Goal I.2 A and B)
- Topographically diverse (Goal II.2)
- Lack of road infrastructure at both sites (Goal I.2 A and B)
- Above ground power (Goal I.2 A)
- Waterfront erosion (Goal I.2 A)

Business Practices

- Lack of public awareness and visibility into the Riverport and Industrial Park, no marketing/advertising program, perception as small facility (Goal IV.1 A-C)
- Limited focus on industrial park (Goal I.2B)
- Lack of staff and leadership development, lack of professional and industrial development focused staff (Goal III.1)
- Infrequent Board meetings (Goal III.1)

Based upon the Strengths and Weaknesses the following Goals and Measurements have been developed for ERIDA Board’s consideration as an Action Plan for the next 15 months to achieve the desired short-term outcomes in support the Port’s Vision and Mission. The Strategic Goals have been developed based upon input gained from the Board and Stakeholders during the SWOT Analysis and accompanying workshops conducted in Task 6.

2020-2021 ERIDA GOALS & EXPECTATIONS

ERIDA MISSION	
Our Mission is to bring people, resources and industry together to foster economic prosperity and family wage jobs through strategic partnerships and investments.	
I. SUSTAIN & ENHANCE BUSINESS DEVELOPMENT & JOB CREATION	
KEY PRIORITIES FOR 2020 & BEYOND	PERFORMANCE MEASURE
1. LAND ACQUISITION/REAL ESTATE PORTFOLIO LONG-TERM STRATEGY: Evaluate and recommend strategic property acquisition that support future business development activities.	A. Execute on land acquisition plan balanced with the other financial needs of the ERIDA
2. LAND USE & TRANSPORTATION PLANNING	A. Execute Short-term Infrastructure Improvement Plan for development at ERIDA Riverport Properties
	B. Execute Short-term Infrastructure Improvement Plan for development at the Industrial Park
II. DELIVER SUPERIOR FINANCIAL PERFORMANCE (Scorecard: Financial Returns)	
EFFECTIVELY MANAGE 2020-2021 OPERATING ACTIVITIES TO DELIVER EXPECTED FINANCIAL RESULTS.	A. Effectively manage the 2020-2021 operating activities to deliver expected financial results.
	B. Year-over-year comparison and explanation of financial results, with a target surplus of (or operating margin) 160,000.
	C. Debt Management: Staff will minimize future borrowing and reduce debt.
	D. Achieve clean audits: Work with accountant to achieve a clean audit.
III. STRENGTHEN ORGANIZATIONAL CAPABILITY AND PERFORMANCE	
1. COMPLETE 2020-2021 TRANSITION ACTIVITIES IN COORDINATION WITH MANAGEMENT PLAN.	A. Board transition into a Policy Group vs. hands on management of ERIDA.
	B. Complete assessment & recommendation for Port Management Structure and Succession Planning
	C. Review and update the Master Policy/ Delegation of Authority

	D. Keep Service Agreements current and accurate regarding allocating of costs and time.
	E. Developing partnerships and investing in memberships in key organization(s)
IV. COMMUNICATIONS/PUBLIC AFFAIRS	
1. COMMUNITY/INDUSTRY OUTREACH PROGRAM: Execute a proactive engagement strategy with stakeholders and the community to advance the value proposition of the ERIDA and the role the port plays in our regional economy	A. Implement Marketing Strategy developed in the Strategic Planning Process
	B. Expanded community understanding of the port and its missions through the successful execution of 4 community events or activities broadly available to the general public (averaging once a quarter).
	C. Partner with local education partners on a specific workforce development initiative

Management Strategy for Ongoing Operations

Overview of Port Management Models

Ports represent a mix of public and private goods. They generate direct economic benefits (private goods) through their operations, as well as additional indirect benefits (public goods) in the form of trade enhancement, second order increases in production volumes, and collateral increases in trade-related services. These economic multiplier effects have been used by many ports to justify direct public sector investment. It is in this dual production of both public and private goods that complexities arise, which makes defining roles for and boundaries between the public and private sectors challenging in the ports industry.

Most of the value of private goods can be captured in market transactions between private parties. However, a substantial portion of the value of public goods cannot be captured in arms-length transactions. Consequently, private firms have little incentive to produce them. Public goods create positive externalities when they are used; the social benefits they generate are greater than the price that private parties can charge for them. Thus, some form of public intervention is appropriate in their production to make certain that an adequate level of public goods is maintained.

Both through targeted development policies and the unplanned growth of interrelated industries, many ports have become the location for industrial clusters. Industrial clusters are geographic concentrations of private companies that may compete with one another or complement each other as customers and suppliers in specialized areas of production and distribution. Industrial clusters represent a kind of value chain, a web of interrelated activities that are mutually supportive and continuously growing. Clustering of related activities improves the competitive advantage of cluster participants by increasing their productivity, reducing transaction costs among them, driving technological innovation, and stimulating the formation of new business spin-offs.

As a matter of strategic development policy, many ports encourage the co-development of various value-added services through franchising, licensing, and incentive leasing. Today, ports seek to attract enterprises that extend their logistics chains or provide them with specialized capabilities to add value to cargoes that are stored and handled in the port.

Many governments are directly or indirectly involved in port development. They often justify the direct financing of basic port infrastructure based upon the belief that investments in port assets have strong direct and indirect multiplier effects on the entire local, regional, and national economy. It is argued that the commitment of public resources is necessary to encourage co-investment by the commercial and industrial sectors. These sectors are thus stimulated to make investments that they would not make in the absence of public seed investment in port infrastructure. However, determining causal links between public investment and specific commercial activities and investments is difficult and at times speculative. Still, it is important that governments envision and articulate future development scenarios, maintain frequent consultation with the private sector, and implement public policies that are applied consistently and that enable the private sector to invest with confidence in projects that support the stated public policy objectives.

On the other hand, port operations are businesses in their own right and should be managed to achieve optimal utilization of capital. Investments in port assets are affected by risk, competition for land and capital, or other factors in the competitive business environment. Subsidies and government-provided

incentives distort the allocation of resources for port development and may result in over- or underinvestment.

It is the delicate alignment of public and private interests that determines the structure of port management and port development policy. A full spectrum of institutional frameworks is available, differing primarily in where the boundary line is drawn between the public and private sectors. At one end of this spectrum, full public control over planning, regulation, and operations results in an Operating Port providing all the services to the private customers. At the other end, the almost total absence of public ownership, control, or regulatory oversight results in a fully privatized port

Alternative port management structures and ownership models

4 alternative port models-Depending upon « who » performs port authority / port operation functions

Port model	Description
Public service port (Operating Port)	A public port authority owning and operating all equipment (port authority and port operations) e.g. Owensboro Riverport
Tool port	A public port authority owns all equipment which is operated by labor employed by private firms (port authority + ownership of equipment required for port operations) e.g. South East Missouri Port Authority
Landlord port	Separation between public port authority (not involved in port operations) and private operators (generally concessionaires) e.g. America's Central Port
Private service port	Private port authority owning and operating all equipment (private port authority and port operations) (in some case – not always - port infrastructures are financed / built / owned by the private sector)

Alternative port management structures and ownership models Strengths and weaknesses

Port model	Strengths	Weaknesses
Public service port (Operating Port)	Infrastructure development and cargo operations under the responsibility of a unique organization (unity of command)	<ul style="list-style-type: none"> • Not user / market oriented • Lack of internal competition can lead to inefficiencies • Potential for strong interferences of Government (labor, investment planning) • Potential for lack of innovation due to limited role of private sector
Tool/ Equipment port	Good coordination between investments in port infrastructures and equipment – low risk of duplication	<ul style="list-style-type: none"> • Conflict between port authority (owns equipment) and • Private firms (operate equipment) • Limited involvement of private sector (low innovation / efficiency)
Landlord port	Port authority focus on Governing functions – Commercial activities by private firms more market oriented and competition driven (favors efficiency & innovation)	<ul style="list-style-type: none"> • Risk of duplication of equipment • Pressure from private operators on port authority to oversize the infrastructures
Private service port	Maximum flexibility – more market oriented development strategy	<ul style="list-style-type: none"> • Risk of private firms taking undue advantage of monopoly position • Government risks having poor control on strategic issues and Governing functions • If full privatization, risk of speculation on high value port land

Recommendation for Eddyville

First and foremost, ERIDA objectives should be more narrowly focused on port finances and operations.

It is a widely accepted opinion among port specialists that a port authority should have as a principal objective the full recovery of all port-related costs, including capital costs, plus an adequate return on capital. The full recovery of costs will help a port authority to maintain internal cost discipline. Thus,

- Attract outside investment and establish secure long-term cashflows.
- Stimulate innovation in the various functional areas to guarantee a long-term balance between costs and revenues, especially when faced with innovations by terminal operators, port users, rival ports, and hinterland operators.
- Generate internal cash flows needed to replace and expand port infrastructure and superstructure.
- Compete according to the rules of the market system, without excessive distortions of competition.
- Put limits on cross-subsidization, which may be rational from a marketing point of view (market penetration, traffic attraction), but which can undermine financial performance.
- Avoid dissipation of the port authority's asset base to satisfy objectives of third parties (for example, port users demanding the use of land in the port area without regard to the land's most economic use or port and city administration's using port authority assets to pursue general city goals).

Full cost recovery should be viewed as a minimum port authority objective; once this objective has been achieved, however, the port authority can pursue other-than-financial objectives considered desirable by the local governments, stakeholders or its Board.

In order to achieve this objective, it is recommended that ERIDA follow a **Hybrid Management Model** which will allow the Board to fully leverage their authority under Kentucky State Law, generate economic development and job creation while remaining financially strong. The recommended Hybrid model would allow ERIDA to retain ownership and management authority over the waterfront properties, while encouraging private investment and ownership on the "backland" property that can be accessed from Highway 730.

Best Practices as identified by successful competitive ports

Peer Port Interviews Response Matrix

Question:	Port		
ERIDA AWARENESS	America's Central Port Granite City Illinois	Owensboro Riverport Owensboro Kentucky	SEMO Port Cape Girardeau Missouri
Are you aware of the Eddyville Riverport	Heard of them, not familiar though	Yes, excited about Riverports in Kentucky	Not in any detail, have seen facility driving by
If so, what do you think are its strengths	NA	Not knowing property very well - thinks strength in grain and fertilizer for ag uses, recreational boats, otherwise not sure about opportunities in the area	Having I-24 close by is an advantage, P&L might give opportunity for transload, barge service to Gulf, not sure of cargo handling services or other industries
Weaknesses	NA	Disengagement at the state level, limited resources to promote or grow facility (from KAR/WTAB perspective)	No visibility, no rail service, combined port and industrial development (different purposes and objectives in terms of profitability), topography - will need extensive grading for projects, curious about dredging needs.

THEIR RIVERPORT	America's Central Port Granite City Illinois	Owensboro Riverport Owensboro Kentucky	SEMO Port Cape Girardeau Missouri
		<p>Operating port with 46 employees, including direct customer service group, very hands on.</p>	<p>Landlord port with 3 employees, port authority acts as a land developer and leases land to various industries at the port - no cargo handling services. Port owns the RR and has contractor that operates it. Both dock operator and RR operator are locally owned family businesses. Port manages relationships with connecting Class I RRs, customer service, track/bridge maintenance and regulatory matters. Having six companies operating under land leases means private sector operations under free market conditions.</p>

Operating model	Landlord port , 35 employees, contract operators - one does dry bulk another does liquid, separate rail operator for the Port's RR, some tenants own/operate their own RR, one Class I RR owns/operates some track	Direct control. Allowed them to grow niche market for aluminum and control turn times. Diversified operations - warehousing 20%-25%, agriculture products 10 - 12%, sodium 20-25%, over 40% tied to metals.	Does not rely on counties/State for revenues (small amounts initially from the Counties and from the State until a few years ago). Port reached breakeven point in 1997 (established in 1975). Raises sites above 500-year flood plain. Revenues generated by land rent and tonnage rent (with annual tonnage minimum). Port aims to operate with an annual surplus which is then used to cover high cost maintenance in some years, capital improvement projects when grant funds limited, local match for capital grants, or kept for future projects or used for emergencies, only if needed.
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OPERATIONS ISSUES	America's Central Port Granite City Illinois	Owensboro Riverport Owensboro Kentucky	SEMO Port Cape Girardeau Missouri
What would you change if you could (lessons learned)?	Address legacy issues - e.g. more than one rail operator, understanding issues with railroad earlier (FRA regulation)	More knowledge transfer from people leaving - all of the regulations, permits, etc. Industrial development is lacking. Water infrastructure built in 1970s is failing daily which is hindering development - pay attention to waterside infrastructure (sea wall, dolphins, etc.)	The ability to have more level land above flood elevation. The surrounding terrain makes land expensive to develop and there isn't a lot of it. Trim tenants' land down to the bare minimum - didn't lease out to tenants for future expansion.

<p>What is working well (best practices)?</p>	<p>People are the key. Not relying on tax support. Creative staff - recruitment through local Universities (STLU and SIU-E) and networking through professional organizations (ASCE Ports group)</p>	<p>Strong skill base - hiring right operations manager helps with skill development, managing complex operations and building a good reputation. Flexible customer service group. Sometimes use contract labor to identify potential hires. Building a training program - Coast Guard requirements, FRA regulation, etc.</p>	<p>The port knew it could not be all things to all prospects, the approach to development and land leasing served the port and its customer well. [He knew of another port that had priced its land leases too low which negatively impacted future operations and growth.] Need to consider on-going operational needs in pricing leases.</p>
<p>What is not working well (lessons learned)?</p>	<p>Avoid going into debt as it ends up driving every decision. Borrowed through bank loans (GO debt structures are more onerous)</p>	<p>NA</p>	<p>Offered instead what makes things work well: competition is key - don't allow monopolies if possible. 2 Class I RRs means competition, dock operator does not have exclusive rights on freight - handling 3rd party cargo through the Port. If one tenanthas a monopoly handling certain products, that right has to be included in its lease and all the other leases of the port. Additionally, some federal grant agreements prohibited Port from granting monopolies.</p>
<p>Has anything surprised you?</p>	<p>How slow federal agencies are - Army Corps of Engineers</p>	<p>Had background in manufacturing and distribution where there were pre-developed SOPs, processes, flow charts. That did not exist at the Port to the degree necessary to ensure everything was safe</p>	<p>All but one company at the port has been successful. The Port realized it had to pass on some prospects whose projects did not fit the port and its customers.</p>

<p>Recommendations for others (lessons learned)</p>	<p>Be flexible and opportunistic. Hire creative and motivated people. Diversify uses - their port has industrial, residential, storage, distribution and manufacturing all within the port area</p>	<p>Ports have a tendency to try to take on anything, important to assess and understand capacity and strengths. Prepare to move quickly to respond to requests for pricing that incorporates team approach from account management to customer service to operations - understand the cost to do a job, the margin and capacity.</p>	<p>Be honest, run a good business (try not to act like a government agency but remember you are one when it comes to laws and regulations). Take care of your owners, customers and staff. Be prepared to work long hours, be dedicated and willing to work hard. Enjoy the people you get to work with. Keep a sense of humor.</p>
<p>What has happened beyond your control that hindered operations (lessons learned)?</p>	<p>Board wants more control of hiring process, Board turnover makes it difficult for them to understand economic development and port operations, which is a hinderance at times</p>	<p>Pressure from community and private sector to tap into operating surpluses which are needed to reinvest in facility to generate more opportunities, educate/expose public and private sector to operations and how surpluses are used (transparent)</p>	<p>Regulations - need to be an expert. Form relationships with state and federal regulator agencies and help them do their jobs. Director and staff need to learn enough to handle port, operations and growth plans. Stay out of politics but respect elected officials. Learn everything about problem areas like flooding, soil types, infrastructure. Stay ahead of problems, maintenance. Look for contingencies.</p>

<p>What could be done better (best practices)?</p>	<p>Create revenue growth, look at assets and how to maximize their revenue generating capacity, all staff work as team to increase revenue generating opportunities</p>	<p>Consistent maintenance of the Master Plan and strategic plan - current one needs to be updated (hoping KYTC study will help with this) Need more advanced planning and balancing short-term growth with job creating industrial development</p>	<p>See above.</p>
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DEVELOPMENT ISSUES	America's Central Port Granite City Illinois	Owensboro Riverport Owensboro Kentucky	SEMO Port Cape Girardeau Missouri
<p>What advice would you give your successor on how to successfully attract development (best practices)</p>	<p>Target the market that makes sense, trying to be everything to everyone doesn't work. Establish Port as leader in an industry and keep focus on long term job attraction (right mix of short-term tenants and long-term industries). Take advantage of multimodal connections available (rail, road, barge) in marketing to manufacturers. Hire a marketing person to research which companies are geared to take advantage of port assets. Use flyers, cold calls, emails and other ways to stay in front of target industries/businesses</p>	<p>Develop strong relationships with state cabinet for economic development and local economic development agencies. Balanced amount of time knowing where to go to look for opportunities - conferences, industry relationships, business development person on staff and have a plan that there is some level of confidence the port can deliver when there is an opportunity. Revamp the website which is fairly out of date - 80% of new inquiries come through website. Participate in IRTPA, Waterways Journal events, etc.</p>	<p>Most of the good projects (customers) find you. Have to be ready and able to move quickly. Know what fits and what does not fit. Keep marketing materials on you. Marketing staff/support need to be able to identify people making decisions on locating facilities or places to ship freight. Chased a lot of prospects. A potential prospect required a loop track for unloading unit trains (100+ cars), did engineering but prospect did not pan out. Have a strategic plan, know what the facility is and what it isn't. Market research of area served by port. Port needs people (board and staff) who understand enough to know</p>

			how and why plan can be changed and when to stay the course. Learn from the plan and keep it updated.
While you were growing your facility, what happened that surprised you or didn't go as planned (lessons learned)	Generate prospects continually, it takes a great deal of effort/time to get commitments and it is difficult for the public to understand the effort	There is no cookie cutter approach to projects, each have to be considered differently, customized agreements based on project. Have to be flexible with money in the bank. They have not bought property for industrial development that they now aspire to do more of	Referred to other answers.
If there was one thing you could change about the development of your facility, what would it be (lessons learned)	Push hard and go as fast as you can. Don't be afraid to make mistakes, roll with them and move on.	Ability to have infrastructure in place including potential for utilities, having property available for quick deals. Need to have Phase I studies in hand. Work closely with EDC and ID foundation - too much turnover in rail and utility industrial development staff. Board apprehensive about a spec building - which if they had one it could be used short-term	There are many things that can't be changed, know how to make them workable.
Did you follow a Master Plan or did development happen organically (best practices)	Did a 20 -year Master plan in 2004 and did all the projects in 10 years. Master plan keeps everyone focused.	Followed Master Plan - needs to be updated	The port had several master plans. Important to make plans for sites and development. Pursue grants to build toward plan. Prepare environmental studies to be ready to respond to opportunities. It helps to compete for grants.
If you did not meet your goals, what could be done differently	Met all the goals in the Master Plan, funding is a big issue, every project has to be looked at as a	One of the challenges was diverting funds intended for the Master Plan to take advantage of short-term	They did ok.

to help you achieve them (lessons learned)	revenue generator (including general infrastructure projects)	opportunities. Updated plan needs to leave some flexibility to deal with short-term opportunities while staying the course with the Master Plan	
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FINAL THOUGHTS	America's Central Port Granite City Illinois	Owensboro Riverport Owensboro Kentucky	SEMO Port Cape Girardeau Missouri
Is there anything you can share with the ERIDA Board of Directors on how to develop or operate (lessons learned)?	Hire the right people, don't let politics or parochialism get in the way. Emphasize importance of reinvesting in facility to the community in order to keep generating positive economic impacts	Having a strategic plan is the right start, understand what commodities should be the focus. (depends on the local economy). The Board should stay the course. Have a niche.	Learn all you can about your port and other ports - customers, transportation and related industries. With a small staff, Board has to be involved in detailed decisions.
COVID 19 impacts	Did not lose any tenants (80), only one asked for rent concessions which were not given (they did not leave) Port had an emergency plan but it was geared for short-term hits (natural disasters) rather than long-term effects of a pandemic. Early on they convened executive team and did some scenario planning which allowed them to get a lot done in a short period of time. They were able to move completely cloud based and quickly adjusted to WFH without loss of service to tenants/contractors	Not discussed	NA

Final thoughts/suggestions	Happy to provide ERIDA Board or individual Board members a tour at any time or to come to ERIDA to tour facility and offer suggestions. Form strong partnership with MARAD (Bill Paape in DC and local gateway office)	Kentucky ports should try to work holistically together to leverage more economic development - cited Indiana Ports	Wishes ERIDA much success, offered to host an ERIDA visit and ERIDA Board/staff meet the SEMO Board. One staff has served as President of Missouri Port Authority Association and has handled finances, budgets and grant writing.
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Summary of Best Practices offered by the three competing ports

Be Strategic

- Don't let politics or parochialism get in the way
- Having a strategic plan is the right start, understand what commodities should be the focus. (depends on the local economy).
- Push hard and go as fast as you can.
- Don't be afraid to make mistakes, roll with them and move on.
- Board apprehensive about a spec building - which if they had one it could be used short-term
- Establish Port as leader in an industry and keep focus on long term job attraction (right mix of short-term tenants and long-term industries).

Planning for the Future

- Have a Master Plan, and follow it to completion.
- Consistent maintenance of the Master Plan and strategic plan is very important.
- Ability to have infrastructure in place including potential for utilities, having property available for quick deals.
- Need to have Phase I studies in hand.
- Important to make plans for sites and development.
- Have a strategic plan, know what the facility is and what it isn't.
- Be flexible and opportunistic.
- Prepare environmental studies to be ready to respond to opportunities. It helps to compete for grants.

Board / Staff

- The Board should stay the course.
- Hire the right people
- With a small staff, Board has to be involved in detailed decisions.
- Have a Business development person on staff and have a plan that there is some level of confidence the port can deliver when there is an opportunity.

Financial

- Funding is a big issue; every project has to be looked at as a revenue generator (including general infrastructure projects)
- Pursue grants to build toward plan.
- One of the challenges was diverting funds intended for the Master Plan to take advantage of short-term opportunities.
- Update plan to leave some flexibility to deal with short-term opportunities while staying the course with the Master Plan

Marketing of Port Assets

- Generate prospects continually, it takes a great deal of effort/time to get commitments and it is difficult for the public to understand the effort
- Have a niche.

- Learn all you can about your port and other ports - customers, transportation and related industries.
- Target the market that makes sense, trying to be everything to everyone doesn't work.
- Hire a marketing person to research which companies are geared to take advantage of port assets. Use flyers, cold calls, emails and other ways to stay in front of target industries/businesses.
- Keep your website up to date. Many prospective customers come from contacts off website.
- Most of the good projects (customers) find you. Have to be ready and able to move quickly. Know what fits and what does not fit.
- Keep marketing materials on you.
- Marketing staff/support need to be able to identify people making decisions on locating facilities or places to ship freight.
- Chase a lot of prospects. Just make sure they fit your plan.
- Market research of area served by port. Port needs people (board and staff) who understand enough to know how and why plan can be changed and when to stay the course.
- Learn from the plan and keep it updated.

Partnerships

- Kentucky ports should try to work holistically together to leverage more economic development - cited Indiana Ports
- Develop strong relationships with state cabinet for economic development and local economic development agencies.
- Balanced amount of time knowing where to go to look for opportunities - conferences, industry relationships,
- Participate in IRTPA, Waterways Journal events, etc.

Community Outreach

- Emphasize importance of reinvesting in facility to the community in order to keep generating positive economic impacts.

Recommendations

a. Recommend Hybrid Model of Port Management for Eddyville

i. Retain ownership and operations of waterfront properties

It is recommended that ERIDA retain control over the waterfront assets. This includes approximately 60 acres along the waterfront. This property should be a mix of leased facilities and port operated facilities to ensure a strong and diversified revenue stream for ERIDA. This combination of public and private ventures should mitigate risks during business cycles and provide the Port with flexibility needed to meet customer and cargo demands

ii. Potentially sell of “backland” properties

The non-waterfront properties should be planned to integrate with the waterfront assets. The Port should consider creating a phased approach for the development of these lands including required infrastructure and utilities to make these site either sellable or shovel ready for future development opportunities that fit within the Ports objectives and long-term vision, mission and goals.

These parcels could remain under Port control as a mid to long term lease arrangement or be available for purchase as long as the buyers meet requirements laid out by the Port as to land use requirements, reversion clauses, etc.

iii. Evaluation future buildout of Industrial Park-

ERDIA should prepare a long-term development plan for the Industrial Park using the Master Plan for guidance. The Board may want to consider a hybrid ownership model for parcels at the Industrial Park that could meet potential customer needs, especially companies that want to control title to the land.

b. Hire Part-time Professional Port Manager with Marketing and Outreach responsibilities It is recommended that the Board transition from a hands-on board to a Policy Setting body.

Currently, actions need to wait until the next Board meeting to be addressed. Based upon review of the current management activities and best practices of ports in the region, duties and decisions currently performed by the Board should be reviewed and delegated either to a subcommittee of the board or to a Professional Port Manager.

With a part-time Professional Manager, the Board could delegate duties and decision marketing authority (constrained by a Master Policy which outlines the Manager’s authority levels). With the Master Policy in place and a part-time Port Manager responsible for Marketing, Outreach, etc., the Board would be in position to set Policy and refrain from day-to-day decisions. This will increase the Port’s ability to be more responsive to customer requests and other administrative activities that may need attention / timely decisions more than is available under the current management style of Board Meetings once per month.

Board needs to retain focus on setting policy and participation in the community, on state boards as appropriate, attend conferences to keep up with current industry trends and best practices.

- c. Day to Day Operational Activities remains with current staff
Day to Day operations should remain the responsibility of current operational staff to operate equipment, respond to daily customer needs, etc.
- d. Recommend become more visible in Port Industry
 - i. Join Industry Associations to leverage the Port Communities expertise and Governmental Affairs knowledge

ERIDA should consider expanding its participation in the Port Industry through attending and /or becoming members and actively participating in such associations and events such as IRTPA, Waterways Journal events, etc.

- ii. Explore strategic partnerships with other ports for example:
 - 1. Paducah McCracken County Riverport Authority to leverage their Foreign Trade Zone expertise and consideration of a subzone in Eddyville.

In order to expand the current services offered by ERIDA, the Port should reach out to the Port of Paducah and investigate a potential expansion for their FTZ to include ERIDA as a subzone, if appropriate.

Foreign-Trade Zones (FTZ) are secure areas under U.S. Customs and Border Protection (CBP) supervision that are generally considered outside CBP territory upon activation. Located in or near CBP ports of entry, they are the United States' version of what are known internationally as free-trade zones.

Foreign and domestic merchandise may be moved into zones for operations, not otherwise prohibited by law, including storage, exhibition, assembly, manufacturing, and processing. All zone activity is subject to public interest review. Foreign-trade zone sites are subject to the laws and regulations of the United States as well as those of the states and communities in which they are located.

Under zone procedures, the usual formal CBP entry procedures and payments of duties are not required on the foreign merchandise unless and until it enters CBP territory for domestic consumption, at which point the importer generally has the choice of paying duties at the rate of either the original foreign materials or the finished product. Domestic goods moved into the zone for export may be considered exported upon admission to the zone for purposes of excise tax rebates and drawback.

A typical general-purpose zone provides leasable storage/distribution space to users in general warehouse-type buildings with access to various modes of transportation. Many zone projects include an industrial park site with lots on which zone users can construct their own facilities.

Subzones can be private plant sites authorized by the Federal Trade Zone Board and sponsored by a grantee for operations that usually cannot be accommodated within an existing general-purpose zone.

2. Blue Water Port to build a marketing strategy for cargo that could move between the respective ports

In an effort to expand the marketing reach of ERIDA, it is recommended that once the Port has a person dedicated to expanding the market currently served, an initiative should be developed to select a strategic Blue Water Port to partner.

3. State of Alabama, Alabama State Port Authority, West Virginia DOT, South Alabama Regional Planning Commission, Yellow Creek State Inland Port Authority, Paducah-McCracken County Riverport Authority, Port Itawamba, Lowndes County Port Authority, Coalition of Alabama Waterway Associations, Inc.

Ensure that Eddyville Riverport on the Cumberland River is included in the Marine Highway 65 route designation as part of the original coalition to establish the corridor. Once included and a Blue Water Port partnership is established, ERIDA should apply for a Marine Highway Project designation to make it eligible for future funding opportunities through the Maritime Administration's Marine Highway Grant program. The purpose of a Marine Highway Project is "to reduce landside congestion and increase the use of domestic marine transportation by supporting the development of transportation options for shippers. These services provide economic and environmental benefits to the U.S. public at large. Marine Highway Program Designated Projects can improve safety and system resilience, and serve to reduce transportation related air emissions, transportation costs for shippers, energy consumption, and costs associated with landside transportation infrastructure".¹⁷

4. Industrial development partnership with the Paducah and Louisville Railroad to leverage the respective assets of each organization

In an effort to attract rail serve tenants or business to the industrial park, it is recommended that the ERIDA enter into a memorandum of understanding with the P&L RR to work cooperatively toward attracting additional industry and diversifying operations.

¹⁷ <https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/grants-finances/marine-highways/3066/marine-highway-project-designation-open-season-general-information-announcement.pdf>

Implementation Plan

1. The Board needs to review and approve the Master Plan and Recommendations
2. ERIDA needs to prioritize the recommendations based upon the 2020-2021 Budget and current financial commitments.
 - a. Operating Funds:
 - i. Funds should be set aside to hire a part-time Professional Manager by June 2021
 - b. Capital Funds:
 - i. Capital Projects should be prioritized based upon the funding of the Master Plan into:
 1. First year projects
 2. Years 2-5
 3. Years 6-10
 - ii. Financial Plan for achieving the project identified in years 1-5 should be prepared not later than June 2021
3. The Master Plan and Cargo forecast should be updated no later than Spring 2021 with any pertinent information that becomes available from the *KYTC Riverports Study*:

Current plan of action and timing of the *KYTC Riverports Study* is as follows:

- Currently, conducting outreach and discussions with the port directors to gain an understanding of the existing conditions
 - Completing the TRANSEARCH and Waybill breakdown for each port. This will be presented and discussed during the port visits in Sept/Oct
 - Taking the TRANSEARCH data into the statewide model to visualize freight flows
 - Preparing for the Statewide Summit, which will provide a forum to discuss and present information about riverports, freight, data, and related policy initiatives. This will occur in late October/early November
4. A Marketing Plan should be put into place for 2021-2022 – no later than January 2021

This will allow the Port and the Community to focus on the Port's niche. This focus should be on attracting customers and cargo types that fit into ERIDA long term build out plans.

Chapter 8: Master Plan

The purpose of this chapter is to give current and future ERIDA boards information that can be a reference for decision making and growth implementation points as they provide stewardship for the riverport and industrial park. Specifically, there will be discussion regarding the environmental overview that was performed on the sites. Additionally, a thorough geotechnical investigation was conducted throughout the ERIDA properties which will provide critical information about the landforms that must be engaged with to develop the properties. Finally, the plan will provide a series of graphics that will display the current assets of the riverport and the industrial park as well as their current leases. In addition, the figures will show a range of proposed projects that can be implemented over the course of decades on the riverport and/or industrial park properties which will help complete the overall vision for the properties.

Environmental Overview

An environmental overview report was prepared for the Eddyville Riverport Industrial Development Authority (ERIDA) for their riverport and industrial park properties located in Eddyville, Kentucky. This included a 275-acre tract of land that lies adjacent to Lake Barkley. The property lies at the end of Old Railroad Road which is off of Highway 93. The property is bounded on the north by the I-24 overpass, on the west by a cove of Lake Barkley, on the south by Lake Barkley and the Eddyville State Penitentiary, and to the east by wooded areas and a few residential homes. The majority of the property is wooded with large hills and ravines. The topography varies from elevation 350 to 530 feet. Some of the Riverport area has been developed already. The second property included a 120-acre tract of land that lies adjacent to the DHL Supply Chain (formerly Exel) facility located off Industrial Park Drive. The property is bounded on the north by Highway 62, on the west by wooded areas and agricultural fields, on the east by wooded areas and agricultural fields, and on the south by the Paducah & Louisville Railway, Inc. (P&L) rail line, wooded areas, and agricultural fields. The property is gently rolling and varies across the topography from elevation 520 to 550 feet. Most of this property is used for agricultural purposes but there are some wooded areas located along the western and southern portions of the property. However, there are no crops planted currently.

It was the intent of ERIDA to review this location for the potential industrial development of the area. This property was reviewed for:

- Soils
- Cultural Resources
- Wetlands and Streams
- Flood Plains
- Threatened & Endangered Species Overview

The conclusions found from the environmental overview was as follows: Based on the reports and reviews for these sites, it is BFW's opinion that there is the potential for environmental impacts to the site. However, it should be noted that not all development associated with this site will have environmental impacts. Any construction or development activities should be reviewed for potential environmental compliance prior to ground disturbing activities.

Geotechnical Overview

Bacon Farmer Workman Engineering and Testing conducted a geotechnical investigation of ERIDA's riverport and industrial park properties. The following is a summary of the results:

A series of eight (8) borings were advanced for the geotechnical evaluation. Six (6) borings were advanced at the Riverport site and the two (2) remaining advanced at the Industrial Park Site. Borings advanced to 20 feet or auger refusal.

Riverport

Boring 1 and 2 advanced near dredged material fill area near the port entrance. Soil was decently firm and appeared to be useable for future development. However, caution should be used in design in this area and additional borings or test pits may be needed due to the way the materials were deposited in the area.

Boring 3 and 5 were located in the powerline easement. Boring 6 was located near the southern portion of the site just east of the boat removal slip. "Shallow" bedrock was encountered in each of these borings from approximately 9.8 to 10.8 feet below ground surface. Soft soil conditions were encountered in boring, B-5

The remaining boring, B-4 was located along the easternmost portion of the site and was different in soil makeup and consisted of sands.

Things for geotechnical consideration:

- 1) Significant topography change across site will cause challenges with overall site development, especially roadways. The elevation change will likely require the use of significant earth cuts and slopes or the use of retaining walls. In addition, shallow bedrock may be encountered in the central and western (near the bottom of the hills) portions of the site that would likely require rock excavation. Building pads constructed near the center of the site on the uplands would likely require significant cut and fills which also may encounter bedrock.
- 2) Shallow Bedrock as discussed above may cause the use of costly rock excavation if encountered.
- 3) Potential Groundwater Seeps are highly likely near the base of the existing hills. During site development during excavation on hillsides, seeps are very likely. Seeps can degrade the soils by saturation. Seeps will need to be dealt with as they are encountered through the use of interceptor trenches and/or French drains.
- 4) High Plasticity Clays were encountered in boring, B-3, B-5 and B-6 and are anticipated on the upland portions of the site. The high plasticity soils are residuum from the underlying bedrock. The clays can be used as fill but will be difficult to manipulate during the winter and wet months. It is recommended that for building and structures that the clays not be used in the upper 48-inch in max (not set in stone) fills if possible due to potential shrink/swell. However, this can be worked around by lime stabilization.

- 5) Dredged Materials Spoil Area appear to be decently firm in consistency. However, in one of the borings the underlying natural ground is soft below the fill. Therefore, additional soil testing will be required if heavy structural loads are anticipated such as a tank or bin is proposed there.
- 6) Shallow Foundations appear feasible for most of the area of the Riverport with the exception of the existing port area along the Lake Barkley inlet. In this transition area it is likely that intermediate (deep) foundation would likely be needed for any heavy or settlement critical structure is planned. However, due to the shallow bedrock, intermediate foundation could be easily installed.

Industrial Park

Borings B-7 and B-8 encountered normal silt clay soils and was very firm to stiff in consistency.

For Geotechnical Consideration - degradation of silty soils under traffic loads. The normal situation to be avoided is the soils will degrade if moist or saturated under constant and heavy traffic loads. The use of lime or cement stabilization while not anticipated to be necessary would work to remediate moisture problems with the soils.

Foundation – Shallow foundation are anticipated to be feasible for the Industrial Park.

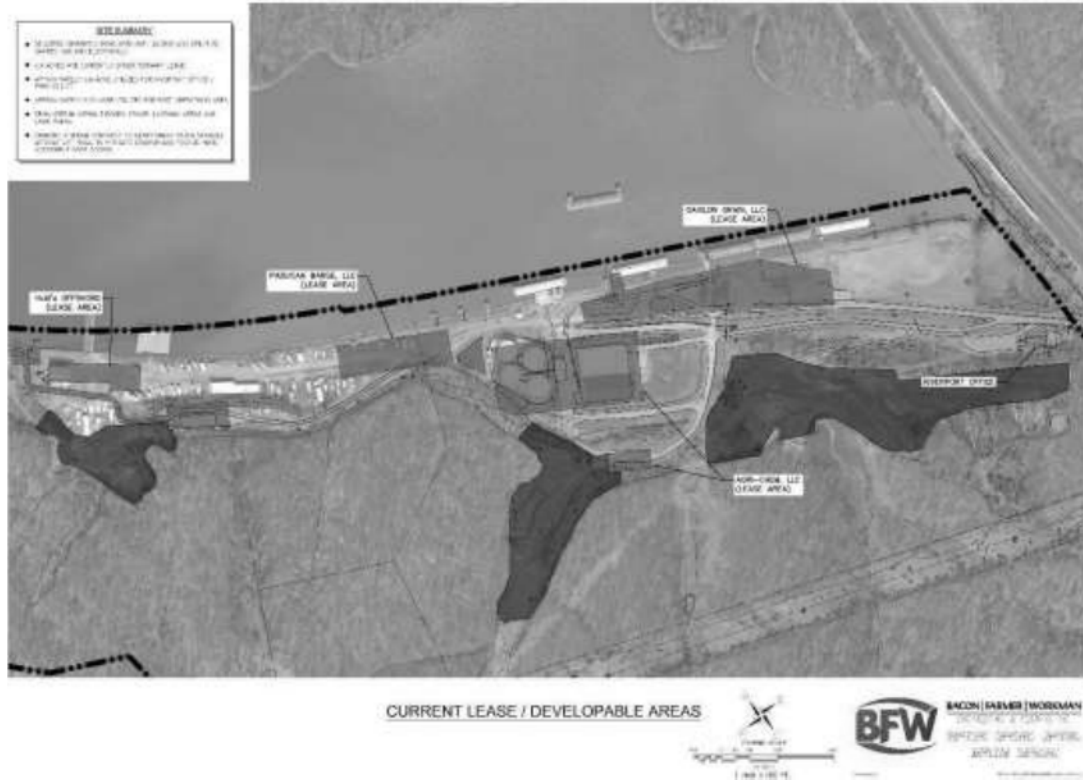
Proposed Growth Projects

Riverport

The following figure shows the existing riverport survey. The riverport has 274.5 contiguous acres with approximately 225 acres currently wooded.



Currently 33 acres are developed with water access and utilities (water, gas and power). Of the 33 Acres, 8.9 acres are currently under Tennant Lease. ERIDA is currently under contract with a Kentucky Riverport Improvement Grant to construct Sheet Piling Seawall at the boat lift well to mitigate erosion and improve shore access.



Proposed Projects / Development in the first 5 years. Key projects are proposed to address road infrastructure, utility infrastructure, and operational capacity.

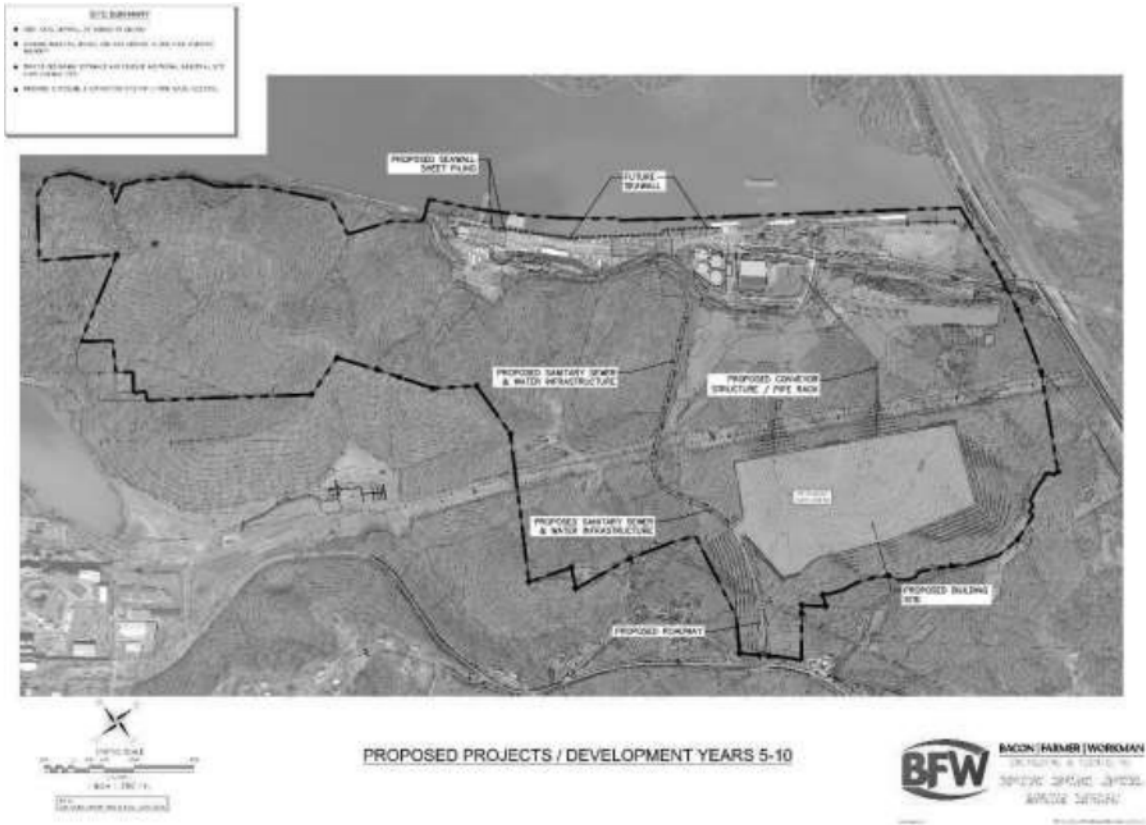


- New frontage road to move traffic away from operations area
- New Office / Tenant Office Lease Space for Riverport and tenants of the Riverport.
- Sanitary sewer collection, pump station and force main to Eddyville (possibly work with the Kentucky State Penitentiary to provide sewer for them and old Eddyville)
- Build / Expand Grain Storage at existing tenantlease
- Guardrail at Pit #2 for safety compliance
- Concrete paving to expand Cargo Yard / Port Operations Area

1 Yr to 5 Yr Schematic Estimate

Earthwork		Unit Cost	Total Cost
Cut	156,655 cy	\$ 10.00 /cy	\$ 1,566,550.00
Fill	151,212 cy		
Roadway			
Length	3,925 It	\$ 425.00 / It	\$ 1,668,125.00
Utilities			
Water	3,900 It	\$ 50.00 / It	\$ 195,000.00
Sanitary Sewer	3,900 It	\$ 70.00 / If	\$ 273,000.00
Manholes	13 ea	\$2,000.00 ea	\$ 26,000.00
Pump Station & Force main			\$ 1,000,000.00
Electric	3,900 It	\$ 50.00 / If	\$ 195,000.00
Gas	3,900 It	\$ 40.00 / If	\$ 156,000.00
Structures			
Sea Wall (As Needed)	It	\$ 1,500.00 / If	
Total Cost			\$ 5,079,675.00

Proposed Projects / Development in years 5-10. Additional projects are proposed to further address road infrastructure, utility infrastructure, and operational capacity.

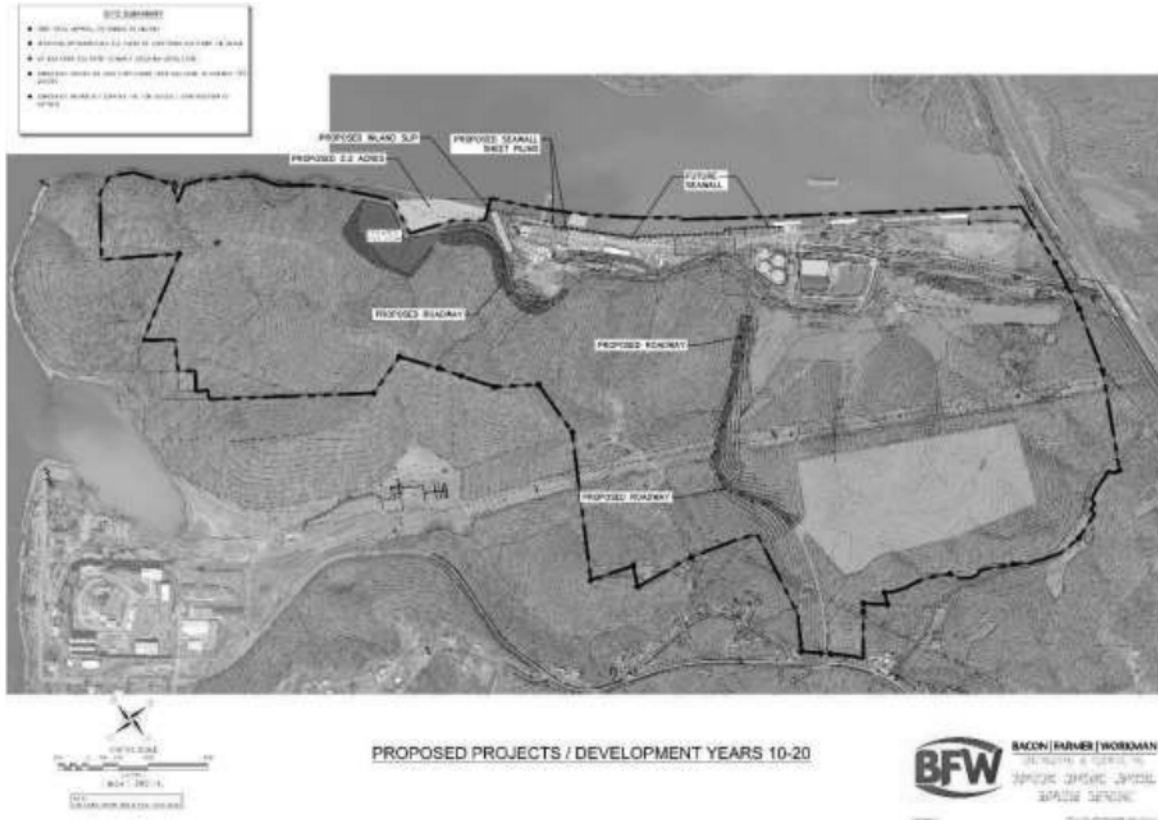


- Additional Seawall (as needed or desired)
- Upgrade Electric, Water and Gas service to and thru riverport property.
- Provide Secondary Entrance and develop additional industrial site from Highway 730

5 Yr to 10 Yr Schematic Estimate

		Unit Cost	Total Cost
Earthwork			
Cut	458,390 cy	\$ 10.00 /cy	\$ 6,183,800.00
Fill	618,380 cy		
Roadway			
Leng t h	880 lf	\$ 425.00 / lf	\$ 374,000.00
Utilities			
Wate r	, 2000 lf	\$ 50.00 / lf	\$ 100,000.00
Sanitary Sewer	2,000 lf	\$ 70.00 / lf	\$ 140,000.00
Manho les	7 ea	\$2,000.00 ea	\$ 13,333.33
Elect ric	2,000 lf	\$ 50.00 / lf	\$ 100,000.00
Gas	2,000 lf	\$ 40.00 / lf	\$ 80,000.00
Sturctures			
Sea Wall (As Needed)	lf	\$ 1,500.00 / lf	
Total Cost			\$ 6,991,133.33

Proposed Projects / Development in years 10-20. Additional projects/acquisitions are proposed to further address road infrastructure, and operational capacity and efficiency.

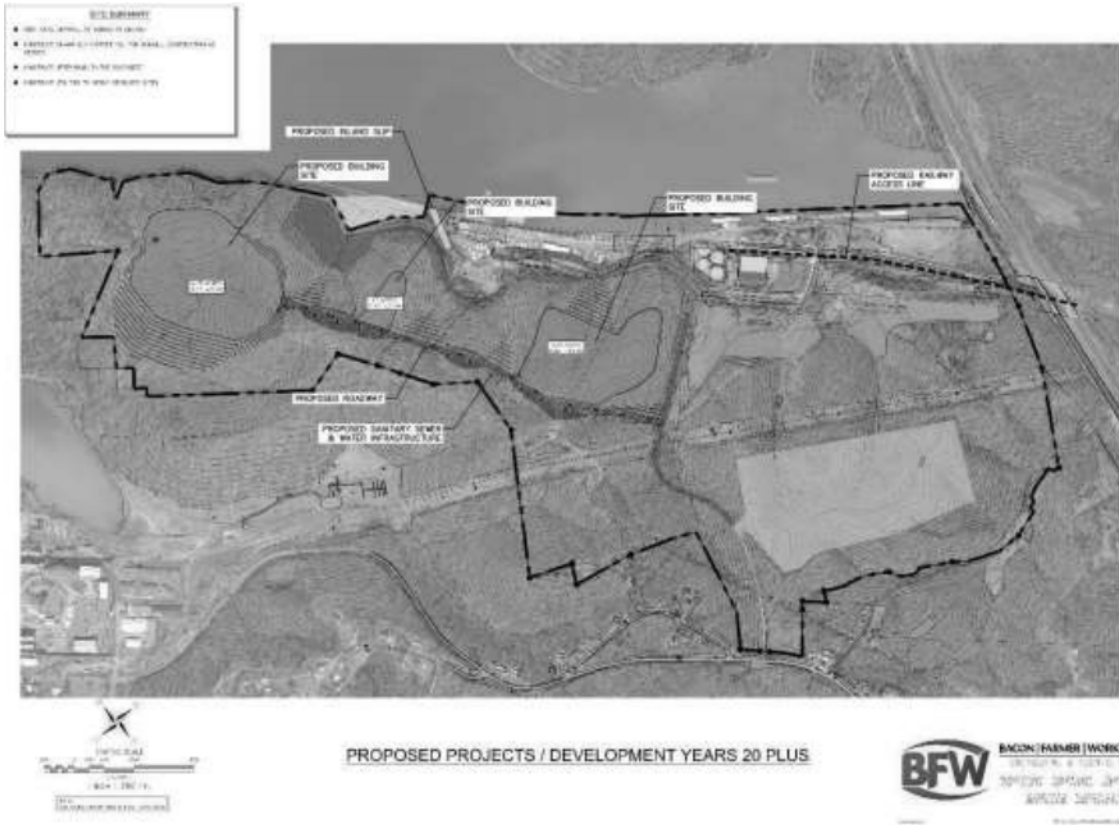


- Additional Seawall (as needed or desired)
- Purchase Approximately 2.2 Acres of lake frontage from the USACE immediately southwest of the boat lift building.
- Extend Frontage road to newly acquired USACE land.
- Construct connector road from lower frontage road to Highway 730 access.
- Construct inland slip (offset fill for seawall construction (As needed))

10 Yr to 20 Yr Schematic Estimate

		Unit Cost	Total Cost
Earthwork			
Cut	285,190 cy		
Fill	228,420 cy	\$ 10.00 /cy	\$ 2,851,900.00
Roadway			
Length	2,860 If	\$ 425.00 / If	\$ 1,215,500.00
Utilities			
Water	1,200 If	\$ 50.00 / If	\$ 60,000.00
Sanitary Sewer	1,200 If	\$ 70.00 / If	\$ 84,000.00
Manholes	4 ea	\$2,000.00 ea	\$ 8,000.00
Electric	1,200 If	\$ 50.00 / If	\$ 60,000.00
Gas	1,200 If	\$ 40.00 / If	\$ 48,000.00
Structures			
Sea Wall (As Needed)	If	\$ 1,500.00 / If	
			Total Cost: \$ 4,327,400.00

Proposed Projects / Development in years 20 plus. Additional projects are proposed to further address road infrastructure, utility infrastructure, and operational capacity.



- Construct Additional Seawall (as needed or desired)
- Construct inland slip (offset fill for seawall construction (As needed)
- Construct upper road to southwest for expanded development.
- Construct Utilities to newly developed sites
- Provide Rail service to port.

20 Yr Plus Schematic Estimate

		Unit Cost	Total Cost
Earthwork			
Cut	898,365 cy		
Fill	794,160 cy	\$ 10.00 /cy	\$ 8,983,650.00
Roadway			
Length	2,700 lf	\$ 425.00 /lf	\$ 1,147,500.00
Utilities			
Water	2,100 lf	\$ 50.00 /lf	\$ 105,000.00
Sanitary Sewer	2,100 lf	\$ 70.00 /lf	\$ 147,000.00
Manholes	7 ea	\$2,000.00 ea	\$ 14,000.00
Electric	2,100 lf	\$ 50.00 /lf	\$ 105,000.00
Gas	2,100 lf	\$ 40.00 /lf	\$ 84,000.00
Structures			
Sea Wall (As Needed)	lf	\$1,500.00 /lf	
Total Cost			\$ 10,586,150.00

Industrial Park

The following figure shows the existing Industrial Park survey. The industrial park has 155.2 acres. The park has frontage along US Highway 62 of 2,600 Feet. Additionally, the industrial park has 2,600 Feet of frontage along the P&L Railway. Lastly, the park is less than 1 mile from the I-69 Interchange with US 62. 25.93 acres of ERIDA's industrial park property is currently developed and sold to private industry.



This figure shows the remaining land for development in the industrial park as currently subdivided.



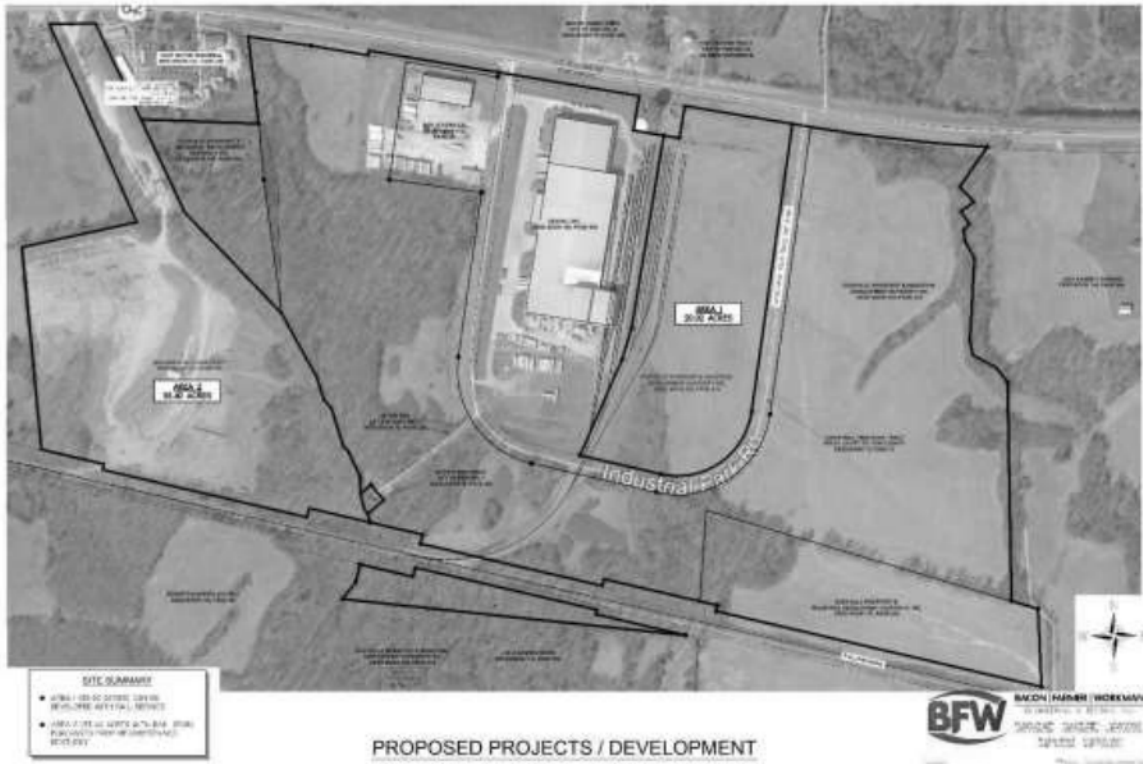
- 121.842 acres for development
- One Tract within Industrial Park Road (20.020 acres) that can be developed with rail service.
- One Tract southeast of Industrial Park Road (50.44 acres) that can be developed with rail service.
- Approximately 40 acres west of the spur and west of Industrial Park Road which could be developed without rail service. (currently wooded and terrain does not allow.

This figure shows the remaining land for development in the industrial park as re-subdivided.



- Abolishing the interior lot lines and the existing Industrial Park Road right-of-way east of the rail spur will create a larger parcel East of the Spur totaling approximately 77 acres for development with railservice.

Proposed Projects / Development in years 5-10. Additional projects/acquisitions are proposed to further address railroad infrastructure, and operational capacity and efficiency.



- Purchase adjacent MeadWestvaco Kentucky property (approximately 37 acres) and rail spur. This would provide not only an additional rail spur for the Industrial Park but also provide rail service to a portion of the property owned west of Industrial Park Road currently in the Park.

Chapter 9: Grant Catalog

Federal Grant Programs

Delta Regional Authority

“Established in 2000 by Congress, the Delta Regional Authority makes strategic investments of federal appropriations into the physical and human infrastructure of Delta communities. Led by the Delta Regional Authority Board-comprised of the Federal Co-Chairman, appointed by the President and confirmed by the U.S. Senate, and the governors of the eight states-the Delta Regional Authority fosters local and regional partnerships that address economic and social challenges to ultimately strengthen the Delta economy and the quality of life for Delta residents. The Delta Regional Authority works to improve regional economic opportunity by helping to create jobs, build communities, and improve the lives of the 10 million people who reside in the 252 counties and parishes of the eight-state Delta region”¹⁸.

States’ Economic Development Assistance Program (SEDAP)

Purpose	Strategic investment in the 252 counties and parishes served by the DRA. Lyon County is one of the 252 counties lying within the DRA area and is considered a distressed county.
Funding Authority	Annual Federal Appropriations
Amount Available	\$14.17 million (FY 20); \$1.3 million allocated to Kentucky (infrastructure limited to 50% of funds)
Eligible Applicants	Participating Member States Local Governments (city and county) Non-Profit Entities Public Institutions of Higher Learning
Eligible Projects	<ul style="list-style-type: none"> • Registered Apprenticeship • Preliminary site development • Land purchase • Equipment or other property purchased for use by a private entity • Health improvements • Operating costs, as one component of an overall project • Business incubation • Employability skills development • Basic residential • Geographic Information Systems (GIS) and <i>broadband</i> • Fire or police stations • Phased projects • Opportunity Zone (OZ) planning activities • Architectural and engineering fees

¹⁸ <https://dra.gov/about-dra/about-delta-regional-authority/> (accessed 9/14/2020)

Maximum Grant	NA
Non-Federal Match	In distressed counties, funding can be 100% of project costs at the discretion of the co-Chairman.
Program Link	https://dra.gov/funding-programs-states-economic-development/states-economic-development-assistance-program/ Apply through Local Development District (Pennyrile Area Development District)

Community Infrastructure Fund

Per the website, the CIF application and notification cycles coincide directly with the SEDAP timeline.

Department of Commerce, Economic Development Administration (EDA)

“The U.S. Economic Development Administration's investment policy is designed to establish a foundation for sustainable job growth and the building of durable regional economies throughout the United States. This foundation builds upon two key economic drivers - innovation and regional collaboration. Innovation is key to global competitiveness, new and better jobs, a resilient economy, and the attainment of national economic goals. Regional collaboration is essential for economic recovery because regions are the centers of competition in the new global economy and those that work together to leverage resources and use their strengths to overcome weaknesses will fare better than those that do not. EDA encourages its partners around the country to develop initiatives that advance new ideas and creative approaches to address rapidly evolving economic conditions”¹⁹.

Public Works and Economic Adjustment Assistance

Purpose	EDA provides strategic investments on a competitive merit basis to support economic development, foster job creation, and attract private investment in economically distressed areas of the United States. EDA makes investments that support construction, non-construction, planning, technical assistance, and revolving loan fund projects under EDA’s Public Works program and EAA program (which includes Assistance to Coal Communities). Grants and cooperative agreements made under these programs are designed to leverage existing regional assets and support the implementation of economic development strategies that advance new ideas and creative approaches to advance economic prosperity in distressed communities, including those negatively impacted by changes to the coal economy.
Funding Authority	Authorized by the Public Works and Economic Development Act of 1965, as amended (42 USC § 3141 and 3149); funded by Annual Federal Appropriations
Amount Available	FY 20 - \$118.5 million for Public Works, \$37 million for EAA, \$30 million through EAA for Assistance to Coal Communities, and \$15 million for Nuclear Closures Communities. CARES Act Recovery Assistance provides another \$1.5 billion through the EAA of which \$248 million is through the Atlanta Regional Office
Eligible Applicants	<ul style="list-style-type: none"> • District organization • Indian Tribe or a consortium of Indian Tribes • State, county, city or other political subdivision of a State • Institution of higher education or consortium of institutions • Public or private non-profit organization acting in cooperation with officials of a political subdivision of a state
Eligible Projects	Must be consistent with the region’s current Comprehensive Economic Development Strategy (CEDS) Pennyrile Area Development District CEDS can be found at: https://storage.snappages.site/agtnxh8yn9/assets/files/2019-CEDS-Document.pdf

¹⁹ <https://eda.gov/about/> (Accessed 9/14/2020)

Maximum Grant	<p>Project must support economic development needs and objectives outlined in the CEDS.</p> <p>The Public Works program provides resources to meet construction and/or infrastructure design needs of communities to make them more economically competitive and includes industrial parks and high-tech shipping and logistics facilities.</p> <p>Public Works have historically ranged from \$600k to \$3 million, EAA \$150k to \$1 million, ACC and NCC each have ranged from \$500k - \$2 million for implementation and \$100k - \$350k for planning</p>
Non-Federal Match	Depends on 24- month unemployment rate or average per capita income ranging from 20% to 50% (see NOFO for range)
Program Link	https://www.eda.gov/funding-opportunities/

Department of Agriculture, Rural Development

The mission of the USDA is to “provide leadership on agriculture, food, natural resources, rural infrastructure, nutrition, and related issues through fact-based, data-driven, and customer-focused decisions”. Included in the strategic goals outlined for 2018 – 2022 is facilitating rural prosperity and economic development and to promote American agriculture products and exports. Through the Department’s Rural Development mission area, it provides financial resources and support for rural communities, residents and businesses.

Rural Business Development Grants (RBDG)

Purpose	The RBDG is designed to support targeted technical assistance, training and other activities leading to the development or expansion of small and emerging private businesses in rural areas that have fewer than 50 employees and less than \$1 million in gross revenues.
Funding Authority	Consolidated Farm and Rural Development Act (authorization) Funded by annual Federal Appropriations
Amount Available	Funds provided once per year through the state office
Eligible Applicants	Towns, communities, state agencies, authorities, nonprofit corporations, institutions of higher education, Federally recognized Tribes, rural cooperatives
Eligible Projects	Enterprise grants must be used on projects to benefit small and emerging businesses in rural areas as specified in the grant application. Uses may include: <ul style="list-style-type: none"> • Training and technical assistance, such as project planning, business counseling and training, market research, feasibility studies, professional or/technical reports or producer service improvements. • Acquisition or development of land, easements, or rights of way; construction, conversion, renovation of buildings; plants, machinery, equipment, access for streets and roads; parking areas and utilities. • Pollution control and abatement. • The capitalization of revolving loan funds, including funds that will make loans for start-ups and working capital. • Distance adult learning for job training and advancement. • Rural transportation improvement. • Community economic development. • Technology-based economic development. • Feasibility studies and business plans. • Leadership and entrepreneur training. • Rural business incubators. • Long-term business strategic planning. <p>Opportunity grants (limited to 10% of RDBG annual funding) can be used for:</p> <ul style="list-style-type: none"> • Community economic development.

	<ul style="list-style-type: none"> • Technology-based economic development. • Feasibility studies and business plans. • Leadership and entrepreneur training. • Rural business incubators. • Long-term business strategic planning.
Maximum Grant	No maximum, typically range from \$10k to \$500k
Non-Federal Match	No cost sharing requirement
Program Link	https://www.rd.usda.gov/programs-services/rural-business-development-grants/ky

Department of Homeland Security

Port Security Grant Program

Purpose	Provide funding to port authorities, facility operators, and state and local agencies for activities associated with implementing Area Maritime Security Plans (AMSP), facility security plans and other port-wide risk management efforts. FY 20 focus was on cybersecurity.
Funding Authority	Section 102 of the Maritime Transportation Security Act of 2002 (46 U.S.C. § 70107); Subject to annual appropriations.
Amount Available	\$100 million (FY 20)
Eligible Applicants	Entities subject to an Area Maritime Security Plan including port authorities, facility operators and state and local government agencies
Eligible Projects	<ul style="list-style-type: none"> • Recipients must adopt and maintain implementation of the National Incident Management system; <p>Example projects include:</p> <ul style="list-style-type: none"> • Risk assessments; • Training and Planning; • Access controls (landside fencing, gates, barriers, etc.) • Rapid response vessels • Prevention, detection, response and recovery equipment; • Risk management projects that support port resilience and recovery; • Physical security enhancements; and, • Response exercises.
Maximum Grant	NA
Non-Federal Match	25% for public sector entities; 50% for private sector for-profit entities.
Program Link	https://www.fema.gov/media-library-data/1584730406525-a46c18af6b4ff65ada8668d8044710b0/FY_2020_PSGP_NOFO_FINAL_3.20.20_Strikethru_508AB.pdf

Department of Transportation

Better Utilizing Investments to Leverage Development (BUILD)

Purpose	Surface transportation infrastructure projects that will have a significant local or regional impact.
Funding Authority	Annual federal appropriations
Amount Available	Varies, FY 20 was \$1 billion
Eligible Applicants	State, local, and tribal governments, transit agencies, port authorities, metropolitan planning organizations (MPOs) and other political subdivisions of State or local governments
Eligible Projects	<ul style="list-style-type: none"> • Highway bridge or other road projects under title 23 USC; • Public transportation projects eligible under Chapter 53 of title 49 of the USC; • Passenger and freight rail transportation projects; • Port infrastructure investments; • Intermodal projects; • Surface transportation projects on tribal lands; • Research, demonstration, pilot surface transportation projects with independent utility; • Master plans, comprehensive plans, or corridor plans; • Planning activities related to development of multimodal freight corridor; • Development of port and regional port planning; and, • Risk assessment and plans to identify vulnerabilities and address ability to withstand probable occurrence or recurrence of an emergency or major disaster.
Maximum Grant	\$25 million, no more than \$100 million can be awarded in any single state
Non-Federal Match	20%; Secretary can set match in rural areas
Program Link	https://www.transportation.gov/BUILDgrants/about

Department of Transportation

Infrastructure for Rebuilding America (INFRA)

Purpose	Financial assistance to highway and freight projects of national or regional significance.
Funding Authority	Authorized by the FAST Act through FY 20, reauthorization should be monitored for continued authority; Subject to annual obligation limit established in the federal appropriations act.
Amount Available	FY 20 was \$1 billion
Eligible Applicants	State or group of states; MPO serving an area of 200,000 or more population; unit of local government or group of local governments; political subdivision of state or local government; special purpose district or public authority with a transportation function including a port authority; a Federal land management agency; tribal government(s); or multi-State or multijurisdictional group of public entities.
Eligible Projects	<ul style="list-style-type: none"> • Highway or bridge projects carried out on the National Highway Freight Network; • Highway or bridge projects carried out on the National Highway System; • Railway-highway grade crossing or grade separation projects; • Intermodal or rail project; • Projects within the boundaries of a public or private freight rail, water (including ports) or intermodal facility – only surface transportation infrastructure that improves freight movement on the National Highway Freight Network.
Maximum Grant	No maximum; minimum grant for a large project (\$100 million) is \$25 million; minimum grant for a small project (< \$100 million) is \$5 million
Non-Federal Match	40% non-INFRA funding, 20% non-Federal share
Program Link	https://www.transportation.gov/buildamerica/financing/infra-grants/infrastructure-rebuilding-america

Department of Transportation, Federal Railroad Administration

Consolidate Railroad Infrastructure and Safety Improvement (CRISI)

Purpose	Leverage private, state and local investments to support safety enhancements and general improvements to infrastructure for both intercity passenger and freight railroads.
Funding Authority	Authorized by the FAST Act subject to annual Federal appropriations act
Amount Available	FY 20 - \$325 million
Eligible Applicants	State, group of states, interstate compact, public agency, political subdivision of a State, Amtrak, a Class II or Class III railroad, any rail carrier or rail equipment manufacturer in partnership with at least one public entity; the Transportation Research Board, a University Transportation Center engaged in rail-related research; or, a nonprofit labor organization representing a class or craft of employees of rail carriers or rail contractors
Eligible Projects	<ul style="list-style-type: none"> • Rail safety technology including Positive Train Control; • Capital project relating to intercity passenger rail service; • Capital project necessary to address congestion affecting rail service; • Capital project necessary to reduce congestion and facilitate ridership growth in intercity passenger rail transportation; • Highway-rail grade crossing improvement project; • Rail line relocation and improvement; • Capital project to improve short line or regional railroad infrastructure; • Preparation of regional rail and corridor service development plan; • Project necessary to enhance multimodal connection or facilitate service integration between rail service and other modes; • Development and implementation of a safety program; • Any research Secretary considers necessary; and, • Workforce development and training activities.
Maximum Grant	None, but average for FY 20 was \$6.4 million, maximum was \$47.5 million
Non-Federal Match	20%, preference given to projects with 50% non-Federal share
Program Link	https://railroads.dot.gov/grants-loans/competitive-discretionary-grant-programs/consolidated-rail-infrastructure-and-safety-2

Department of Transportation, Maritime Administration

America's Marine Highway Grants

Purpose	Make grants available to previously designated Marine Highway Projects that support the development and expansion of documented vessels, or port and landside infrastructure.
Funding Authority	46 U.S.C. 55601 – Short Sea Transportation Program Subject to annual Federal appropriations act
Amount Available	FY 20 - \$9.775 million
Eligible Applicants	Project applicant of a project previously designated a Marine Highway Project and applicant must have operational, administrative areas of responsibility that are adjacent to or near the relevant designated Marine Highway Project. Eligible applicants include State governments, MPOs, port authorities, tribal governments, and private sector operators.
Eligible Projects	<ul style="list-style-type: none">• Create new marine highway services;• Expand existing marine highway services.• Market related states are ineligible.
Maximum Grant	None FY 20 average was \$1.8 million
Non-Federal Match	20% non-Federal share.
Program Link	https://www.maritime.dot.gov/grants/marine-highways/marine-highway

Department of Transportation, Maritime Administration

Port Infrastructure Development Program

Purpose	Improve facilities within or outside of and directly related to operations of coastal seaports, inland riverports and Great Lakes ports.
Funding Authority	National Defense Authorization Act for FY 2020 subject to annual Federal appropriations act
Amount Available	FY 20 \$225 million
Eligible Applicants	Port authority, commission or its subdivision or agent under existing authority, State or political subdivision of a state or local government, Tribal government, public agency or publicly chartered authority established by one or more states, special purpose district with a transportation function, multistate or multijurisdictional group of entities.
Eligible Projects	<ul style="list-style-type: none"> • Port gate improvement; • Road improvements both within and connecting to the port; • Rail improvements both within and connecting to the port; • Berth improvements; • Fixed landside improvements in support of cargo operations; • Utilities necessary for safe operation; or, • Combination of the above. • Development phase activities eligible, however projects proposing to move into construction during the grant period are given priority
Maximum Grant	Minimum \$1 million, no maximum
Non-Federal Match	20%, however Secretary may waive the requirements for awards less than \$10 million
Program Link	https://www.maritime.dot.gov/PIDPgrants

State Grant Program

Kentucky Transportation Cabinet (KYTC)

Kentucky Riverport Improvement Program

Purpose	Provide grants for public Riverport authorities to fund dredging or maintenance of access.
Funding Authority	Biennial appropriations bill
Amount Available	\$500,000 per year
Eligible Applicants	Riverport Authority with an actively operating, public Riverport established pursuant to state law.
Eligible Projects	<ul style="list-style-type: none">• Eligible projects shall provide dredging or improve Riverport facilities, infrastructure or critical material handling equipment;• Projects must be within the boundary of the Riverport.• Projects should be identified in the Riverport Authority's officially adopted business or long-range plan within the project list or in affiliated city or county comprehensive plan's project list.• Plans and studies are examples of ineligible KRI projects.
Maximum Grant	NA
Local Match	50% local match requirement
Program Link	https://transportation.ky.gov/MultimodalFreight/Pages/Ky-Riverport-Grant-Program.aspx

APPENDIX C



Pennyrile Area Development District
Comprehensive Economic Development Strategy

<https://storage.snappages.site/agtnxh8yn9/assets/files/2021-PeADD-CEDS-Final.pdf>

APPENDIX D

ERIDA Balance Sheet
March 31 2022



9:47 AM

04/18/22

Accrual Basis

Eddyville Riverport & Ind. Development Authority
Balance Sheet
As of March 31, 2022

(b)(4)

Eddyville Riverport & Ind. Development Authority

Balance Sheet

As of March 31, 2022

(b)(4)

APPENDIX E



Prior Grants Managed

Year	Source	Project	Grant Amount	Status
2019	Delta Regional Authority ¹	Fertilizer Conveyor	\$ 107,500.00	Complete
2019	Kentucky Riverport Improvement	Realignment of Agri-Chem Access Road	\$ 49,780.00	Complete
2019	Kentucky Riverport Improvement	Roll-Up Garage Doors for Truck Pit	\$ 10,000.00	Complete
2020	USDA	Master Plan	\$ 50,000.00	Complete
2020	EDA	Master Plan	\$ 70,000.00	Complete
2020	Kentucky Riverport Improvement	Sheet Pile Shoring Walls Near Boat Repair Bay Project	\$ 109,890.00	Complete
2020	Kentucky Riverport Improvement	Guard Rails for Pit #3	\$ 48,415.00	Complete
2021	Kentucky Association for Economic Development Product Development Initiative	Site Development Industrial Park B	\$ 75,000.00	In Progress
2021	Kentucky Utilities	Site Development Industrial Park A	\$ 176,540.00	In Progress
2021	Lyon County IDA	Site Development Industrial Park A	\$ 176,540.00	In Progress
2021	Kentucky Riverport Improvement	Dock Tieback Repairs	\$ 126,500.00	In Progress

¹ AgriChem funded 50% of the improvement

APPENDIX F



Detailed Project Cost Summary

ERIDA PIDP INLET PROJECT DETAILED COST SUMMARY				
ITEM #	DESCRIPTION	QTY	UNIT	TOTAL PRICE
1	Clear Wooded Area – Heavy Density	1	Acre	\$ 12,487.95
2	Bulk Excavation: Drag Line – 3 CY Bucket – Unclassified Soil	185,000	CY	\$ 1,098,391.88
3	Hydraulic Excavator: 1 CY Capacity – Blasted Rock	55,500	CY	\$ 494,884.31
4	Steel Sheetpiling	753	LF	\$ 1,567,237.72
5	Concrete for Ramp	1,040	CY	\$ 416,000.00
6	Epoxy Coated #5 Rebar	57.5	Tons	\$ 256,358.99
7	Tie Rods – Grade 75 All-Thread Rebar – Accessories Included	10,380	LF	\$ 90,964.86
8	14” Concrete Fenders	2,037	LF	\$ 389,197.37
9	WF Beam (Wales)	848	LF	\$ 37,693.60
10	Railing	876	LF	\$ 110,079.03
11	Concrete Wall 12”	713	LF	\$ 127,149.29
TOTAL CONSTRUCTION				\$ 4,600,444.99
TOTAL PROFESSIONAL SERVICES				\$ 882,402.54
TOTAL				\$ 5,482,847.53
CONTINGENCY 12%				\$ 657,941.70
TOTAL COST				\$ 6,140,789.23
ERIDA MATCH 20%				\$ 1,228,157.85
MARAD PIDP GRANT REQUEST				\$ 4,912,631.39

APPENDIX G



Inlet Project Non-Federal Share Commitment

Eddyville Riverport & Industrial Development Authority, Inc.



May 12, 2022

The Honorable Pete Buttigieg
Secretary of the U.S. Department
Of Transportation
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

Dear Secretary Buttigieg:

The Eddyville Riverport & Industrial Development Authority (ERIDA) is submitting a Port Infrastructure Development Program application to be considered for the Small Ports grant program. This grant will fund the Eddyville Riverport Capacity Expansion Inlet Access Project which will have a positive impact on the Pennyrile region in Western Kentucky.

The construction of the Inlet Access Project will make port cargo operations more efficient and enable the ERIDA to provide expansion opportunities to its existing customer's industries while creating opportunities for enhanced intermodal and inland waterways freight shipping. The port currently provides essential farm to market connectivity for ag producers in the region and supports the inland waterway vessel industry. This project will provide the necessary infrastructure for a new venture interested in economic development at the port site.


As the only inland riverport in Kentucky situated on a lake, the location of this port provides an unprecedented opportunity for growth and participation in the global marketplace. It is geographically situated adjacent to important natural resources and in close proximity to major interstate highways (i.e. I-24 and I-69), rail access at the nearby ERIDA Industrial Park and approximately 100 miles from an international airport in Nashville, Tennessee.

The Riverport will be more resilient with the expanded water frontage that will limit impacts of changes in water levels and bring further regional economic vitality throughout the region in an Area of Persistent Poverty as defined by USDOT. The project will expand the port's capacity to handle additional dry bulk commodity tonnage (grain, fertilizer, aggregate and metals) with the addition of water frontage sites.

In efforts of pursuing funding for this grant opportunity, we are committed to providing a \$1,228,157.85 match contribution toward this project along with the manpower and other resources required to successfully complete the grant requirements.

Thank you for your consideration of ERIDA's application. Please don't hesitate contact me with any questions.

Sincerely,



Billy Ray Coursey
Chairman, ERIDA

APPENDIX H



Environmental Justice and Racial Equity Impact Analysis- Vulnerable Populations to Climate Change

Eddyville Riverport Industrial Development Authority (ERIDA): Inlet Project

Appendix H: Environmental Justice and Racial Equity Impact Analysis- Vulnerable Populations to Climate Change

This appendix provides more detailed information on the following aspects of racial equity impact analysis and equity-focused community engagement, including:

- 1) An overview of the proposed project;
- 2) Identification of Environmental Justice Census Tracts within / near the project area;
- 3) Identification of specific project elements that support or impact the Environmental Justice (EJ) populations;
- 4) Community Outreach and Public Engagement; and,
- 5) Summarized findings of this Analysis

Equitable Project Analysis

Eddyville Riverport Industrial Development Authority (ERIDA) and its partners have prepared the following analysis of the ERIDA Inlet Project (the Project) to evaluate equitable distribution of project benefits and to identify any inequities that can be mitigated with the project.

This analysis presents a review of the socioeconomic characteristics in the study area (indicated in the map on next page) for the Project located in Eddyville, Kentucky.

Data from the U.S. Census Bureau 2015 - 2019 American Community Survey (ACS) 5-year estimates has been utilized for the analysis of the study area. Please see the ACS website for more information, data limitations, and an explanation of the methodology used to obtain the data (<https://www.census.gov/acs/>).

This analysis is intended to be used as a first look study into the socioeconomic characteristics that exist within the study area. If, at a later time specific projects and project locations are identified, a more in-depth analysis of the socioeconomic characteristics may be warranted.

The information and results are intended to assist ERIDA in making informed and prudent transportation decisions in the Project area, especially with regard to the requirements of Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (signed February 11, 1994). Executive Order 12898 states:

“...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...”

This report outlines 2015 – 2019 ACS 5-year estimates for the project area using tables and maps from multiple US Agencies including EPA.

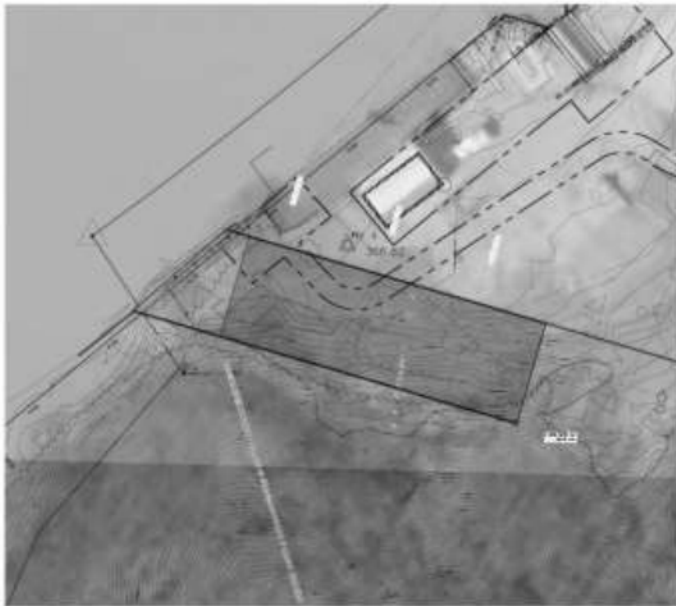
Statistics are provided on minority, low-income, elderly, and disabled populations for the census tracts and block groups near the project area, State of Kentucky and the United States.

This analysis focuses on identifying any past inequities as well as addressing Climate Change and Environmental Justice for the planning, design and construction/implementation of the Project. The project sponsors have used environmental justice tools such as EJSCREEN and other mapping programs and reports to identify Environmental Justice (EJ) populations adjacent to the Project and to evaluate any disproportionate effects on such populations and neighborhoods. This report is intended to be used as a first look study into the socioeconomic characteristics that exist within the project area.

The project team also aligned this project with the Federal Executive Order 12898 which gives guidance to protecting the health of the citizens of Kentucky and its environment, and to promoting environmental equity in the administration of its programs to the extent it may do so legally and practicably. The planning and selection of the components align directly with these directives. The analysis looks to identify any inequities in the community that extends to climate impacts and pollution risks.

1. Project Overview

ERIDA and its partners are working on pre-construction activities for the Inlet Project. The Project entails constructing a 990,000square foot inlet at the ERIDA Riverport, in Eddyville, Lyon County, Kentucky to provide more lake front for cargo movements, improve the regional flow of freight, and remove freight from roads and highways that can be moved more efficiently on water through the inland river systems.



Eddyville Riverport Industrial Development Authority (ERIDA): Inlet Project

2. Environmental Justice Analysis

Equity around the Project Area

Using US Environmental Protection Agency’s Environmental Justice Policy as guidance and then enhancing the analysis with additional resources, the Planning Team reviewed Equity in the distribution of benefits and the impacts on the neighboring census blocks to ensure that state and federal funds programmed for this Project avoids disproportionate negative impacts or denial of benefits to disadvantaged populations.

This finding is made on the Project as a whole, and with the understanding that individual improvement elements may result in negative impacts to disadvantaged populations given additional review. If such negative impacts are identified in further study, the National Environmental Policy Act (NEPA) process can identify methods or options to avoid and / or mitigate any negative environmental impacts identified.

The Project Planning Team’s Equity methodology is to review the project against the following matrix:

-	IMPACTS	+	
Negative Impacts Have Proportionate Impact at Community or Regional Scale	Direct Benefits to Disadvantaged Populations	+	
Disproportionate Negative Impacts to Disadvantaged Populations	Benefits Limited to Non-Disadvantaged Populations	-	BENEFITS

In order to evaluate the overall result of the Project through an environmental justice framework, the project was evaluated individually against the following parameters used by other planning organizations within Kentucky.

Among the broad range of investment categories and transportation improvements, four specific categories of projects are automatically considered equitable based on the following types:

- Preservation & Maintenance projects that are prioritized based on empirical data that maximizes the lifespan of the transportation system as a whole.
- Safety improvements that are prioritized by empirical data that maximizes the reduction of risk factors and potential for injury or fatality on the transportation system as a whole, and at locations with a high frequency or severity of crashes.
- Accessibility improvements that are necessary for regulatory compliance and not in locations based on open discretion.

Eddyville Riverport Industrial Development Authority (ERIDA): Inlet Project

- Public Transportation formula funding utilized to sustain operations and asset management on a systemwide basis.

If the project does not meet the criteria for automatically being deemed equitable it is to be further reviewed. The project is then evaluated on its individual merits according to the following equity considerations:

- ✓ Project directly benefits disadvantaged populations
- ✓ Project indirectly benefits disadvantaged populations
- ✓ Project benefits and/or impacts are proportionately distributed across the community or region.
- ✗ Project benefits are limited to non-disadvantaged populations
- ✗ Project results in disproportionate negative impacts to disadvantaged populations.

Determination of EJ areas

This analysis follows USEPA's guidance to initialize the study using the EPA's EJScreen mapping tool¹. The EJ map generated from this tool can be found on the next page of this document.

All EJ areas (polygons) are derived from the 2010 US Census Block Groups. A one-mile buffer was generated for each Block Group. Each buffer takes on the EJ value of the Block Group it was formed from. However, all overlapping buffers with different EJ values are given the EJ value of Both (3).

The Minority and Individuals with Incomes Below Poverty (Low Income or LowInc) data were derived from tables within the ACS 5-year Estimates for each 5-year estimate span. Tables: B02001 Race C17002 Ratio of Income to Poverty In The Past 12 Months. Each year the data is updated to reflect the new 5-year estimates. The changes are applied in March of each year.

The State Averages are determined at that time and a value of twice the State Average is used to set the thresholds for each criterion.

Minority has been calculated as greater than or equal to twice the State Average for the current ACS 5-year Estimate for the population being a minority within each Block group.

Low Income has been calculated as greater than or equal to twice the State Average for the current ACS 5-year Estimate for individuals with Incomes below Poverty within each Block group.

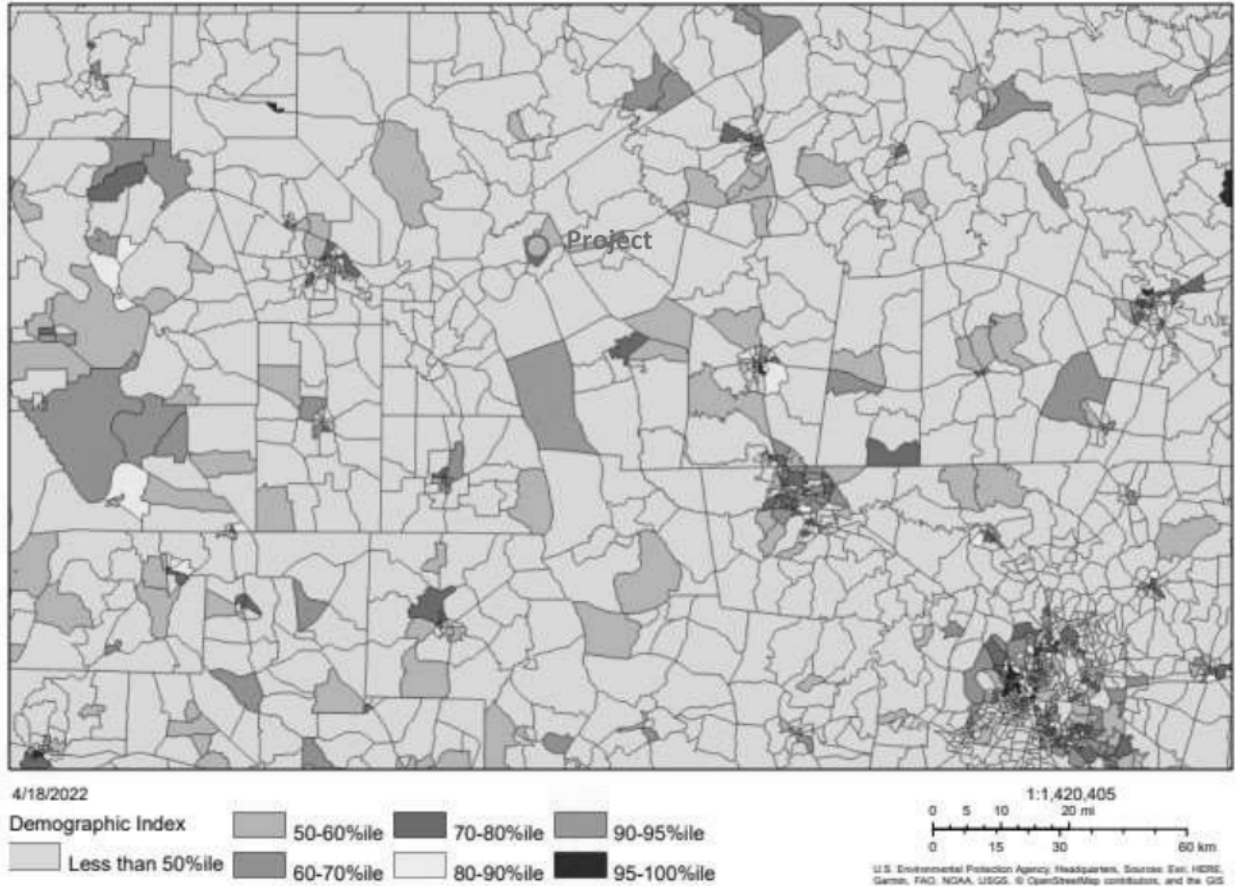
In the web application, the EJ status is shown in the following layer:

If a facility is within the boundary, it is considered EJ for purposes of screening. EJ Status [5-year range] Buffered

Demographic Index is based on the average of two demographic indicators; low-income and people of color.

¹ [EJScreen: Environmental Justice Screening and Mapping Tool | US EPA](#)

Eddyville Riverport Industrial Development Authority (ERIDA): Inlet Project



The Project is in an area with Less than 50thile Demographic Index. This means that the Project area has the same demographic index less of than 50th national percentile or a lower demographic Index than where 50% of the US population lives. Thus, the Census Tract has less low-income and people of color than areas in the US where 50% of the US population lives.

The area to the northeast of the Project has a Census Tract that is in the 50%-60thile having both higher Minority Populations and Low-Income Populations than the Project Area. Although EPA has determined that the Project is not sited in an EJ neighborhood, it will be important to ensure that the underserved populations noted on this map are not harmed by the proposed project.

If it is determined through additional analysis that the disadvantaged populations are impacted disproportionately by the Project benefits being limited to non-disadvantaged populations or Project results in disproportionate negative impacts to disadvantaged populations, mitigation will be required.

Methodology used in the Project Analysis

The Project was analyzed for the Affected Environment using multiple mapping websites as well as generic mapping software such as ARCGIS On-line that can display data such as the map below that shows Median Income for each Tract. The Project is in KY tract 21143960100. The Median Household Income for the Tract is \$50,973 compared to the national median Household Income is \$64,730.

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All of these tools are very helpful in understanding the demographics and community elements.

Two additional Environmental Justice Mapping Tools reviewed for this analysis include:

- EJSCREEN
- *Neighborhoods at Risk*

The following is a summary of the comparable data found using the *Neighborhoods at Risk* Tool. This tool appears to provide the best downloadable reports for the project area.

Summary of Mapping Tools:

EJSCREEN - EPA

EJSCREEN provides the same data as the other tools with different downloadable standard reports based upon how the user describes the investment using the drawing tool on the map. For example, the Project location can be drawn on the EJSCREEN mapping tool and a buffer around the location can be added. For this report, the location of the Project was added to the map. The standard reports were run for a buffer of 1 mile around the center of the Project area.

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EJSCREEN uses maps and reports to present three kinds of information: Environmental indicators, demographic indicators and EJ Indexes. An EJ Index summarizes how an environmental indicator and demographics come together in the same location.

An EJSCREEN map can display one indicator at a time. An EJSCREEN standard report which is attached to this narrative, presents all of the indicators in a single, printable report that covers any area that has been selected. To understand EJSCREEN's reports and maps, it is helpful to learn more about the EJ Indexes, environmental indicators, demographic indicators as well as how they are presented in the standard report.

Purposes and Uses of EJSCREEN

EJSCREEN allows users to access high-resolution environmental and demographic information for locations in the United States, and compare their selected locations to the rest of the state, the applicable EPA region, or the nation. The tool may help users identify areas with:

- Minority and/or low-income populations
- Potential environmental quality issues
- A combination of environmental and demographic indicators that is greater than usual
- Other factors that may be of interest

The EJ index is a combination of environmental and demographic information. There are eleven EJ Indexes in EJSCREEN reflecting the 11 environmental indicators. The 11 EJ Index names are²:

1. National Scale Air Toxics Assessment Air Toxics Cancer Risk
2. National Scale Air Toxics Assessment Respiratory Hazard Index
3. National Scale Air Toxics Assessment Diesel PM (DPM)
4. Particulate Matter (PM2.5)
5. Ozone
6. Lead Paint Indicator
7. Traffic Proximity and Volume
8. Proximity to Risk Management Plan Sites
9. Proximity to Treatment Storage and Disposal Facilities
10. Proximity to National Priorities List Sites
11. Wastewater Discharge Indicator

To calculate a single EJ Index, EJSCREEN uses a formula to combine a single environmental factor with the demographic indicator. It considers how much the local demographics are above the national average. It does this by looking at the difference between the demographic composition of the block group, as measured by the Demographic Index, and the national average (which is approximately 35%). It also considers the population size of the block group, although most block groups are similar in population size.

EJSCREEN calculates the EJ Index by multiplying together three items:

²[Environmental Justice Indexes in EJSCREEN | EJSCREEN: Environmental Justice Screening and Mapping Tool | US EPA](#)

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EJ Index =

(The Environmental Indicator)

X (Demographic Index for Block Group – Demographic Index for US)

X (Population count for Block Group)

Demographics in the EJ Index

The demographic portions of the EJ Index can be thought of as the additional number of susceptible individuals in the block group, beyond what you would expect for a block group with this size total population. The terms "susceptible" or "potentially susceptible individuals" are used informally in these examples, as a way to think of the Demographic Index times the population count in a block group. This is essentially the average of the count of minorities and count of low-income individuals³. It is easiest to think of the average of these counts as "the susceptible individuals" in these examples.

The number of potentially susceptible individuals (Demographic Index times population count) of course is typically less than the actual number who are minority, low-income or both. The demographic breakdown is not reported by block group –the ACS does not provide that level of resolution on the overlaps.

Overview of Demographic Indicators in EJSCREEN

EJSCREEN uses demographic factors as very general indicators of a community's potential susceptibility to the types of environmental factors included in this screening tool, as explained further in the EJSCREEN Technical Documentation³. EJSCREEN has been designed in the context of EPA's EJ policies, including EPA's Final Guidance on Considering Environmental Justice During the Development of an Action (U.S. EPA, 2010). That guidance document explained EPA's focus on demographics as an indicator of potential susceptibility to environmental pollution.

There are six demographic indicators:

Percent Low-Income:

The percent of a block group's population in households where the household income is less than or equal to twice the federal "poverty level."

Percent People of Color:

The percent of individuals in a block group who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino. That is, all people other than non-Hispanic white-alone individuals. The word "alone" in this case indicates that the person is of a single race, not multiracial.

Less than high school education:

Percent of people age 25 or older in a block group whose education is short of a high school diploma.

³ [Technical Documentation for EJSCREEN | EJSCREEN: Environmental Justice Screening and Mapping Tool | US EPA](#)

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Linguistic isolation:

Percent of people in a block group living in linguistically isolated households. A household in which all members age 14 years and over speak a non-English language and also speak English less than "very well" (have difficulty with English) is linguistically isolated.

Individuals under age 5:

Percent of people in a block group under the age of 5.

Individuals over age 64:

Percent of people in a block group over the age of 64.

EJSCREEN includes an index that is based on the above demographic indicators:

A Demographic Index is based on the average of two demographic indicators; Percent Low-Income and Percent Minority.

Excess Risk

The EJ Index uses the concept of "excess risk" by looking at how far above the national average the block group's demographics are. For example, assume a block group with 1000 people in it. In that block group, one would expect 350 potentially susceptible individuals (1000 people here x US average of 35%). However, if the Demographic Index for that block group is 75%, well above the US average, then there are the equivalent of 750 potentially susceptible people in that block group, or 400 more than expected for a block group with a population of 1000.

This formula for the EJ Index is useful because for each environmental factor it finds the block groups that contribute the most toward the national disparity in that environmental factor. It can highlight which locations are driving the overall net disparity. By "disparity" in this case we mean the difference between the environmental indicator's average value among certain demographic groups and the average in the rest of the US population.

Minority and low-income individuals live in older housing more often than the rest of the US population, for example. The EJ Index for lead paint (pre-1960 housing) tells us how much each block group contributes toward this "excess population risk" or "excess number" of people in older housing, for potentially susceptible individuals. "Excess" here simply means the number of potentially susceptible individuals in older housing is above what it would be if they were in older housing at the same rate as the rest of the U.S. population.

It should be noted that the EJ Index raw value itself is not reported in EJSCREEN reports— it is reported in percentile terms, to make the results easier to interpret. If one is calculating the actual raw values using the formula, it is clear that the EJ Index value can be a positive or negative number.

A positive number occurs where the local Demographic Index is above the US average, and this means the location adds to any excess in environmental indicator values among the specified populations (minority and low-income) nationwide.

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A negative value occurs where the local Demographic Index is below the US average, and it means the location offsets the other locations, reducing any excess in nationwide average environmental indicator values among minority and low-income populations relative to others.

Most EJSCREEN users will not work directly with EJ Index raw values, however, and positive raw values for an EJ Index will be presented as higher percentiles and negative raw values will appear as lower percentiles.

How to Interpret a Standard Report in EJSCREEN

Block Groups

One key output from EJSCREEN is a standard printed report that describes a selected location. Sometimes the report might focus on a single Census "block group." A block group is an area defined by the Census Bureau that usually has in the range of 600-3,000 people living in it. The US is divided into more than 200,000 block groups.

Buffers

More typically, though, an EJSCREEN report will cover a "buffer" area, an area on the map that includes everyone who lives within a certain distance of a point, line or polygon. A point might be a factory seeking an emissions permit, for example, and the report could focus on the demographics and environmental conditions within approximately 1 mile of that factory.

In EJSCREEN, buffers can be drawn up to 10 miles around a point, line or polygon. If you have selected a geographic point, the tool will apply a buffer around that point. The buffer ring will aggregate appropriate portions of the intersecting block groups, weighted by population, to create a representative set of data for the entire ring area, honoring variation and dispersion of the population in the block groups within it. For each indicator, the result is a population-weighted average, which equals the block group indicator values averaged over all residents who are estimated to be inside the buffer.

EJSCREEN's report shows:

All 11 of the EJ Indexes

All 11 of the environmental indicators

The Demographic Index

All six of the demographic indicators

The first page of EJSCREEN's report shows the state, regional and national EJ Indexes for the selected area in tabular form and in a bar chart. "Percentiles" are an important part of EJSCREEN. Every indicator in EJSCREEN is put into perspective by showing its associated percentiles.

The second page shows a map of the selected area and the third page shows:

- 11 environmental indicators
- Demographic Index
- six demographic indicators

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The report includes the state, regional and national percentiles for each of the environmental and demographic indicators and for the demographic index. The state, regional and national averages for each of the environmental indicators and demographic indicators are also included as a reference point.

11 Environmental Indicators

As can be seen in the EJScreen report below, the area in the 1-mile buffer around the center of the Project when compared to the 11 EJ Environmental Indexes exceeds all USA Percentiles, and exceeds the State Percentile in all categories except Wastewater Discharge Indicator

Demographic Index

The area within the 1-mile buffer with an Demographic Index of 15% is in the 24th percentile⁴ of the State of Kentucky and in the 19th percentile of the US. For minority, this area of 11% is in the 55th percentile of the State of Kentucky and the 22nd percentile of the US.

Low Income Index at 19% (which is about half of the State demographic mix,) is in the 21st percentile for the State, and 33rd percentile for the US.

Unemployment Rate at 1% is in the 19th of the State of Kentucky and 18th percentile for the US.

Less than high school at 16% is in the 62nd percentile of the State of Kentucky and 71st percentile for the US.

The population over 64 years old in the 54th percentile for the State and a 59th percentile for the US. Thus, being aware of safety for both drivers and pedestrians will be an important element in this Project.

Based upon these observations, it will be important to consider any elements of the Project that will have an undue impact on the urbanized area's minority or low-income population since the population surrounding the Project is not considered an EJ area.

The chart below compares the Project Area to the State and National EJ Profile

Comparison	Area within 1- mile Buffer			
	Value	State Avg.	State Percentile	US Percentile
Demographic Index	15%	26%	24	19
People of color	11%	15%	55	22
Low income	19%	37%	21	33
Unemployment Rate	1%	6%	19	18
Linguistic isolation	0%	1%	73	45
Less than high school	16%	14%	62	71
Under age 5	1%	6%	7	9
Over age 64	16%	16%	54	59

⁴ A percentile of 80 means that you scored equal to or better than 80% of people who took the test. In

EJSCREEN, if your results indicate that an area is 48% minority and is at the 69th national percentile, this means that 48% of the area's population is minority, and that is an equal or higher % minority than where 69% of the US population lives. For more information:

[How to Interpret a Standard Report in EJSCREEN | EJSCREEN: Environmental Justice Screening and Mapping Tool | US EPA](#)

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EIScreen Report (Version 2.0)



1 mile Ring around the Area, KENTUCKY, EPA Region 4

Approximate Population: 1,068

Input Area (sq. miles): 3.55

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Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

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EJScreen Report (Version 2.0)



1 mile Ring around the Area, KENTUCKY, EPA Region 4

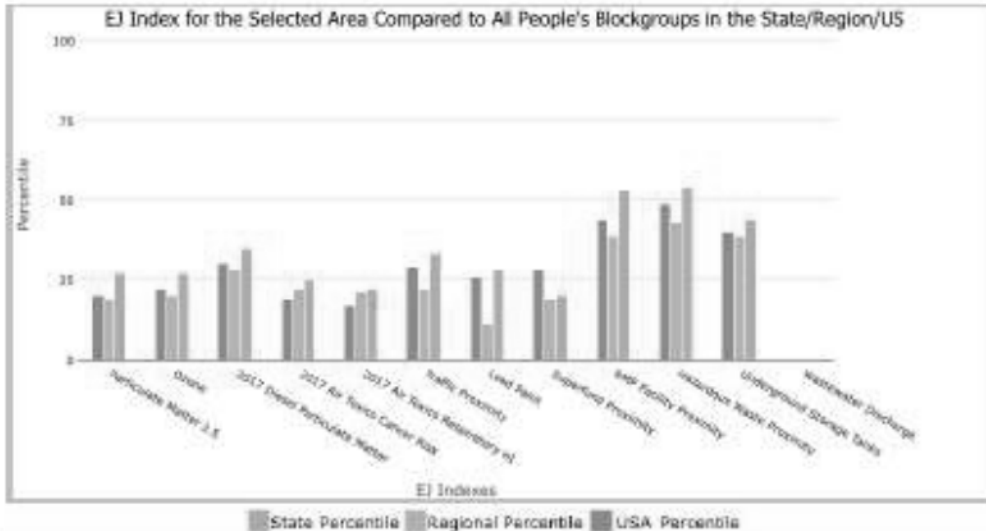
Approximate Population: 1,068

Input Area (sq. miles): 3.55

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Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	27	19	20
EJ Index for Ozone	27	20	22
EJ Index for 2017 Diesel Particulate Matter*	35	28	30
EJ Index for 2017 Air Toxics Cancer Risk*	25	22	19
EJ Index for 2017 Air Toxics Respiratory HI*	22	21	17
EJ Index for Traffic Proximity	33	22	29
EJ Index for Lead Paint	28	11	26
EJ Index for Superfund Proximity	20	19	28
EJ Index for RMP Facility Proximity	53	39	44
EJ Index for Hazardous Waste Proximity	54	43	49
EJ Index for Underground Storage Tanks	44	39	40
EJ Index for Wastewater Discharge	0	0	0

The buffered 1-mile area is below the 50th Percentile in all categories compared to the USA Percentile.



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 90th percentile nationwide, this means that only 10 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

April 06, 2022

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Neighborhoods at Risk Tool

Neighborhoods at Risk is a tool designed to meet community planning needs to protect people and property from the impacts of climate change. A free, web-based tool, *Neighborhoods at Risk* generates customized, interactive maps and reports that describe characteristics of potentially vulnerable neighborhoods (by census tract). Additionally, *Neighborhoods at Risk* provides community-level climate projections for temperature and precipitation.

The Analysis below is divided into People and Climate Exposure:

<i>Neighborhoods at Risk</i>	Area		
	Tract 9601	Lyon Co, KY	U.S.
# Selected Tracts	1		
Total Area Population (2019)	6,580	8,271	324,697,795
People			
People of color and Hispanics	11.0%	11.4%	27.5%
Households with no car	1.3%	1.5%	8.6%
People who don't speak English well	0.1%	0.1%	4.3%
Families in poverty	9.2%	9.5%	9.5%
People with Disabilities	26.4%	26.0%	12.6%
Housing units that are rentals	23.9%	20.6%	36.0%
People under 5	3.5%	3.5%	6.1%
People over 65 years	23.6%	26.7%	15.6%
Educational Attainment- No High School Degree	13.7%	12.2%	12.0%
Climate Exposure			
Area lacking tree canopy	67.2%	55.1%	
Area of impervious surface	1.0%	1.5%	
Area in 500-yr floodplain	0%	0%	

Source: U.S. Department of Commerce. 2019. Census Bureau, American Community Survey Office, Washington, D.C., as reported by Headwaters Economics' *Neighborhoods at Risk*. Retrieved March 2022 from <https://headwaterseconomics.org/apps/neighborhoods-at-risk/>

Legend

	Below US Average
	Above US Average
	Double or more than the US Average

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Neighborhoods at Risk can be used to prioritize capital improvements, conduct vulnerability assessments, inform land use and policy decisions, and support FEMA Hazard Mitigation Plans and Carbon Disclosure Project reporting.

Neighborhoods at Risk reports are based on data from the U.S. Census Bureau, FEMA, Multi-Resolution Land Characteristics Consortium, First Street Foundation, and the Northeast Regional Climate Center's Applied Climate Information System.

The following is a summary of the comparable data found using the *Neighborhoods at Risk* Tool. This tool appears to provide the best downloadable reports for each of the project areas.

"**People**" in *Neighborhoods at Risk* are indicators of populations that are potentially more vulnerable to climate risk and climate-related disasters. Not all people who fit these criteria are more vulnerable, but research shows that these populations are, on average, more likely to experience difficulty during all phases of climate-related disasters including:

- Mitigation: reducing the potential risk
- Preparedness: getting plans and resources ready
- Response: protecting and rescuing
- Recovery: rebuilding

The downloadable *Neighborhoods at Risk* report provides detailed information and references documenting how each variable is associated with potentially higher risk to climate change.

The four characteristics and filters included under "**Climate Exposure**" in *Neighborhoods at Risk* are indicators of land area that may experience more significant impacts from climate change. These variables (hurricane flood zones, floodplains, impervious surface, and lack of tree canopy) represent characteristics of our physical environment that make us more or less vulnerable to climate change by affecting the likelihood of extreme heat and flood events.

Why is this measure important?

People

People of color and Hispanics

- Race and ethnicity are strongly correlated with disparities in health, exposure to environmental pollution, and vulnerability to natural hazards.
- Research consistently has found race-based environmental inequities, including the tendency for minority populations to live closer to noxious facilities and Superfund sites, and to be exposed to pollution at greater rates than predominantly white populations.
- Many health outcomes are closely related to the local environment. Minority communities often have less access to parks and nutritious food, and are more likely to live in substandard housing.
- Minorities tend to be particularly vulnerable to disasters and extreme heat events. This is due to language skills, housing patterns, quality of housing, community isolation, and cultural barriers.
- Blacks and Hispanics, two segments of the population that are currently experiencing poorer health outcomes, are an increasing percentage of the US population.

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- Research has identified measurable disparities in health outcomes between various minority and ethnic communities.
- Across races, the rates of preventable hospitalizations are highest among black and Hispanic populations. Preventable hospital visits often reflect inadequate access to primary care. These types of hospital visits are also costly and inefficient for the health care system.
- Relative to other ethnicities and races, Hispanics and blacks are less likely to have health insurance, but rates of uninsured are dropping for both groups.
- Compared to other races, blacks have higher rates of infant mortality, homicide, heart disease, stroke, and heat-related deaths.
- Hispanics have higher rates of diabetes and asthma.
- American Indians have a distinct pattern of health effects different from blacks and Hispanics. Native populations are less likely to have electricity than the general population. They have high rates of infant mortality, suicide and homicide, and nearly twice the rate of motor vehicle deaths than the U.S. average.

Households with no car

Access to a car is linked with higher wages and more financial stability, and can help families relocate or evacuate in the event of emergencies.

- People who own cars are more likely to be employed, work longer hours, and earn more than those who do not.
- Access to a car has measurable benefits for those receiving public assistance. Welfare recipients with access to a car were more likely to work more hours and get higher-paying jobs, and had a greater chance of leaving welfare.
- During emergencies, natural disasters, and extreme weather events, people who do not have a car are less likely to evacuate or have access to emergency response centers.
- During heat waves, people without a car are less able to go to community cooling centers or cooler areas.
- Pedestrian fatalities are more than twice as likely in poor urban neighborhoods than in wealthier parts of cities.

People who don't speak English well

- Many aspects of life in the US assume basic fluency in English. Thus, people with limited language skills are at risk for inadequate access to health care, social services, or emergency services.
- A person's ability to take action during an emergency is compromised by language and cultural barriers.
- Poor English skills can make it harder to follow directions or interact with agencies.
- Lack of language skills can also instill lack of trust for government agencies.
- In many industries, poor English skills can make it harder for people to get higher wage jobs.
- Language barriers make it harder to obtain medical or social services; and make it more difficult to interact with caregivers.
- Limited English skills may result in isolation from other segments of the U.S. population, and social isolation is a health risk.

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- However, some minority communities can be very tightly-knit and not isolated, so this risk factor cannot be generalized across all populations.

Families in poverty

Families in poverty may lack the resources to meet their basic needs. Their challenges cross the spectrum of food, housing, healthcare, education, vulnerability to natural disasters, and emotional stress.

- To save money, families with low incomes often have to make lifestyle compromises such as unhealthy foods, less food, substandard housing, or delayed medical care.
- Lack of financial resources makes families in poverty more vulnerable to natural disasters. This is due to inadequate housing, social exclusion, and an inability to re-locate or evacuate.
- Inadequate shelter exposes occupants to increased risk from storms, floods, fire, and temperature extremes. Households with low incomes are more likely to have unhealthy housing conditions such as leaks, mold, or rodents.
- The expense of running fans, air conditioners, and heaters makes low-income people hesitant to mitigate the temperature of their living spaces. Furthermore, those in high-crime areas may not want to open their windows.
- Families in poverty are disproportionately affected by higher food prices, which are expected to rise in response to climate change.
- Children in poor families, on average, receive fewer years of education compared to children in wealthier families.
- Low-income residents are less likely to have adequate property insurance, so they may bear an even greater burden from property damage due to natural hazards.
- Living in poverty can lead to a lack of personal control over potentially hazardous situations such as increased air pollution or flooding. Impoverished families may be less likely to take proactive measures to prevent harm.

People with Disabilities

Disabled people are subject to health complications that make environmental risks more consequential.

- Disabled people are less likely to have health insurance, compared to the non-disabled population.
- Being confined to a bed raises heat mortality.
- Extreme weather events or natural disasters may result in limited access to medical care. This is particularly consequential for those who already have compromised health.

People younger than 5 or over 65 years

Young children and older adults both are vulnerable segments of the population. Understanding the age profile of a community can help users determine the types of services likely to be needed.

Older adults also are at increased risk of compromised health related to environmental hazards and climate change.

- Age is the single greatest risk factor related to illness or death from extreme heat.

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- The elderly are more likely to have pre-existing medical conditions or compromised mobility, which reduces their ability to respond to natural disasters.
- The likelihood of chronic disease increases with age.
- Older adults are more susceptible to air pollution such as ground level ozone, particulate matter, or dust. Increased dust is associated with drought, wildfires, and high wind events.

Educational Attainment- No High School Degree

High school completion is used as a proxy for overall socioeconomic circumstances. Lack of education is strongly correlated with poverty and poor health.

- People without a high school degree are more than twice as likely to live in inadequate housing compared to those with some college education.
- A study in California⁵ found the lack of a high school degree was the factor most closely related to social vulnerability to climate change.
- Thirty-eight percent of Americans without a high school degree do not have health insurance, compared to 10 percent with a college degree.
- The rate of diabetes is much greater for those without a high school degree. Incidence of this disease is more than double the rate of those who attended education beyond high school.
- Binge drinking is most severe among those without a high school degree. This demographic group had the highest risk of binge drinking across all measured categories (such as income, race, ethnicity, or disability status).⁶

Climate Exposure

These three categories for the project area represent characteristics of the physical environment that make the population within the area more or less vulnerable to climate change by affecting the likelihood of extreme heat and flood events.

- Area lacking tree canopy
- Area of impervious surface
- Area in 500-yr floodplain

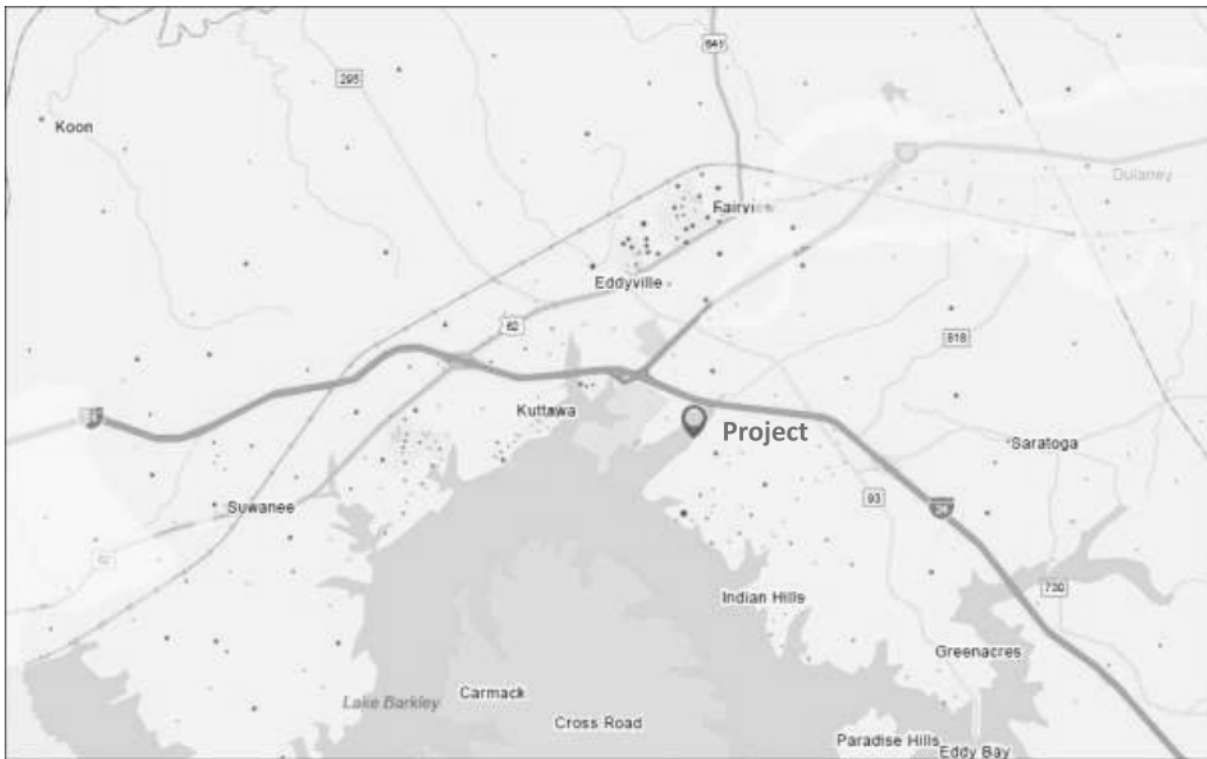
⁵ Heather Cooley, Eli Moore, Matthew Heberger, and Lucy Allen, Social Vulnerability to Climate Change in California (California Energy Commission Pub. # CEC-500-2012-013, 2012).

⁶ Centers for Disease Control and Prevention, "CDC Health Disparities and Inequalities Report — United States, 2011," Morbidity and Mortality Weekly Report 60 Suppl. (January 14, 2011). <http://www.cdc.gov/mmwr/pdf/other/su6001.pdf>

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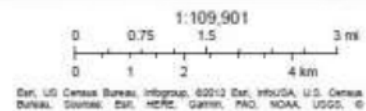
3. Specific Project Elements that support our Environmental Justice (EJ) populations

Environmental injustice and climate change are about the fact that in many communities it is far easier to find a bag of Cheetos than a carton of strawberries and this only stands to get worse as drought and flooding impact the availability and affordability of nutritious food. Areas with Food Insecurity due to distance to Supermarkets or Poverty Level. This can be the case for EJ populations in Eddyville area as seen below, fresh fruits and other nutritious items are only found in local grocery stores. The map below shows the limited access people in poverty have to a supermarket. For the Project Area, there is not a supermarket nearby to service the residents living close to the Project. This area of Lyon County has limited access to Supermarkets in general. Thus, those in Poverty are further burdened in gaining access to a food store. This project has no effect on this access, nor offers transportation options to better this vulnerability. It is important that ERIDA be aware of the characteristics of the area and make sure that their development plans does no harm and when possible, improves the Quality of Life of citizens near the Project versus adding any disadvantages to the underserved portion of the local population even further.



4/21/2022

- T = Supermarket, included
- 11 - 50
- 51 - 100
- 101 - 1466
- 1 - 4 people
- 5 - 10
- 11 or more supermarkets
- 3 to 10 supermarkets
- 2 supermarkets
- 1 supermarket
- No supermarkets with 1 mile walk
- Supermarkets within 10 Minute Drive
- 2 or more supermarkets



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4. Community Outreach and Public Engagement

Community Outreach

ERIDA and their partners began working with and providing ongoing outreach to agencies, businesses, and other community members in the early planning phases of the Project.

ERIDA is committed to follow local, state and national guidance on Environmental Justice policies. It is recognized that the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies is important to the success of a project. It is acknowledged that equity and inclusion will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work

With this as the directive, the Project Sponsor will continue to engage interested parties through the following:

- Presentations at local community group meetings
- Meetings with interested parties and stakeholders
- Mailings and email updates at key Project milestones
- Media updates via radio and print ads for Project events

ERIDA will continue to solicit feedback on the Project through the engagement efforts as outlined above and will strive to meaningfully engage the community through a participation process that is inclusive, effective, and accessible to all. ERIDA plans to continue to take community and stakeholder feedback into consideration as the Project advances. See ERIDA's Outreach Plan in Appendix I

5. Populations at Risk to Climate Change

Science had determined that Carbon Emissions are Carbon dioxide and methane gas released into the Earth's atmosphere. These carbon related greenhouse gases (GHG) are responsible for approximately four fifths of human-based climate change. They are primarily produced by the burning of fossil fuels. Reducing Vehicle miles Traveled will reduce the usage of fossil fuels. Thus, will contribute to decarbonization and the reduction of GHG.

The nine characteristics and filters included under "People" in Neighborhoods at Risk are indicators of populations that are potentially more vulnerable to climate risk and climate-related disasters. Not all people who fit these criteria are more vulnerable, but research shows that these populations are, on average, more likely to experience difficulty during all phases of climate-related disasters including:

- Mitigation: reducing the potential risk
- Preparedness: getting plans and resources ready
- Response: protecting and rescuing
- Recovery: rebuilding

Eddyville Riverport Industrial Development Authority (ERIDA): Inlet Project

The Neighborhoods at Risk report attached to this analysis provides detailed information and references documenting how each variable is associated with potentially higher risk to climate change.

Census Tract 9601



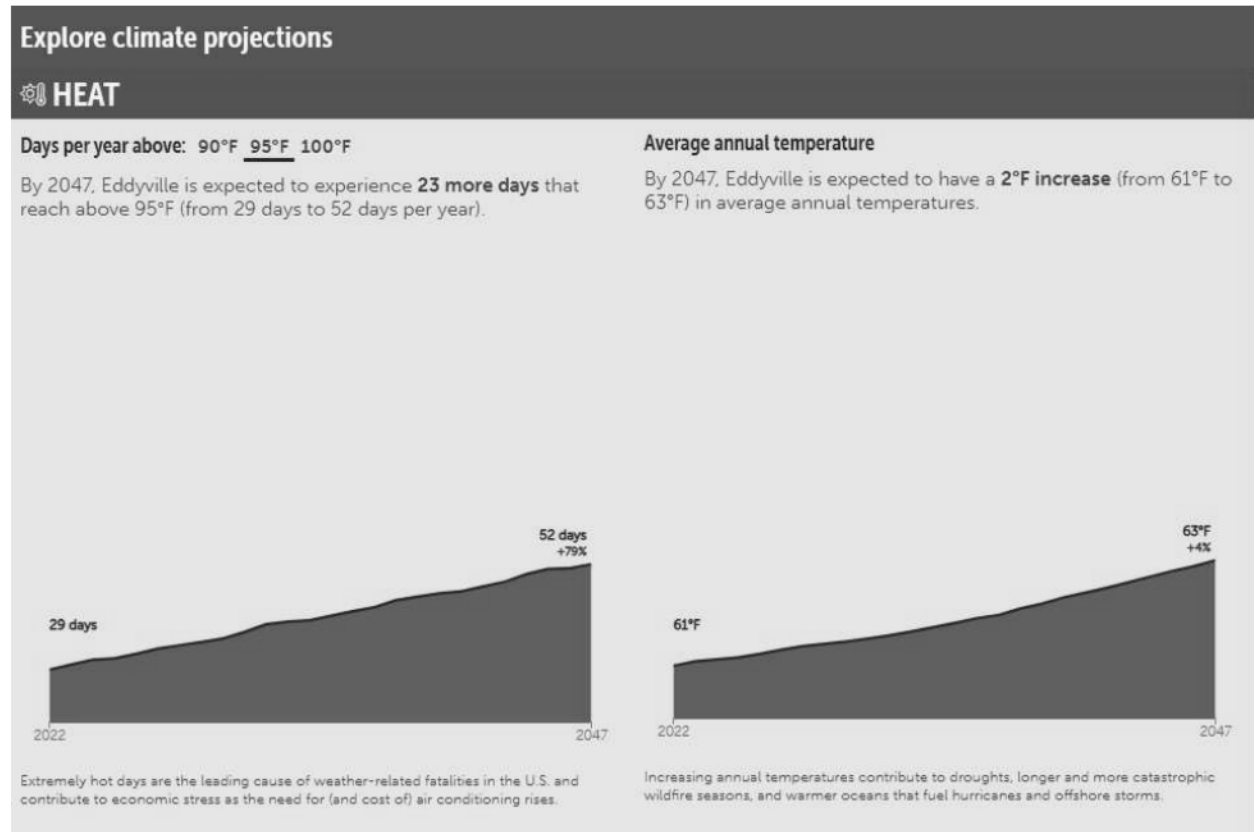
The four characteristics and filters included under “Climate Exposure” in Neighborhoods at Risk are indicators of land area that may experience more significant impacts from climate change. These variables (hurricane flood zones, floodplains, impervious surface, and lack of tree canopy) represent characteristics of the physical environment that make a population more or less vulnerable to climate change by affecting the likelihood of extreme heat and flood events.

For the Project Area the following Climate exposure characteristics

Climate Exposure	Tract 9601	Lyon County, KY
Area lacking tree canopy	67.2%	55.1%
Area of impervious surface	1.0%	0.5%
Area in 500-yr floodplain	0%	0%

Eddyville Riverport Industrial Development Authority (ERIDA): Inlet Project

Note that since this is an inland location, the Climate Exposure characteristics only displays three of the four variables as hurricane flood zones, the fourth variable, is not applicable.

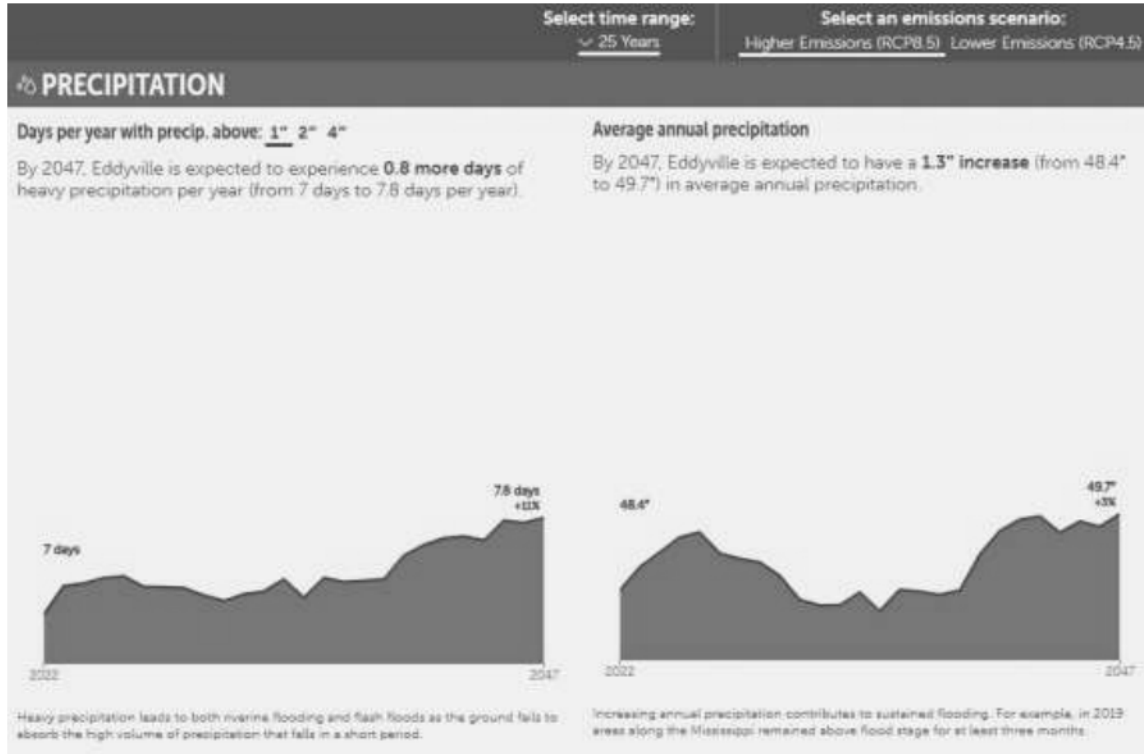


Based upon these three characteristics as well as land use, etc. the Neighbors At Risk Model predicts that by 2047 Eddyville is expected to experience a 79% increase in extremely hot days and a 11% increase in days with heavy precipitation within 25 years.

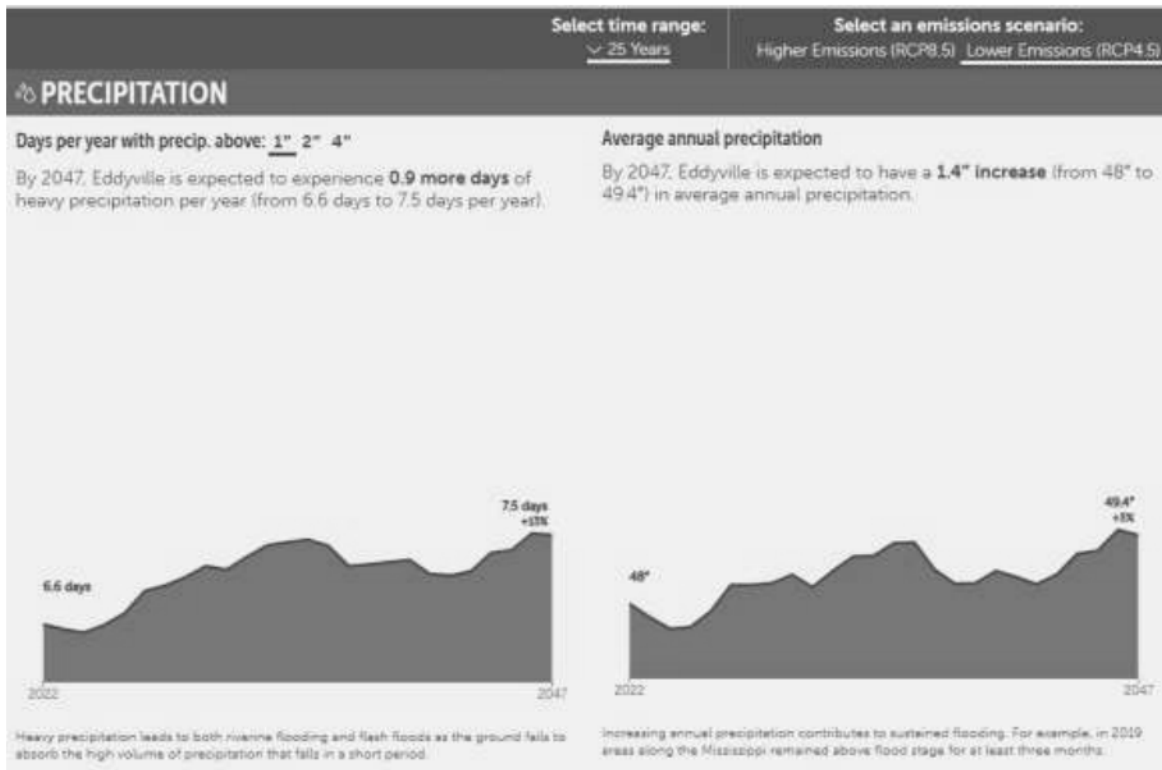
It is forecasted that the City of Eddyville will experience 23 more days that reach above 95°F than is expected in 2022. Average Annual Temperature by 2047 is anticipated to increase 2°F from 61°F in 2022 to 63°F in 2047.

If Emissions continue to grow, it is anticipated that there will be 0.8 more days with precipitation above 1". Average annual precipitation is expected to have increased by 1.3" from 48.4" to 49.7" by 2047.

Eddyville Riverport Industrial Development Authority (ERIDA): Inlet Project



If Eddyville can lower their emissions over the next 25 years, this increase can be reduced by 0.4 days, reducing the annual precipitation by 0.3" in average annual precipitation.



Eddyville Riverport Industrial Development Authority (ERIDA): Inlet Project

6. Conclusions and Next Steps

As can be seen from the results of the various EJ mapping tools and data collected, it is important to understand the Project and the potential impacts it may have on specific sections of the population. Using multiple lenses through the different Environmental Justice data tools, helps refine the characteristics of the surrounding area. Fine tuning the scope of the analysis from the City level, the Census Tract to the Census Block and finally a 1-mile radius around the project area, helps to inform planners in the developing their public outreach efforts. Using the characteristics of the populations near the project and evaluating project elements that could impact the underserved populations will help planners ensure negative impacts are identified and accounted for through mitigation efforts.

Since Eddyville and the surrounding Lyon County area is sparsely populated, the Census Tract 9601 is one of three Tracts that Lyon County encompasses.

Once those impacts are identified, then specific outreach can be designed to inform the affected populations and develop mitigation options as appropriate. Any activities and projects that reduce vehicle miles traveled and reduce vehicle idling will improve the air quality of the surrounding area as well as help reduce the effects of GHG on climate change.

As noted above Public Engagement and Outreach is a continuous process that will continue throughout the planning, design and implementation of this project. The Public Engagement will inform the design, and will continue during implementation, procurement and/or construction and will enable the Project to address any past inequities identified relating to access and barriers to opportunity, and climate change.

Current analysis indicates that the proposed project will improve multi-modal access to the Riverport. At this point of the team's analysis, it is believed that the EJ populations noted above will not be disproportionately negatively impacted by the Project. Analysis and monitoring will continue as ERIDA and its partners move through the final phases of the project. All mitigation measures identified in the design and environmental review process will be implemented and monitored post-construction for compliance and community enhancement.

Attachments:

EJSCREEN Reports

The following EJSCREEN reports were run for the ERIDA Inlet Project with a 1 mile buffer

- Standard Reports
 - EJSCREEN Report
 - ACS 2019 Report
 - Census 2010 sf Report

Neighborhoods at Risk Tool Summary Reports

- Eddyville Riverport Industrial District Authority, Eddyville, Lyon County, Kentucky
 - Census Tract 9601

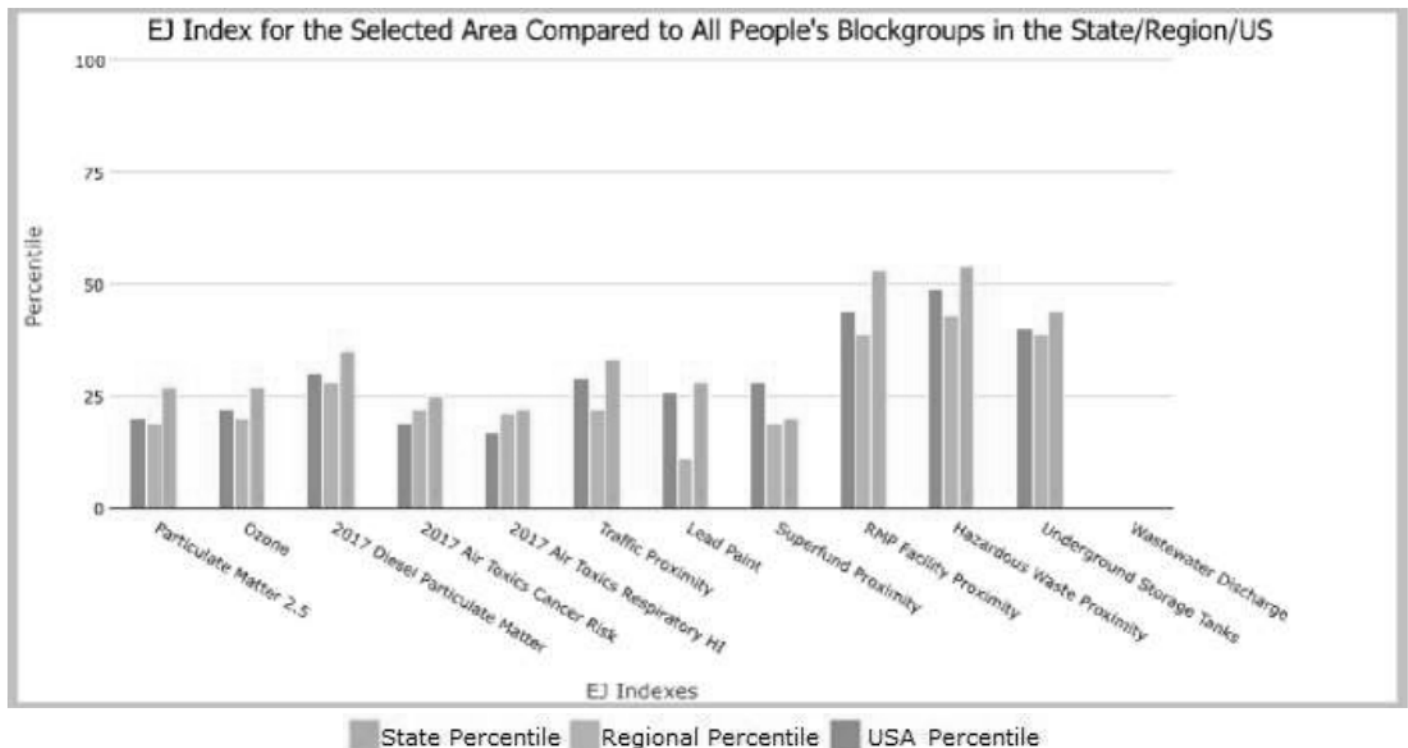
1 mile Ring around the Area, KENTUCKY, EPA Region 4

Approximate Population: 1,068

Input Area (sq. miles): 3.55

Eddyville Inlet Project

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	27	19	20
EJ Index for Ozone	27	20	22
EJ Index for 2017 Diesel Particulate Matter*	35	28	30
EJ Index for 2017 Air Toxics Cancer Risk*	25	22	19
EJ Index for 2017 Air Toxics Respiratory HI*	22	21	17
EJ Index for Traffic Proximity	33	22	29
EJ Index for Lead Paint	28	11	26
EJ Index for Superfund Proximity	20	19	28
EJ Index for RMP Facility Proximity	53	39	44
EJ Index for Hazardous Waste Proximity	54	43	49
EJ Index for Underground Storage Tanks	44	39	40
EJ Index for Wastewater Discharge	0	0	0



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJScreen Report (Version 2.0)

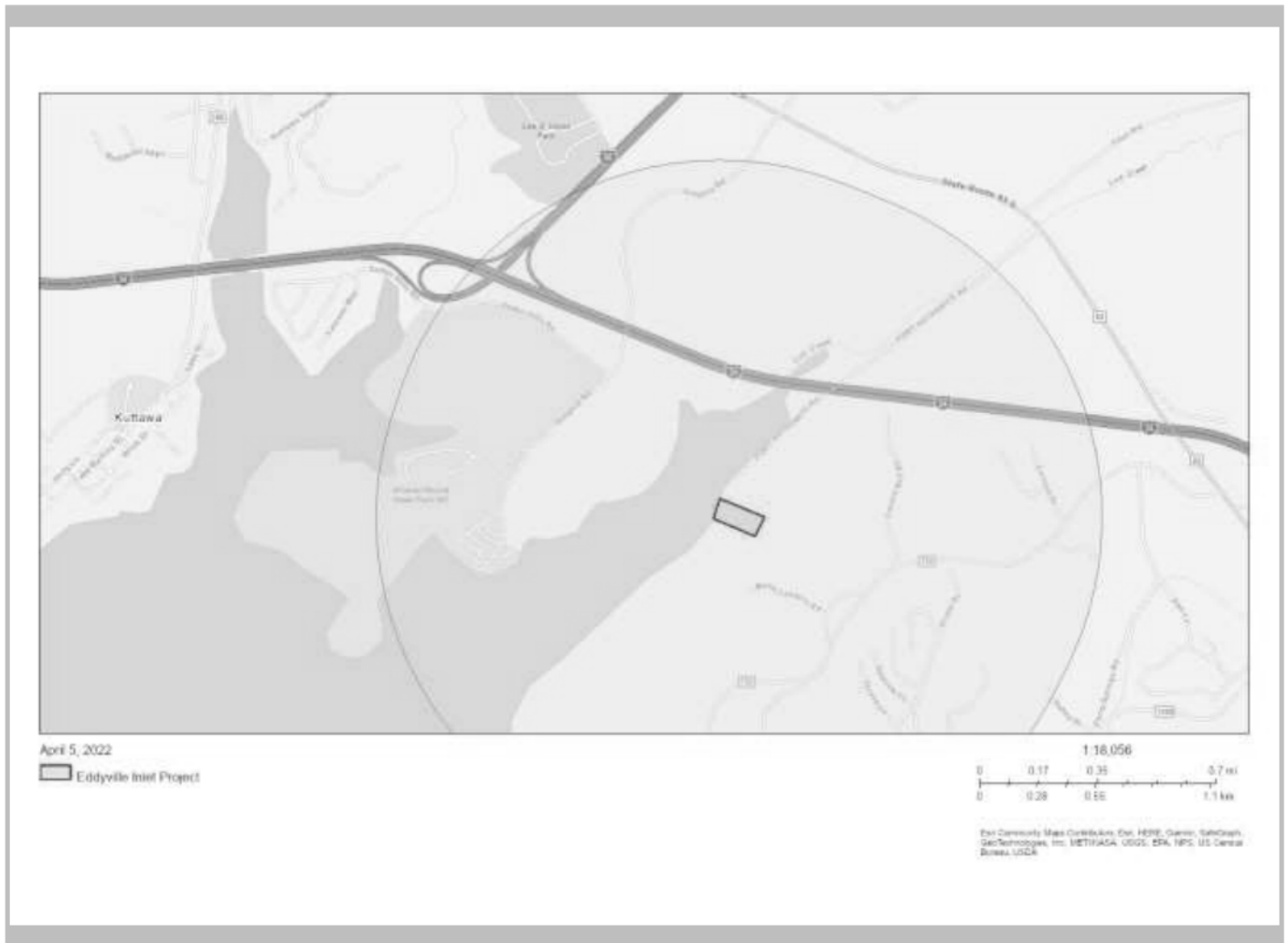


1 mile Ring around the Area, KENTUCKY, EPA Region 4

Approximate Population: 1,068

Input Area (sq. miles): 3.55

Eddyville Inlet Project



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.0)

1 mile Ring around the Area, KENTUCKY, EPA Region 4

Approximate Population: 1,068

Input Area (sq. miles): 3.55

Eddyville Inlet Project

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 ($\mu\text{g}/\text{m}^3$)	9.12	8.9	62	8.18	84	8.74	64
Ozone (ppb)	43.1	42.4	60	37.9	87	42.6	58
2017 Diesel Particulate Matter* ($\mu\text{g}/\text{m}^3$)	0.15	0.226	38	0.261	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	30	29	99	31	80-90th	29	80-90th
2017 Air Toxics Respiratory HI*	0.4	0.36	96	0.4	70-80th	0.36	80-90th
Traffic Proximity (daily traffic count/distance to road)	100	380	43	430	44	710	34
Lead Paint (% Pre-1960 Housing)	0.12	0.23	40	0.15	63	0.28	43
Superfund Proximity (site count/km distance)	0.044	0.039	71	0.083	55	0.13	37
RMP Facility Proximity (facility count/km distance)	0.071	0.67	17	0.6	10	0.75	8
Hazardous Waste Proximity (facility count/km distance)	0.044	0.77	16	0.62	7	2.2	6
Underground Storage Tanks (count/km ²)	0.089	1.1	32	3.5	17	3.9	22
Wastewater Discharge (toxicity-weighted concentration/m distance)	200	1.3	99	0.45	99	12	99
Socioeconomic Indicators							
Demographic Index	15%	26%	24	37%	13	36%	19
People of Color	11%	15%	55	39%	19	40%	22
Low Income	19%	37%	21	35%	23	31%	33
Unemployment Rate	1%	6%	19	6%	18	5%	18
Linguistically Isolated	0%	1%	73	3%	51	5%	45
Less Than High School Education	16%	14%	62	13%	68	12%	71
Under Age 5	1%	6%	7	6%	10	6%	9
Over Age 64	16%	16%	54	17%	56	16%	59

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

For additional information, see: www.epa.gov/environmentaljustice

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Location: User-specified polygonal location

Ring (buffer): 1-miles radius

Description: Eddyville Inlet Project

Summary of ACS Estimates		2015 - 2019
Population		1,068
Population Density (per sq. mile)		301
People of Color Population		114
% People of Color Population		11%
Households		173
Housing Units		271
Housing Units Built Before 1950		12
Per Capita Income		20,508
Land Area (sq. miles) (Source: SF1)		3.55
% Land Area		88%
Water Area (sq. miles) (Source: SF1)		0.47
% Water Area		12%

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	1,068	100%	234
Population Reporting One Race	1,056	99%	378
White	961	90%	229
Black	87	8%	84
American Indian	0	0%	11
Asian	0	0%	28
Pacific Islander	0	0%	11
Some Other Race	8	1%	15
Population Reporting Two or More Races	12	1%	32
Total Hispanic Population	25	2%	64
Total Non-Hispanic Population	1,043		
White Alone	953	89%	234
Black Alone	84	8%	84
American Indian Alone	0	0%	11
Non-Hispanic Asian Alone	0	0%	28
Pacific Islander Alone	0	0%	11
Other Race Alone	0	0%	11
Two or More Races Alone	6	1%	32
Population by Sex			
Male	804	75%	160
Female	263	25%	190
Population by Age			
Age 0-4	15	1%	51
Age 0-17	80	7%	102
Age 18+	988	93%	222
Age 65+	172	16%	110

EJScreen Report (Version 2.0)

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019 .

April 05, 2022

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EISCREEN ACS Summary Report



Location: User-specified polygonal location
 Location: User-specified polygonal location
 Ring (buffer): 1-miles radius
 Ring (buffer): 1-miles radius
 Description: Eddyville Inlet Project
 Description: Eddyville Inlet Project

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	901	100%	198
Less than 9th Grade	20	2%	75
9th - 12th Grade, No Diploma	121	13%	101
High School Graduate	465	52%	153
Some College, No Degree	161	18%	102
Associate Degree	36	4%	63
Bachelor's Degree or more	97	11%	85
Population Age 5+ Years by Ability to Speak English			
Total	1,053	100%	238
Speak only English	1,023	97%	250
Non-English at Home ¹⁺²⁺³⁺⁴	30	3%	82
¹ Speak English "very well"	22	2%	82
² Speak English "well"	2	0%	13
³ Speak English "not well"	6	1%	16
⁴ Speak English "not at all"	0	0%	11
³⁺⁴ Speak English "less than well"	6	1%	16
²⁺³⁺⁴ Speak English "less than very well"	8	1%	17
Linguistically Isolated Households*			
Total	0	0%	11
Speak Spanish	0	0%	11
Speak Other Indo-European Languages	0	0%	11
Speak Asian-Pacific Island Languages	0	0%	11
Speak Other Languages	0	0%	11
Households by Household Income			
Household Income Base	173	100%	125
< \$15,000	25	14%	92
\$15,000 - \$25,000	11	7%	55
\$25,000 - \$50,000	23	13%	67
\$50,000 - \$75,000	46	27%	70
\$75,000 +	68	39%	80
Occupied Housing Units by Tenure			
Total	173	100%	125
Owner Occupied	118	68%	92
Renter Occupied	55	32%	98
Employed Population Age 16+ Years			
Total	999	100%	224
In Labor Force	206	21%	135
Civilian Unemployed in Labor Force	3	0%	18
Not In Labor Force	793	79%	170

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)

*Households in which no one 14 and over speaks English "very well" or speaks English only.

April 05, 2022

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Location: User-specified polygonal location

Ring (buffer): 1-miles radius

Description: Eddyville Inlet Project

	2015 - 2019 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	N/A	N/A	N/A
English	N/A	N/A	N/A
Spanish	N/A	N/A	N/A
French	N/A	N/A	N/A
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	N/A	N/A	N/A
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	N/A	N/A	N/A
Chinese	N/A	N/A	N/A
Japanese	N/A	N/A	N/A
Korean	N/A	N/A	N/A
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	N/A	N/A	N/A
Other Asian	N/A	N/A	N/A
Tagalog	N/A	N/A	N/A
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	N/A	N/A	N/A
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	N/A	N/A	N/A
Total Non-English	N/A	N/A	N/A

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2015 - 2019.

*Population by Language Spoken at Home is available at the census tract summary level and up.



Location: User-specified polygonal location
 Ring (buffer): 1-miles radius
 Description: Eddyville Inlet Project

Summary	Census 2010
Population	1,236
Population Density (per sq. mile)	348
People of Color Population	245
% People of Color Population	20%
Households	189
Housing Units	302
Land Area (sq. miles)	3.55
% Land Area	87%
Water Area (sq. miles)	0.51
% Water Area	13%

Population by Race	Number	Percent
Total	1,236	100%
Population Reporting One Race	1,221	99%
White	1,006	81%
Black	205	17%
American Indian	2	0%
Asian	2	0%
Pacific Islander	0	0%
Some Other Race	6	0%
Population Reporting Two or More Races	15	1%
Total Hispanic Population	20	2%
Total Non-Hispanic Population	1,216	98%
White Alone	991	80%
Black Alone	204	17%
American Indian Alone	2	0%
Non-Hispanic Asian Alone	2	0%
Pacific Islander Alone	0	0%
Other Race Alone	4	0%
Two or More Races Alone	13	1%

Population by Sex	Number	Percent
Male	917	74%
Female	319	26%

Population by Age	Number	Percent
Age 0-4	28	2%
Age 0-17	113	9%
Age 18+	1,123	91%
Age 65+	133	11%

Households by Tenure	Number	Percent
Total	189	
Owner Occupied	158	83%
Renter Occupied	32	17%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
 Source: U.S. Census Bureau, Census 2010 Summary File 1.



Populations at Risk

Combined Neighborhoods (Census Tracts)

Selected Geographies:

Lyon County, KY; Census Tract 9601, Lyon County

Benchmark Geography:

U.S.

Report Date:

April 21, 2022

Headwaters Economics

Headwaters Economics is an independent, nonprofit research group that works to improve community development and land management decisions: headwaterseconomics.org.

Populations at Risk

Populations at risk are more likely to experience adverse social, health, and economic outcomes due to their race, age, gender, poverty status, and other socioeconomic measures.

Free and easy-to-use

Quickly create reports of current socioeconomic data in convenient formats, including Excel and PDF.

Available nation-wide

Build reports for geographies from states to census tracts. Aggregate multiple geographies into custom study areas.

Updated continuously

Make use of reliable, published government data. The Populations at Risk report always shows the latest available data and trends.

headwaterseconomics.org/par

Economic Profile System

The Economic Profile System (EPS) generates reports on a range of topics including local economics, demographics, and income sources while providing historic context and trends.

Free and easy-to-use

Like Populations at Risk, EPS is free, updated continuously, and easy-to-use.

Integrates federal data sources

Access data from many sources, including the Census, Bureau of Economic Analysis, Labor Statistics, and others.

Widely used

For more than a decade, EPS has been used by researchers, economic developers, grant writers, elected officials, cities, planners, federal agencies, reporters, and others.

headwaterseconomics.org/eps

Populations at Risk

Combined Neighborhoods (Census Tracts)

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Click the links above for quick access to report sections.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Young & Elderly Populations

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
Total Population, 2019*	8,271	6,582	14,853	324,697,795
Under 5 years old	273	232	505	19,767,670
65 years and older	2,209	1,551	3,760	50,783,796
80 years and older	166	140	306	6,269,017

Percent of Total, 2019*

Under 5 years old	3.3%	3.5%	3.4%	6.1%
65 years and older	26.7%	23.6%	25.3%	15.6%
80 years and older	2.0%	2.1%	2.1%	1.9%

Change in Percentage Points, 2010*-2019*

For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

Under 5 years old	-0.6	-0.5	-0.6	-0.5
65 years and older	6.5	5.7	6.2	2.9
80 years and older	0.9	1.1	1.0	0.2

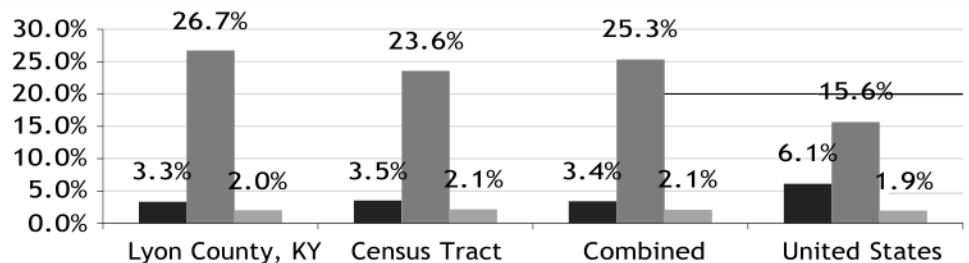
High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.

Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.

Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

Population by Group, Percent of Total, 2019*

- United States has the largest share of people under 5 years old (6.1%).
- Census Tract 9601, Lyon County has the largest share of people 80 years and older (2.1%).

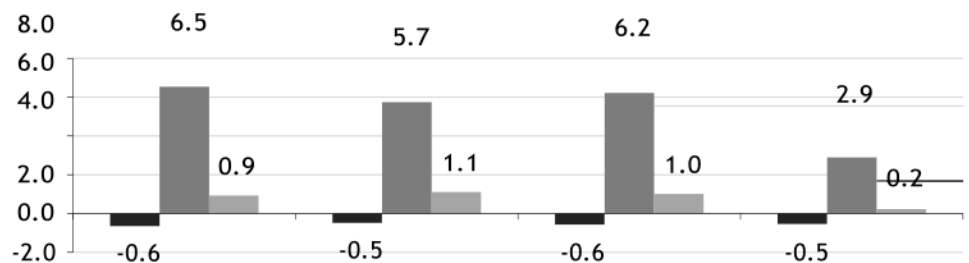


9601, Lyon County Neighborhoods (Census Tracts)

■ Under 5 years old ■ 65 years and older ■ 80 years and older

Population by Group, Change in Percentage Points, 2010*-2019*

- The largest change in the share of people under 5 years old occurred in Lyon County, KY, which went from 3.9% to 3.5%.
- The largest change in the share of people 80 years and older occurred in



Census Tract 9601, Lyon County, which went from 1.0% to 2.1%.

■ Under 5 years old ■ 65 years and older ■ 80 years and older

Populations at Risk

Combined Neighborhoods (Census Tracts)

* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Young & Elderly Populations

What do we measure on this page?

This page describes the number of people by specific age category.

The "Under 5 years old" category includes individuals younger than 5 years old. The "65 years and older" category includes individuals age 65 and older and the "80 years and older" category includes individuals age 80 and older. The "80 years and older" category is a subset of the "65 years and older" category.

Why is it important?

Young children and older adults both are vulnerable segments of the population. Understanding the age profile of a community can help users determine the types of services likely to be needed.¹

Children's developing bodies makes them particularly sensitive to health problems and environmental stresses.¹

Childhood lays the foundations for lifelong health. Poor health during childhood increases the likelihood of problems throughout adulthood.²

Because so many factors of a child's life are determined during pregnancy, infancy, and early childhood, children in poverty are an especially vulnerable population. Lack of adequate care through the early phases of life is more prevalent in poor populations.²

Children spend more time outside and have a faster breathing rate than adults, so they are more at risk for respiratory problems related to ground level ozone, airborne particulates, wildfire smoke, and allergens. Allergens are associated with climate change due to changing plant communities and longer pollen seasons.^{3, 4}

Because their immune systems are not fully developed, children are more sensitive to infectious diseases. Natural disasters can breach public water supplies, compromise sanitation, and spread illness. Children are more vulnerable to these hazards compared to adults.³

Older adults also are at increased risk of compromised health related to environmental hazards and climate change.

Age is the single greatest risk factor related to illness or death from extreme heat.⁴

The elderly are more likely to have pre-existing medical conditions or compromised mobility, which reduces their ability to respond to natural disasters.³

The likelihood of chronic disease increases with age.^{1, 5}

Older adults are more susceptible to air pollution such as ground level ozone, particulate matter, or dust. Increased dust is associated with drought, wildfires, and high wind events.^{3, 6}

Superscript numbers refer to references provided at the end of the report.

CHANGES IN BOUNDARIES: Data describing change over time can be misleading when geographic boundaries have changed. The Census provides documentation about changes in boundaries at this site: www.census.gov/geo/reference/boundary-changes.html

Populations at Risk

Combined Neighborhoods (Census Tracts)

Race & Ethnicity

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
Total Population, 2019*	8,271	6,582	14,853	324,697,795
White alone	7,580	5,983	13,563	235,377,662
All other races	691	599	1,290	89,320,133
Black or African American	474	474	948	41,234,642
American Indian	50	0	50	2,750,143
Other races	167	125	292	45,335,348
Hispanic ethnicity	154	154	308	58,479,370
Non-Hispanic ethnicity	8,117	6,428	14,545	266,218,425

Percent of Total, 2019*

White alone	91.6%	90.9%	91.3%	72.5%
All other races	8.4%	9.1%	8.7%	27.5%
Black or African American	5.7%	7.2%	6.4%	12.7%
American Indian	0.6%	0.0%	0.3%	0.8%
Other races	2.0%	1.9%	2.0%	14.0%
Hispanic ethnicity	1.9%	2.3%	2.1%	18.0%
Non-Hispanic ethnicity	98.1%	97.7%	97.9%	82.0%

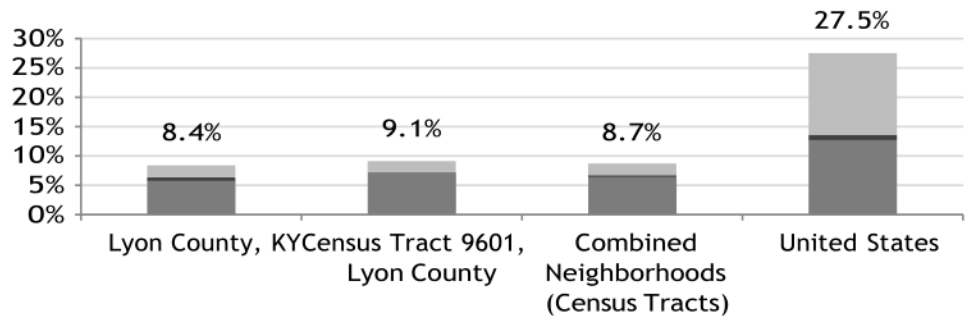
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Non-White Population by Race, Percent of Total, 2019*

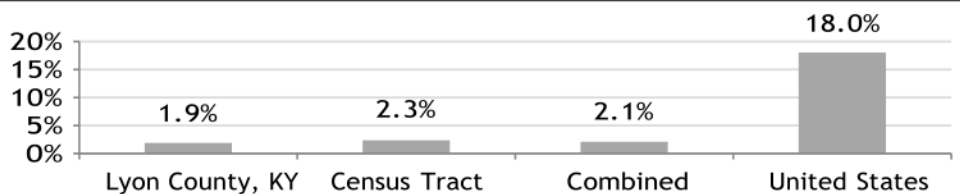
- United States has the largest share of non-whites (27.5%).



■ Black or African American ■ American Indian ■ Other races

Hispanic Population, Percent of Total, 2019*

- United States has the largest share of hispanics (18.0%).



9601, Lyon County Neighborhoods (Census Tracts)

* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

Populations at Risk

Combined Neighborhoods (Census Tracts)

CITIZEN: U.S. Department of Commerce, 2019. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Race & Ethnicity

What do we measure on this page?

Race is self-identified by Census respondents who choose the race or races with which they most closely identify. Included in "Other Races" are "Asian," "Native Hawaiian or Other Pacific Islander," and respondents providing write-in entries such as multiracial, mixed, or interracial.

Ethnicity has two categories: Hispanic or Latino, and Non-Hispanic or Latino. The federal government considers race and Hispanic origin to be two separate and distinct concepts. Hispanics and Latinos may be of any race.

Why is it important?

Race and ethnicity are strongly correlated with disparities in health, exposure to environmental pollution, and vulnerability to natural hazards.¹

Research consistently has found race-based environmental inequities across many variables, including the tendency for minority populations to live closer to noxious facilities and Superfund sites, and to be exposed to pollution at greater rates than whites.^{7, 1}

Many health outcomes are closely related to the local environment. Minority communities often have less access to parks and nutritious food, and are more likely to live in substandard housing.¹

Minorities tend to be particularly vulnerable to disasters and extreme heat events. This is due to language skills, housing patterns, quality of housing, community isolation, and cultural barriers.^{8, 4}

Blacks and Hispanics, two segments of the population that are currently experiencing poorer health outcomes, are an increasing percentage of the US population.^{1,9}

Research has identified measurable disparities in health outcomes between various minority and ethnic communities.

Across races, the rates of preventable hospitalizations are highest among black and Hispanic populations. Preventable hospital visits often reflect inadequate access to primary care. These types of hospital visits are also costly and inefficient for the health care system.⁵

Relative to other ethnicities and races, Hispanics and blacks are less likely to have health insurance, but rates of uninsured are dropping for both groups.¹⁰

Compared to other races, blacks have higher rates of infant mortality, homicide, heart disease, stroke, and heat-related deaths.⁵

Hispanics have higher rates of diabetes and asthma.⁵

American Indians have a distinct pattern of health effects different from blacks and Hispanics. Native populations are less likely to have electricity than the general population.² They have high rates of infant mortality, suicide and homicide, and nearly twice the rate of motor vehicle deaths than the U.S. average.⁵

CHANGES IN BOUNDARIES: Data describing change over time can be misleading when geographic boundaries have changed. The Census provides documentation about changes in boundaries at this site: www.census.gov/geo/reference/boundary-changes.html

Populations at Risk

Combined Neighborhoods (Census Tracts)

Educational Attainment

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
Total Population 25 years or older, 2019*	6,563	5,132	11,695	220,622,076
No high school degree	801	705	1,506	26,472,261
No high school degree, percent	12.2%	13.7%	12.9%	12.0%
No high school degree, change in percentage points**, 2010*-2019*	-6.6	-6.1	-6.4	-3.0

**For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

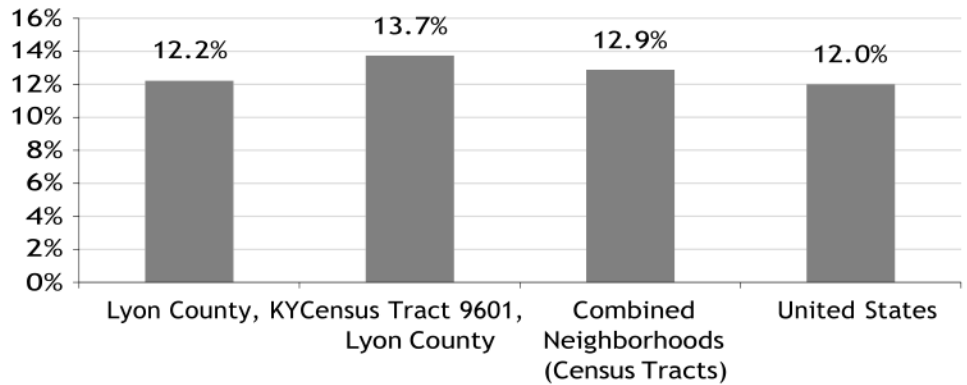
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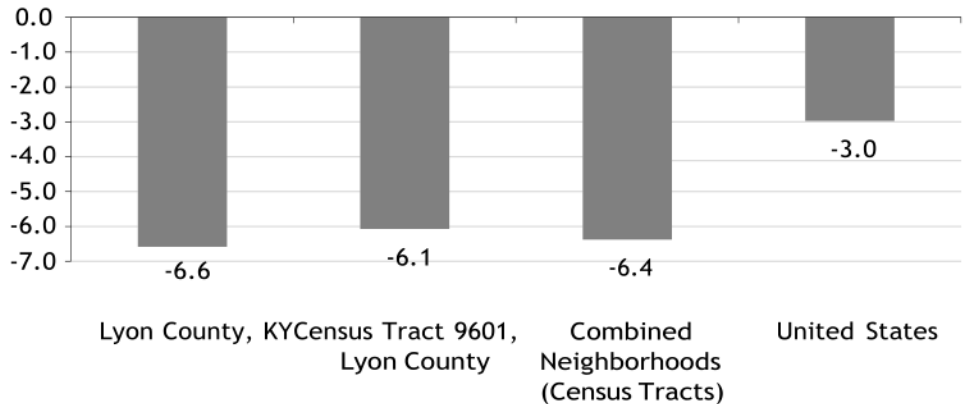
Population with Less than High School Education, Percent of Total, 2019*

- Census Tract 9601, Lyon County has the largest share of people with less than a high school education (13.7%).



Population with Less than High School Education, Change in Percentage Points, 2010*-2019*

- The largest change in the share of people with less than a high school degree occurred in Lyon County, KY, which went from 18.8% to 12.2%.



Populations at Risk

Combined Neighborhoods (Census Tracts)

* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Educational Attainment

What do we measure on this page?

This page describes levels of educational attainment, which refers to the highest degree or level of schooling completed by people 25 years and over.

Why is it important?

High school completion is used as a proxy for overall socioeconomic circumstances. Lack of education is strongly correlated with poverty and poor health.

People without a high school degree are more than twice as likely to live in inadequate housing compared to those with some college education.⁵

A study in California found the lack of a high school degree was the factor most closely related to social vulnerability to climate change.⁴

Thirty-eight percent of Americans without a high school degree do not have health insurance, compared to 10 percent with a college degree.⁷

The rate of diabetes is much greater for those without a high school degree. Incidence of this disease is more than double the rate of those who attended education beyond high school.⁵

Binge drinking is most severe among those without a high school degree. This demographic group had the highest risk of binge drinking across all measured categories (such as income, race, ethnicity, or disability status).⁵

Populations at Risk

Combined Neighborhoods (Census Tracts)

Language Proficiency

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
Population 5 years or older, 2019*	7,998	6,350	14,348	304,930,125
Speak English "not well"***	9	9	18	13,193,113
Speak English "not well"***, percent	0.1%	0.1%	0.1%	4.3%
Speak English "not well"***, change in percentage points**, 2010*-2019*	0.1	0.1	0.1	-0.4

**For example, if the value is 3% in 2010* and 4.5% in 2015*, the reported change in percentage points is 1.5.

*** Includes "not well" and "not well at all".

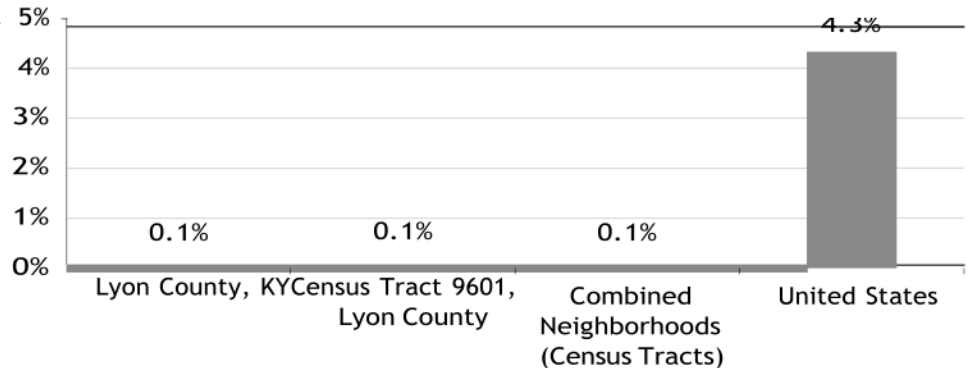
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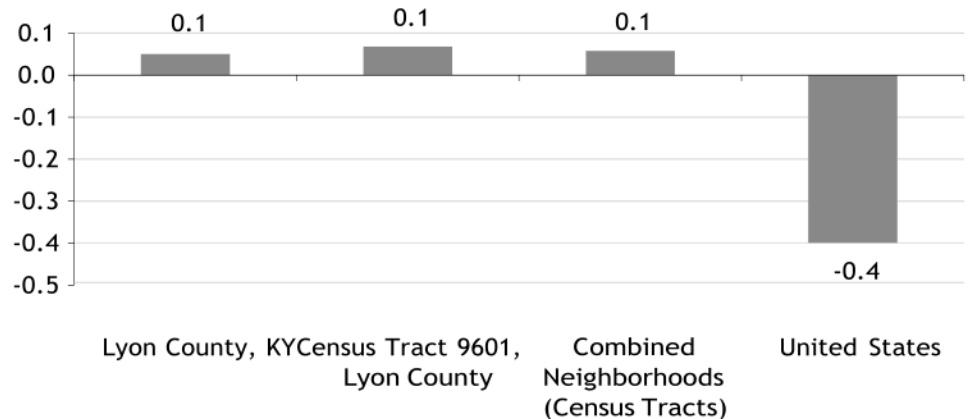
People Who Speak English "Not Well", Percent of Total, 2019*

- United States has the largest share of people who speak English "not well" (4.3%).



People Who Speak English "Not Well", Change in Percentage Points, 2010*-2019*

- The largest change in the share of people who speak English "not well" occurred in United States, which went from 4.7% to 4.3%.



Populations at Risk

Combined Neighborhoods (Census Tracts)

* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Language Proficiency

What do we measure on this page?

This page reports the results of self-rated English-speaking ability questions in the American Community Survey.

Why is it important?

Many aspects of life in the US assume basic fluency in English. Thus, people with limited language skills are at risk for inadequate access to health care, social services, or emergency services.

A person's ability to take action during an emergency is compromised by language and cultural barriers.⁴

Poor English skills can make it harder to follow directions or interact with agencies.⁴

Lack of language skills can also instill lack of trust for government agencies.

In many industries, poor English skills can make it harder for people to get higher wage jobs.¹

Language barriers make it harder to obtain medical or social services; and make it more difficult to interact with caregivers.¹

Limited English skills may result in isolation from other segments of the US population, and social isolation is a health risk.¹ However some minority communities can be very tightly-knit and not isolated, so this risk factor cannot be generalized across all populations.

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Populations at Risk

Combined Neighborhoods (Census Tracts)

Individuals in Poverty

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
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Total population for whom poverty status

is determined, 2019*	6,962	5,290	12,252	316,715,051
People in poverty	1,100	856	1,956	42,510,843
People in "deep-poverty"***	358	243	601	18,957,462
Both in poverty and over 65	147	76	223	4,587,432

Percent of Total, 2019*

People in poverty	15.8%	16.2%	16.0%	13.4%
People in "deep-poverty"***	5.1%	4.6%	4.9%	6.0%
Both in poverty and over 65	2.1%	1.4%	1.8%	1.4%

Change in Percentage Points, 2010*-2019*

For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

People in poverty	1.8	-0.5	0.7	-0.4
People in "deep-poverty"***	-1.2	-2.9	-1.9	0.0
Both in poverty and over 65	-0.5	-1.5	-0.9	0.2

** Deep poverty is defined by the Census as earning less than half of the federal poverty level.

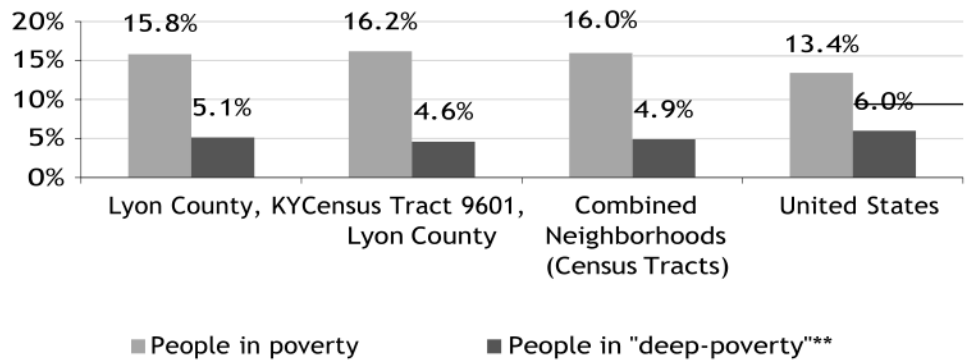
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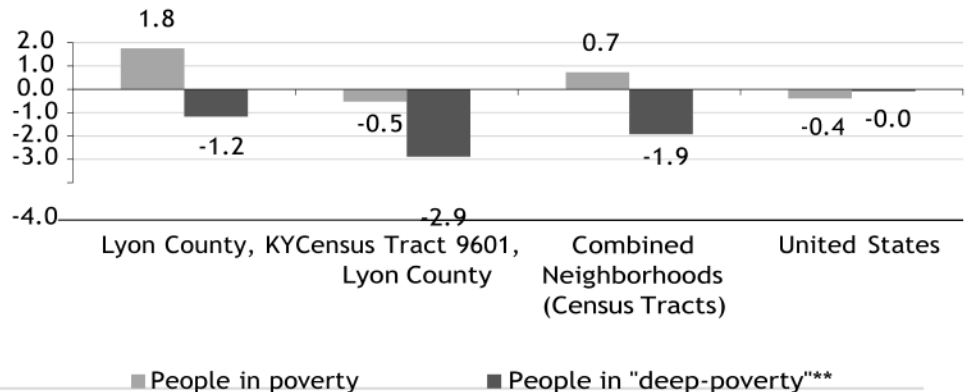
People in Poverty, Percent of Total, 2019*

- United States has the largest share of people in "deep poverty" (6.0%).



People in Poverty, Change in Percentage Points, 2010*-2019*

- The largest change in the share of people in "deep poverty" occurred in Census Tract 9601, Lyon County, which went from 7.5% to 4.6%.



Populations at Risk

Combined Neighborhoods (Census Tracts)

* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Individuals in Poverty

What do we measure on this page?

This page describes the number of people living below the poverty line, those in deep poverty, and individuals 65 and older in poverty. Poverty status is determined for all people except those institutionalized, in military group quarters, in college dormitories, and unrelated individuals less than 15 years old. The total population in the poverty table is slightly smaller than the overall population.

Following the Office of Management and Budget's Directive 14, the Census Bureau uses a set of income thresholds that vary by family size and composition to define who is poor. If the total income for a family or an unrelated individual falls below the relevant poverty threshold, the family or an unrelated individual is classified as being "below the poverty level."

Why is it important?

Low income is one of the strongest predictors for compromised health and ability to recover from disruptions.¹ This is true across many types of risk, including general health as well as risks from extreme weather, climate change, and environmental stresses.

Natural disasters disproportionately impact the poor because of factors such as inadequate housing, social exclusion, a diminished ability to evacuate, lack of property insurance, and more acute emotional stress.^{2,11} Low-income people also are more likely to be overlooked during emergency response following disasters.¹¹

Low-income people are more likely to live or work in areas with greater exposure to environmental hazards such as particulate matter or ozone. They also are more likely to work outdoors, with greater exposure to climate-related risks.²

The relationship between lower income and poor health outcomes is most pronounced for the poorest. Additional income for the poorest tends to improve health outcomes more than for those in other income groups.¹²

A lack of resources is only part of the reason for poor health outcomes. Income inequality within a community also is associated with poor health outcomes.¹²

Residents living in low-income neighborhoods tend to have worse physical and mental health -such as asthma, depression, diabetes, heart conditions, and emotional stress- compared to higher-income areas.^{1,5}

People with lower income have higher rates of preventable hospitalizations, usually related to insufficient access to primary health care.⁵

The poor are least likely to have health insurance^{5,10}, and poor health outcomes related to environmental risks like air pollution are exacerbated for those who do not have health insurance.²

Those who are disabled and living in poverty have even greater risk from environmental hazards.

Lack of mobility makes evacuation difficult.^{1,2}

In 2009, households with at least one person with a disability had a 20 percent higher chance of living in inadequate housing compared to households without a disabled person.⁵

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Populations at Risk

Combined Neighborhoods (Census Tracts)

Families in Poverty

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
Total families for whom poverty status is determined, 2019*	2,024	1,471	3,495	79,114,031
Families in poverty	193	135	328	7,541,196
Families with children in poverty	97	89	186	5,581,063
Single mother families in poverty	48	40	88	3,385,236

Percent of Total, 2019*

Families in poverty	9.5%	9.2%	9.4%	9.5%
Families with children in poverty	4.8%	6.1%	5.3%	7.1%
Single mother families in poverty	2.4%	2.7%	2.5%	4.3%

Change in Percentage Points, 2010*-2019*

For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

Families in poverty	-1.3	-3.6	-2.3	-0.5
Families with children in poverty	-3.6	-4.9	-4.2	-0.8
Single mother families in poverty	-3.2	-4.6	-3.8	-0.5

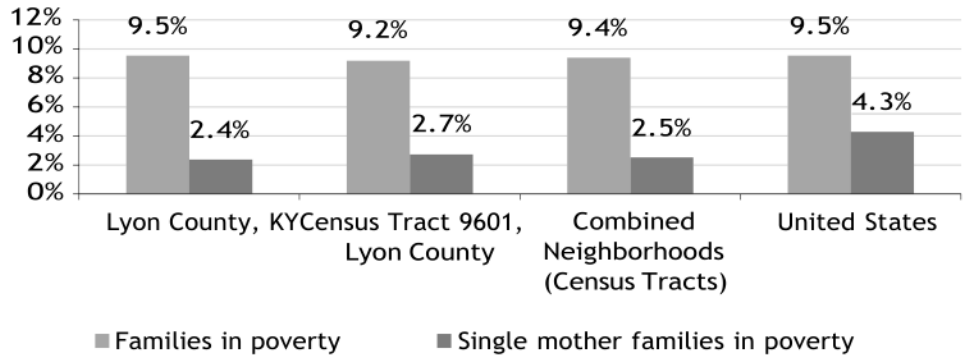
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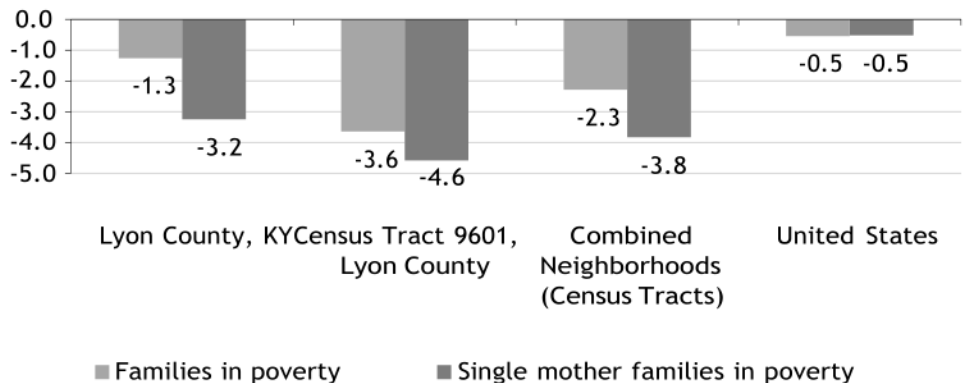
Families in Poverty, Percent of Total, 2019*

- United States has the largest share of single mother families in poverty (4.3%).



Families in Poverty, Change in Percentage Points, 2010*-2019*

- The largest change in the share of single mother families in poverty occurred in Census Tract 9601, Lyon County, which went from 7.3% to 2.7%.



Populations at Risk

Combined Neighborhoods (Census Tracts)

* ACS 3-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Families in Poverty

What do we measure on this page?

This page describes the number of families living below the poverty line, and separately reports families with children and single mother families with children.

The Census defines a family as a group of two or more people who reside together and who are related by birth, marriage, or adoption.

The Census Bureau uses a set of income thresholds that vary by family size and composition to define who is poor. If the total income for a family or an unrelated individual falls below the relevant poverty threshold, then the family or an unrelated individual is classified as being "below the poverty level."

Why is it important?

Families in poverty may lack the resources to meet their basic needs. Their challenges cross the spectrum of food, housing, health care, education, vulnerability to natural disasters, and emotional stress.

To save money, families with low incomes often have to make lifestyle compromises such as unhealthy foods, less food, substandard housing, or delayed medical care.¹

Lack of financial resources makes families in poverty more vulnerable to natural disasters. This is due to inadequate housing, social exclusion, and an inability to re-locate or evacuate.^{11, 2}

Inadequate shelter exposes occupants to increased risk from storms, floods, fire, and temperature extremes.² Households with low incomes are more likely to have unhealthy housing such as leaks, mold, or rodents.⁵

The expense of running fans, air conditioners, and heaters makes low-income people hesitant to mitigate the temperature of their living spaces.^{1, 2} Furthermore, those in high-crime areas may not want to open their windows.²

Families in poverty are disproportionately affected by higher food prices, which are expected to rise in response to climate change.¹

Children in poor families, on average, receive fewer years of education compared to children in wealthier families.¹²

Low-income residents are less likely to have adequate property insurance, so they may bear an even greater burden from property damage due to natural hazards.²

Living in poverty can lead to a lack of personal control over potentially hazardous situations such as increased air pollution or flooding. Impoverished families may be less likely to take proactive measures to prevent harm.¹¹

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Populations at Risk

Combined Neighborhoods (Census Tracts)

Households Receiving Public Assistance

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods	United States
Total Households, 2019*	3,333	2,560	5,893	120,756,048
Households receiving:				
Supplemental Security Income (SSI)	191	132	323	6,443,122
Cash public assistance income	41	24	65	2,853,791
Food Stamp/SNAP	408	315	723	14,171,567

Percent of Total, 2019*

Supplemental Security Income (SSI)	5.7%	5.2%	5.5%	5.3%
Cash public assistance income	1.2%	0.9%	1.1%	2.4%
Food Stamp/SNAP	12.2%	12.3%	12.3%	11.7%

Change in Percentage Points, 2010*-2019*

For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

Supplemental Security Income (SSI)	0.0	-1.5	-0.7	1.3
Cash public assistance income	0.1	0.5	0.3	-0.1
Food Stamp/SNAP	0.8	0.1	0.5	2.5

Median Household Income (MHI), 2019*

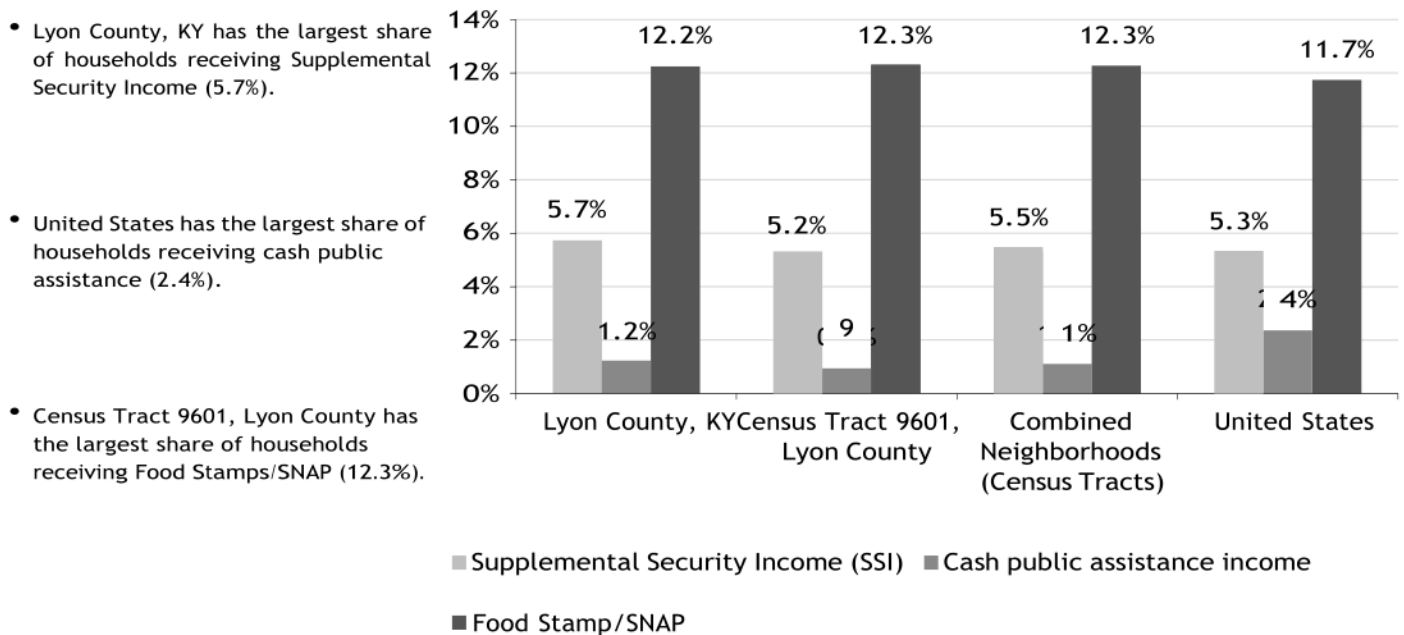
(2021 \$s)	\$55,680	\$52,337	na	\$66,614
Change in MHI, 2010*-2019* (2021 \$s)	\$3,376	\$1,830	na	\$2,085

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Percent of Households Receiving Earnings, by Source, 2019*



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Households Receiving Public Assistance

What do we measure on this page?

This page describes the number of households receiving public assistance.

Supplemental Security Income, or SSI, provides financial assistance to people with limited income who are aged, blind, or disabled. Unlike Social Security benefits, which are determined by the recipient's lifetime earnings, SSI benefits are not based on prior work.¹³

Cash public assistance can be from the Federal program, Temporary Assistance for Needy Families (TANF), or various state-level cash assistance programs. It does not include separate payments received for hospital or other medical care (vendor payments) or SSI or noncash benefits such as the Supplemental Nutrition Assistance Program.

The Supplemental Nutrition Assistance Program, or SNAP, (formerly known as food stamps), provides benefits to those who are unemployed, have no or low incomes, are elderly, are disabled with low incomes, or are homeless. The income threshold for SNAP varies with household size and other factors. SNAP benefits can be used to purchase grocery items such as breads, cereals, fruits, vegetables, meats, and dairy products.¹⁴

Median income can be used to identify areas of high or low income, but care should be taken to consider regional differences in cost of living.

Why is it important?

The number of households receiving public assistance are indicative of households living in poverty or with insufficient resources.

In 2011, families receiving public assistance spent 77 percent of their household budget to meet the basic necessities of housing, food, and transportation.¹⁵

Payments associated with economic hardship are associated with lower household income and educational attainment, higher poverty and unemployment. They are often high in communities that are losing population.¹⁶

Populations at Risk

Combined Neighborhoods (Census Tracts)

Labor Participation

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
Total Population 16 to 64 years, 2019*	5,044	4,195	9,239	208,879,084
People that did not work	1,666	1,382	3,048	48,480,278
People that did not work, percent	33.0%	32.9%	33.0%	23.2%
People that did not work, change in percentage points**, 2010*-2019*	3.1	3.3	3.2	0.8

**For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

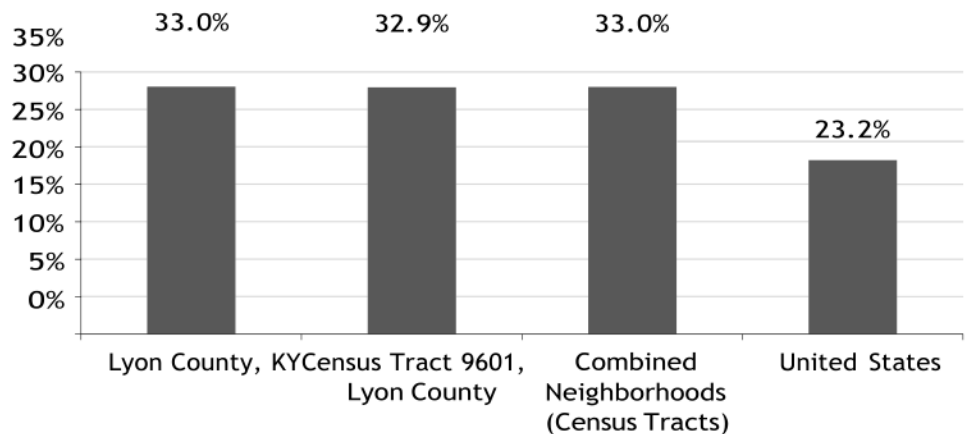
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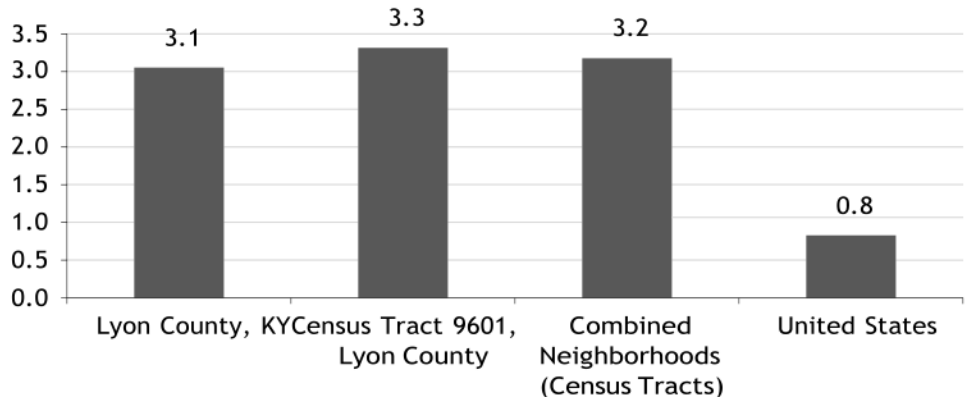
People that Did Not Work, Percent of Population (16-64 Years), 2019*

- Lyon County, KY has the largest share of the population that did not work (33.0%).



People that Did Not Work, Change in Percentage Points, 2010*-2019*

- The largest change in the share of the population that did not work occurred in Census Tract 9601, Lyon County, which went from 29.6% to 32.9%.



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Labor Participation

What do we measure on this page?

This page shows the share of the working age population that did not work. This value differs from the unemployment rate, which is more narrowly defined as the share of individuals who did not work and were actively seeking work.

Why is it important?

In general, robust participation in the labor force is indicative of vibrant local and regional economic development.¹⁷ Not working can limit access to health insurance and health care, and has been linked with impaired health. Low labor force participation may indicate a high proportion of discouraged workers no longer seeking employment, but it can also indicate a high proportion of students or retirees.

Low labor force participation is closely associated with high unemployment, although labor force participation can be low in places like retirement destinations that are otherwise economically successful.¹⁸

Compared to labor force participation, unemployment figures may under-represent the magnitude of economic burden, because they do not include those who have stopped seeking work, those who are involuntarily employed part-time, or people with disabilities that prevent them from working.¹⁷

Unemployed people are a subset of those who are not in the labor force. Research relating work status to social outcomes focuses on the unemployed.

Unemployment is strongly linked with adverse health outcomes such as cardiovascular disease, suicide, compromised mental health, and alcohol use. Unemployed people have higher rates of hospitalizations, medication use, and health care visits.¹⁹

Being without a job limits lifestyle choices and is linked with behaviors that contribute to poor health, such as disrupted social relationships, unhealthy diet, increased alcohol use, and greater stress.^{17,19}

High, persistent joblessness within a community, places an additional burden on social services, and resources may be more scarce because they are spread thinly.¹⁷

CHANGES IN BOUNDARIES: Data describing change over time can be misleading when geographic boundaries have changed. The Census provides documentation about changes in boundaries at this site: www.census.gov/geo/reference/boundary-changes.html

Housing Affordability

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods	United States
Total owner-occupied, mortgaged homes, 2019*	1,257	928	2,185	48,416,627
Mortgage cost >30% of household income	287	188	475	13,400,012
Total renter-occupied units, 2019*	688	613	1,301	43,481,667
Rent >30% of household income	278	240	518	20,002,945

Percent of Total, 2019*

Mortgage cost >30% of household income	22.8%	20.3%	21.7%	27.7%
Rent >30% of household income	40.4%	39.2%	39.8%	46.0%

Change in Percentage Points, 2010*-2019*

For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

Mortgage cost >30% of household income	-4.7	-7.1	-5.8	-9.7
Rent >30% of household income	11.4	10.1	10.8	-1.0

Median Monthly Housing Costs in 2021 \$s

Mortgage cost, 2019*	\$1,038	\$965	na	\$1,691
Change in mortgage cost, 2010*-2019*	-\$61	-\$57	na	-\$203
Gross rent, 2019*	\$639	\$608	na	\$1,126
Change in gross rent, 2010*-2019*	\$8	-\$30	na	\$81

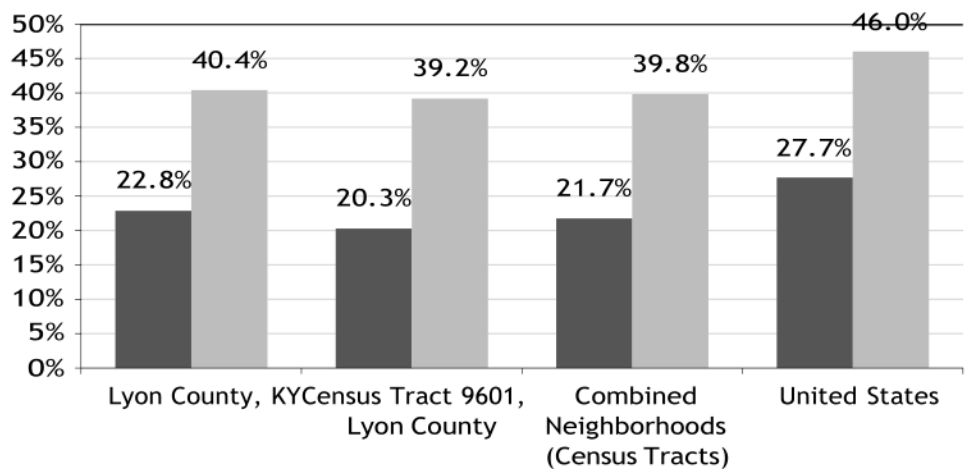
High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.

Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.

Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

Housing Costs as a Percent of Household Income, 2019*

- United States has the largest share of unaffordable housing for homeowners, with 27.7% spending over 30% of household income on mortgage costs.
- United States has the largest share of unaffordable housing for renters, with 46.0% spending over 30% of household income on rental costs.



■ Mortgage cost >30% of household income

■ Rent >30% of household income

* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

Populations at Risk

Combined Neighborhoods (Census Tracts)

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Housing Affordability

What do we measure on this page?

This page describes whether housing is affordable for homeowners and renters.

The use of the ratio of income to housing costs was formalized in the US Housing and Development Act. The 30 percent threshold was established in 1981, is used currently to determine rent prices for most rent assistance programs.²⁰

"Mortgage cost" is defined as the sum of payment for mortgages, real estate taxes, insurances, utilities, fuels, mobile home costs, and/or condominium fees.

"Gross rent" is defined as the amount of the contract rent plus the estimated average monthly cost of utilities and fuels if these are paid for by the renter.

Why is it important?

The government considers families with housing costs exceeding 30 percent of income to be "housing-cost burdened."^{20,21} Families who are housing cost burdened may need to make financial sacrifices in other aspects of their life, which may lead to negative health and social outcomes.

The 30 percent ratio reflects both housing cost and income. In areas with high housing prices, even families with high incomes can approach or exceed the 30 percent threshold.

High housing costs may create financial difficulty in paying for other necessities such as food, health care, and transportation.²¹ Thus families may have to sacrifice, compromise, or delay other essential needs.¹

Families living in affordable housing are more stable and less likely to move frequently. This stability is linked to several positive health outcomes in children and young adults, such as improved emotional and behavioral problems, fewer pregnancies, reduced drug use, and a lower risk for depression.¹

Housing costs do not affect all income groups equally. For low-income families, the money that remains after household expenses may not be sufficient to cover their needs. But for high wage-earners, paying a high proportion of their income for housing may not pose any financial burden.²⁰

Housing cost burden is more common for renters. In 2006, 46 percent of U.S. renters had housing costs that exceeded 30 percent of their income.²⁰ Cost-burden renters are especially prevalent in large cities.²² The high proportion of household costs for renters has further increased over the past 25 years.

To live in more affordable housing, some people may opt to live outside of metropolitan areas, which lowers housing cost but increases transportation cost.

In 2006, housing cost burden was more prevalent for racial and ethnic minorities and was lowest for whites.²⁰

Financial insecurity for a home -such as foreclosure, eviction, or uncertainly about one's ability to afford housing- is a source of emotional stress.²³ This effect is heightened by people's emotional attachment to their home and their neighborhood.²⁴

CHANGES IN BOUNDARIES: Data describing change over time can be misleading when geographic boundaries have changed. The Census provides documentation about changes in boundaries at this site: www.census.gov/geo/reference/boundary-changes.html

Populations at Risk

Combined Neighborhoods (Census Tracts)

Rental & Mobile Homes

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods	United States
Total Occupied Housing Units, 2019*	3,333	2,560	5,893	120,756,048
Rental Units	688	613	1,301	43,481,667
Mobile Homes	384	311	695	6,681,368

Percent of Total, 2019*

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods	United States
Rental Units	20.6%	23.9%	22.1%	36.0%
Mobile Homes	11.5%	12.1%	11.8%	5.5%

Change in Percentage Points, 2010*-2019*

For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods	United States
Rental Units	2.0	1.0	1.6	4.4
Mobile Homes	-10.4	-11.2	-10.8	-0.3

Median Home Value (MHV), 2019*

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods	United States
Median Home Value (MHV), 2019* (2021 \$s)	\$149,990	\$109,498	na	\$230,550
Change in MHV, 2010*-2019* (2021 \$s)	\$44,459	\$5,832	na	-\$3,631

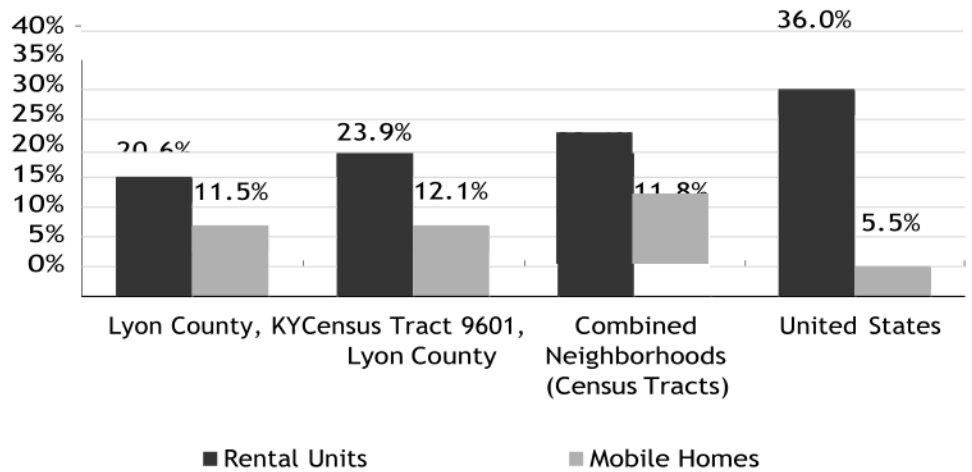
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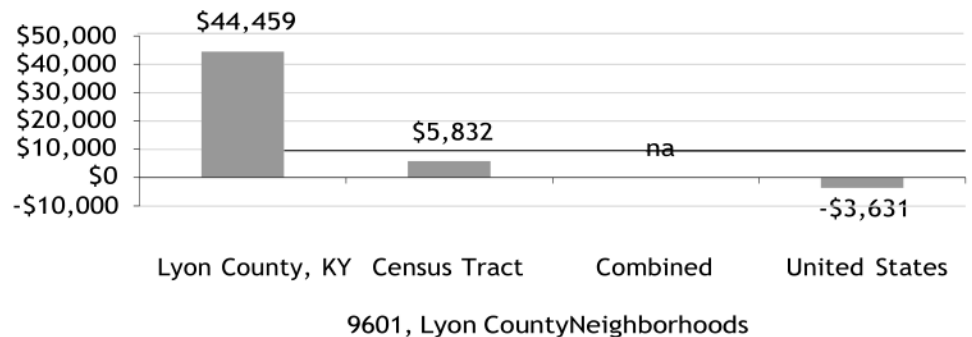
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

Rental Units and Mobile Homes as a Percent of Total Housing Units, 2019*

- United States has the largest share of rental units (36.0%).
- Census Tract 9601, Lyon County has the largest share of mobile homes (12.1%).



Change in Median Home Value, 2010*-2019* (2021 \$s)



(Census Tracts)

* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Rental & Mobile Homes

What do we measure on this page?

This page reports the numbers of housing units that are either rental units or mobile homes, and provides median home value.

Why is it important?

In general, home ownership contributes to well-being and stability. However, each type of living situation has its own risks and health concerns.

Home ownership is often associated with mental health benefits such as high self-esteem, a sense of control over one's living situation, and financial stability.²³

The financial stress associated with losing one's home is heightened by people's emotional attachment to their home and their neighborhood.²⁴

Homeowners typically pay a greater overall housing cost, but renters pay a larger proportion of their income. The high proportion of household costs for renters has further increased over the past 25 years.²⁵

Rental homes are generally not maintained as well as those that are owned. Substandard housing conditions like dampness, mold, and exposure to toxic substances or allergens are linked with compromised health outcomes.²³

Areas with high-density residences, such as urban areas, tend to have a greater proportion of renters.¹ High density living conditions and large, multistory apartment buildings exacerbate heat-related health stresses.⁴

Mobile homes are more likely to be damaged in extreme weather, which poses a risk for both the structure and the occupants.^{4,11}

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Populations at Risk

Combined Neighborhoods (Census Tracts)

Potentially Vulnerable Households

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
Total Occupied Households, 2019*	3,333	2,560	5,893	120,756,048
People > 65 years & living alone	69	45	114	4,527,381
Single female households	218	168	386	15,016,964
with children < 18 years	115	83	198	9,427,068
Households with no car	51	32	83	10,395,713

Percent of Total, 2019*

People > 65 years & living alone	2.1%	1.8%	1.9%	3.7%
Single female households	6.5%	6.6%	6.6%	12.4%
with children < 18 years	3.5%	3.2%	3.4%	7.8%
Households with no car	1.5%	1.3%	1.4%	8.6%

Change in Percentage Points, 2010*-2019*

For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

People > 65 years & living alone	-0.6	-1.0	-0.8	-0.8
Single female households	-5.8	-7.9	-6.7	-0.2
with children < 18 years	-3.2	-5.3	-4.1	0.0
Households with no car	-2.9	-4.1	-3.4	-77.3

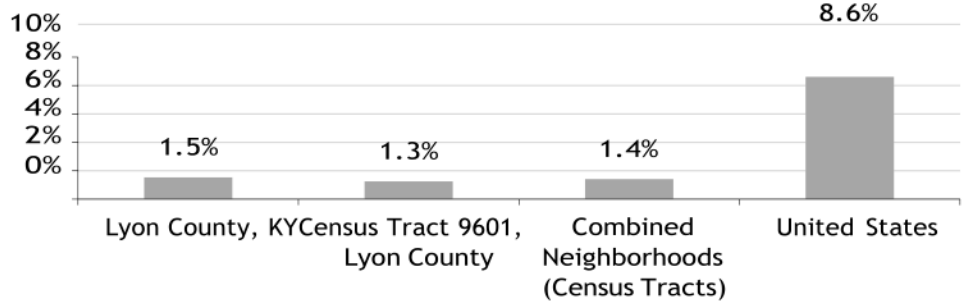
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People > 65 Yrs and Living Alone as a Percent of Total Households, 2019*

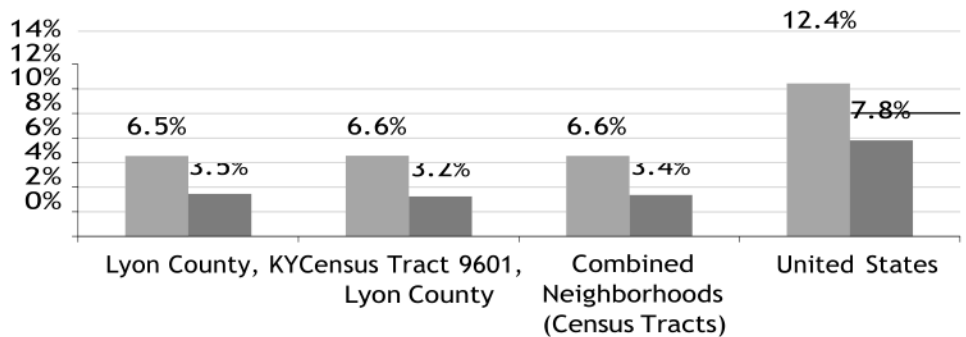
- United States has the largest share of households with people over 65 living alone (3.7%).



Single Female Households as a Percent of Total Households, 2019*

- United States has the largest share of single female households (12.4%).

- United States has the largest share of single female households with children (7.8%).



Populations at Risk

Combined Neighborhoods (Census Tracts)

■ Single female households

■ with children < 18 years

* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Potentially Vulnerable Households

What do we measure on this page?

This page describes household types that are associated with increased hardship, including the elderly living alone, single female households, single female households with children, and households without a car.

Why is it important?

Older adults are more likely to have compromised health and are less able to overcome disease. Living alone exacerbates health risks, and many health outcomes are worsened by social isolation.

Social isolation is strongly linked to poor health such as premature death, smaller chances of survival after a heart attack, depression, and greater levels of disability from chronic diseases.²

People 65 and older are particularly vulnerable to heat-related illness,⁴ which is exacerbated by social isolation.

Households headed by women face challenges related to income, education, and food security. These factors make it more difficult to respond to health, environmental, or climate risks.

Female-headed households are more likely to be living in poverty. This is most prevalent among black, Hispanic, and Native American households.²⁶

In 2014, 35 percent of female-headed households were food insecure, compared to 14 percent of all households.²⁷ Single mothers may be burdened by providing basic needs such as food and housing, which can make the urgency of other risks seem less important.²⁸

Single-mother families are disproportionately exposed to hazardous levels of air pollution.⁴

Single mothers tend to be less educated and less affluent than the general population, which puts them at greater risk during natural disasters.²⁸

Access to a car is linked with higher wages and more financial stability, and can help families relocate or evacuate in the event of emergencies.

People who own cars are more likely to be employed, work longer hours, and earn more than those who do not.²⁹

Access to a car has measurable benefits for those receiving public assistance. Welfare recipients with access to a car were more likely to work more hours and get higher-paying jobs, and had a greater chance of leaving welfare.³⁰

During emergencies, natural disasters, and extreme weather events, people who do not have a car are less likely to evacuate or have access to emergency response centers.⁴

During heat waves, people without a car are less able to go to community cooling centers or cooler areas.⁴

Pedestrian fatalities are more than twice as likely in poor urban neighborhoods than in wealthier parts of cities.³¹

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Populations at Risk

Combined Neighborhoods (Census Tracts)

Potentially Vulnerable People

	Lyon County, KY	Census Tract 9601, Lyon County	Combined Neighborhoods (Census Tracts)	United States
Total civilian noninstitutionalized population, 2019*	6,985	5,296	12,281	319,706,872
People w/ disabilities	1,814	1,399	3,213	40,335,099
People w/o health insurance	420	346	766	28,248,613
Percent of Total, 2019*				
Percent of people w/ disabilities	26.0%	26.4%	26.2%	12.6%
Percent of people w/o health insurance	6.0%	6.5%	6.2%	8.8%

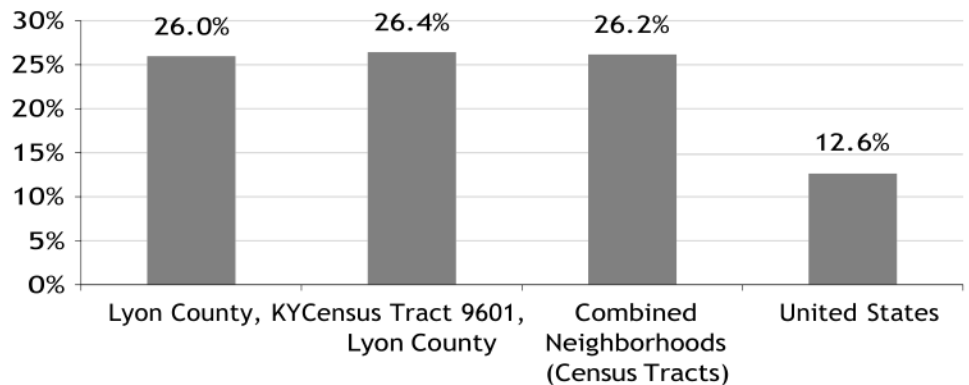
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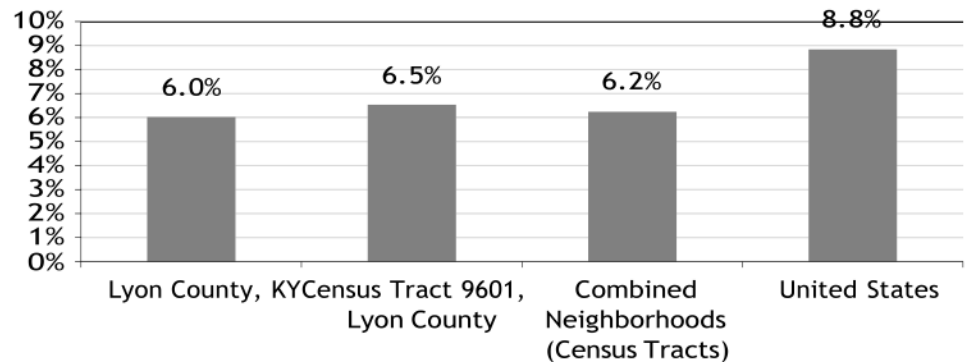
People with Disabilities, Percent of Total, 2019*

- Census Tract 9601, Lyon County has the largest share of the noninstitutionalized population that is disabled (26.4%).



People without Health Insurance, Percent of Total, 2019*

- United States has the largest share of the noninstitutionalized population without health insurance (8.8%).



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

Populations at Risk

Combined Neighborhoods (Census Tracts)

CITIZEN: U.S. Department of Commerce, 2019. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Potentially Vulnerable People

What do we measure on this page?

This page describes groups of people that are associated with increased hardship, including people with disabilities and people without health insurance.

Why is it important?

Disabled people are subject to health complications that make environmental risks more consequential.

Disabled people are less likely to have health insurance, compared to the non-disabled population.⁵

Being confined to a bed raises heat mortality.²

Extreme weather events or natural disasters may result in limited access to medical care. This is particularly consequential for those who already have compromised health.³

People who lack health insurance are disadvantaged by several different mechanisms. They may avoid or delay diagnoses, treatment, and/or medication and thus may increase their odds of poor health. They do not have a regular place of care, and they are not benefitting from the standard of care that is afforded many Americans.

Households living in poverty are more likely to be uninsured. More than one quarter of uninsured households live in poverty.¹⁰

People with lower educational attainment are more likely to be uninsured.⁵

People without health insurance are less likely to have a regular source of care, and less likely to receive preventive, primary, and specialty care services.^{32,33} This risk is particularly evident among racial and ethnic minorities.⁵

People without health insurance are more likely to use the hospital emergency department for standard health care needs.⁵

About 25% of uninsured adults report having either delayed or gone without care in the past year because of costs.³³

Uninsured people are more likely to skip medications due to the costs, and some providers are less likely to prescribe medications to uninsured patients.^{34,34}

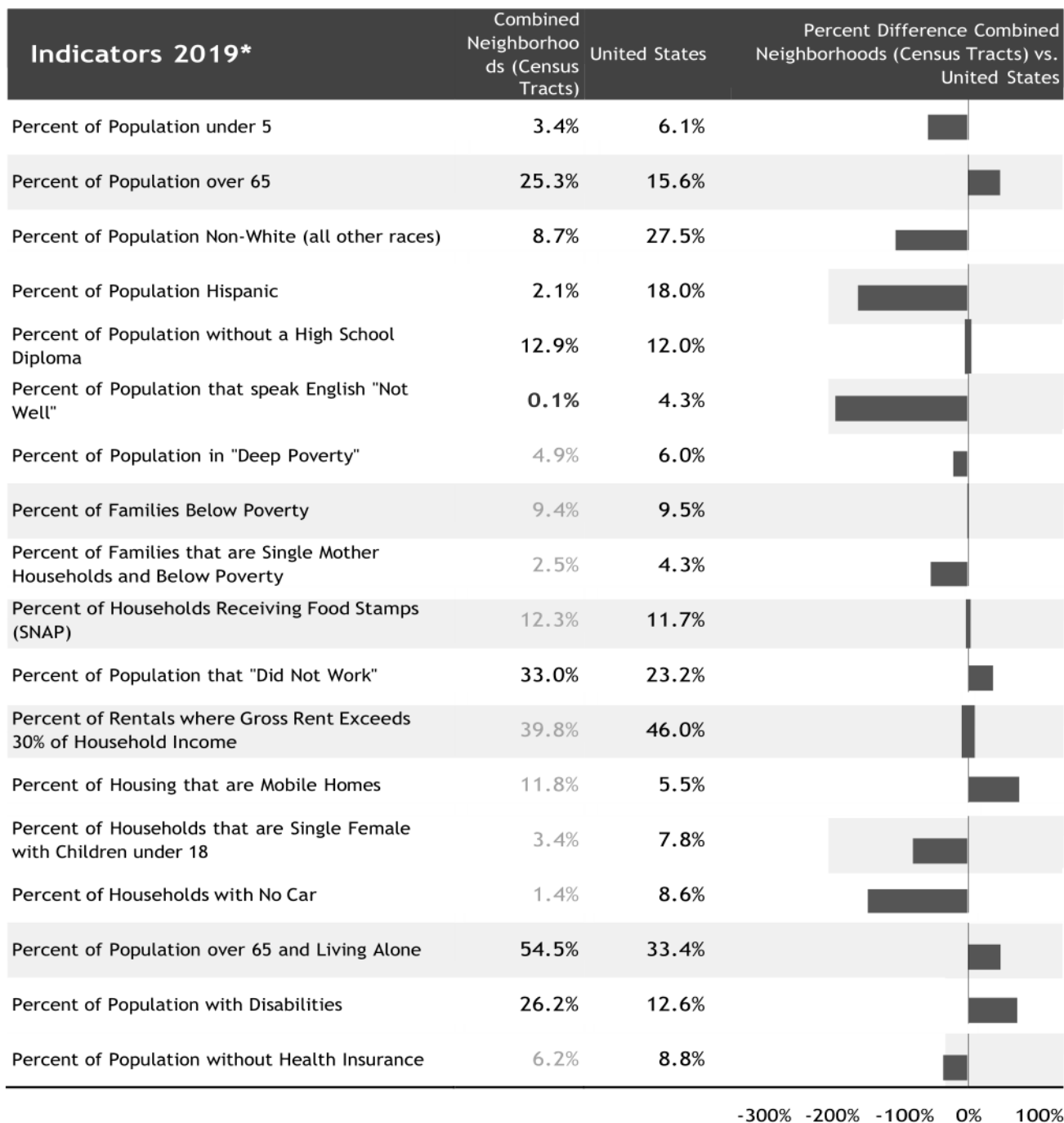
People who do not have health insurance suffer greater health consequences from air pollution compared to those with insurance.⁴

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Populations at Risk

Combined Neighborhoods (Census Tracts)

Benchmarks



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CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Populations at Risk, headwaterseconomics.org/par.

Populations at Risk

Combined Neighborhoods (Census Tracts)

Benchmarks

What do we measure on this page?

This page shows a quick comparison for most of the indicators covered in this report to highlight how the region differs from the selected benchmark geography.

The percent, or relative, difference between the selected geography and the benchmark is calculated by dividing the difference between the values by the arithmetic mean of the values.

Why is it important?

These indicators are all measures of a population more likely to experience adverse outcomes from disruptions due to extreme weather events, climate change, pollution, or limited health care access.

Particularly high percentages for any of these indicators may highlight populations that are at higher risk and in need of outreach from disaster planning, public health, or social service organizations.

Populations at Risk

Combined Neighborhoods (Census Tracts)

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Populations at Risk

Combined Neighborhoods (Census Tracts)

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APPENDIX I



Inlet Project Community Outreach Plan



ERIDA COMMUNITY OUTREACH PLAN

Eddyville Riverport Inlet Project

Eddyville, KY

PURPOSE

The purpose of the Community Outreach Plan for the Eddyville Riverport Industrial Development Authority (ERIDA) is to provide a detailed, transparent, and cohesive strategy for informing, consulting, and empowering the community on the Riverport Inlet project. Effective and equity-focused community outreach to represent all stakeholders and the public-at-large will be a priority within the project planning and development. The foundation of this plan is based on ERIDA's Strategic Master Plan adopted December 15, 2020 which identified the importance of meaningful, equitable public input to the success of future projects. In support of Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government* (86 FR 7009), the plan is intended to layout engagement strategies to ensure that underserved and historically disadvantaged communities, as well as those marginalized by traditional methods of outreach, have ample opportunities to participate and engage. Through this Strategy, we are seeking to enhance and develop relationships that are mutually informative and beneficial to our communities.

ERIDA MISSION

To bring people, resources, and industry together to foster economic prosperity and family wage jobs through strategic partnership and investments.

ERIDA VISION

To become the centerpiece for economic development connecting Western Kentucky to the world, by utilizing the river, road, and rail to create family wage jobs and prosperity for our communities.

ERIDA CORE VALUES

- Customer-Focused
- Integrity
- Resiliency
- Promote Sense of Community
- To Value Community Partners

ERIDA COMMUNITY OUTREACH GOALS

1. Implement Diversity, Equity & Inclusion (DEI) practices to identify underrepresented individuals and barriers that may deter participation in community outreach activities.
2. Design and deploy a diverse set of communication tools and activities that are accessible, meaningful, and culturally appropriate for diverse groups, comprehensive in reaching the full range of community members
3. Leveraging the ERIDA members' and community partners' networks and assets to identify a comprehensive list of community members to increase equity and inclusion
4. Facilitate seamless coordination of the community engagement process with the planning process to ensure community input is reflected in the planning output
5. Provide comprehensive and transparent documentation of community input
6. Link community members with the project's communication channels to promote ongoing project awareness and communication

COMMUNITIES OF INTEREST

The ERIDA Master Strategic Plan included a comprehensive list of stakeholders represented below:

- Government officials at the Federal, State and Local Levels
Business Organizations related to the economic development of the port
- Economic Development Agencies
- Lyon County Schools

In addition to the above list the following will also be included in the outreach plan:

- Residents of Eddyville and surrounding area that may be affected
- Community advocacy groups
 - * Environmental Justice
 - * Health Equity
 - * Economic Justice
 - * Housing
 - * Watershed, habitat and river management
 - * Environmental
 - * Recreation
- Utility Companies
- Non-profit and social service agencies

COMMUNITY OUTREACH ENGAGEMENT STRATEGIES

Each engagement tool has a different purpose-- whether to glean input about a specific area or to gather input from different populations in diverse locations. Each tool should be considered carefully and tailored to provide opportunities to engage as many community members as possible.

Media, Direct Mailings & Postings- For each of the public engagement sessions local media outlets will be contacted with meeting and contact information. Direct mailing invitations will be sent to identified individuals and meeting posters will be displayed in local public locations.

Pre-Design Open House- To improve public understanding and gather input of the project two separate pre-design open houses will be held at accessible and convenient locations. Based on demographic data, we will need to ensure that this meeting will focus on providing information and seeking public input. Exhibit boards will be set up in an informal open area with specific topics and information about the project. Each station will be staffed with knowledgeable staff.

Comment forms will be available to be filled out on site or an electronic version will be available. Public comments will be compiled into a report and considered during the planning stage.

Public Meeting Reception- Once schematic design is complete, an informational public meeting will be held to present information. Exhibit boards will be set up in an informal open area with detailed project scope, schematic design, renderings, and process information. Each station will be staffed with knowledgeable staff. Comment forms will be available to be filled out on site or an electronic version will be available. Public comments will be compiled into a report and made available to the public.

Social Media- A project website and other Internet tools will be set up to help keep the public connected and up to date on the project. An online survey will be available on the site to help reach community members who are unable to attend public meetings.

Environmental Justice and Disadvantaged Communities

A one-mile radius around the potential project site was selected to identify vulnerable populations more likely to experience adverse outcomes from life disruptions. Our outreach to these individuals, organizations, and agencies in these communities will focus on asking them what issues are important to them and building relationships. Additional steps will be taken to identify primary outlets that families in rural communities utilize so that planning can include realistic opportunities for them to participate in community forums and events. Based on demographic data indicating a higher number of senior population and low-income families, proper measures will be put in place to follow ADA requirements for communication disabilities and accessibility. The goal is to ensure that engagement with people with these disabilities is equally effective as with people without disabilities.

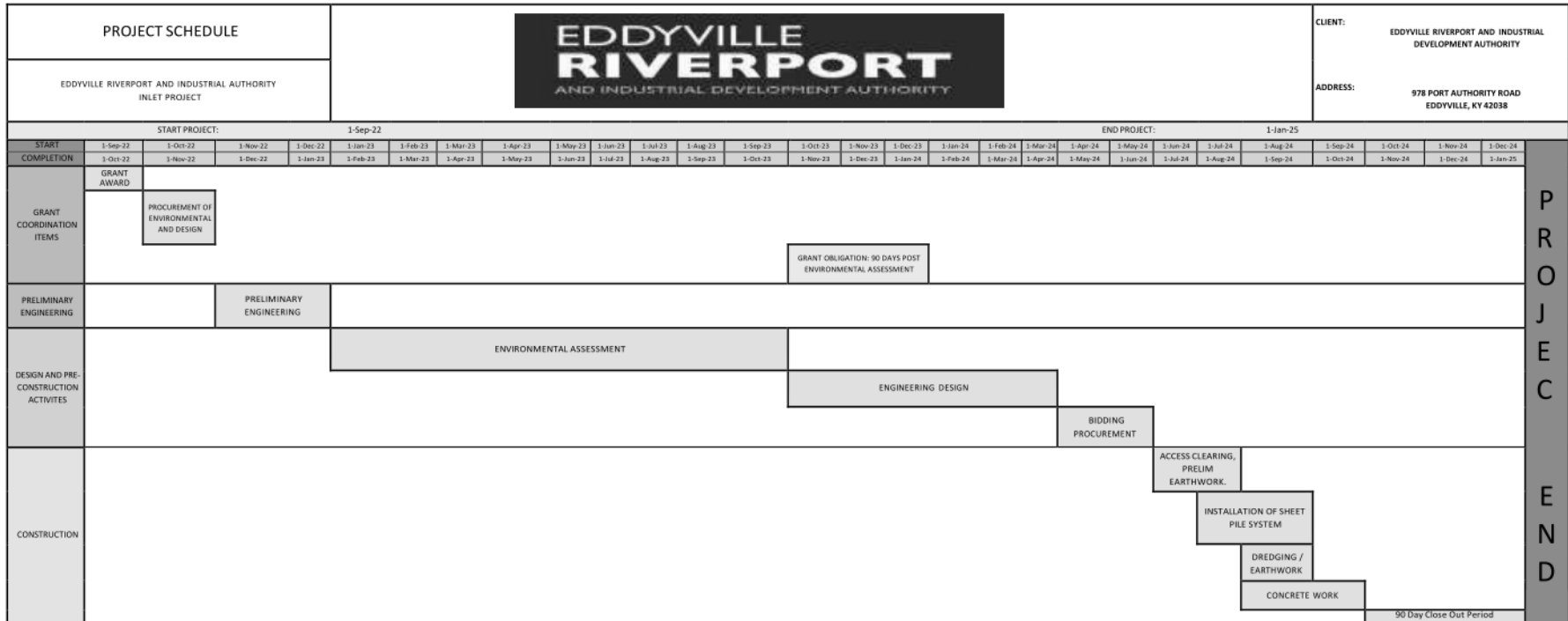


The area in yellow above is in the 80th – 90th percentile nationally for low income. It lies just beyond the 1 mile radius.- we may want to mention.

APPENDIX J

Inlet Project Schedule





PROJECT END

APPENDIX K

**EDDYVILLE
RIVERPORT**
AND INDUSTRIAL DEVELOPMENT AUTHORITY

Inlet Project MARAD CE Checklist

CATEGORICAL EXCLUSION CHECKLIST

Project(s): Eddyville Riverport Industrial Authority Inlet Project

Date: 4/29/2022

Nature of Action(s):

Exclusion Category: No. _____ Topic _____

Instructions: For the above action(s) under the subject project or group of homogeneous projects, check the appropriate answer to each of the questions below. If all the answers on this list are checked "No," then the action(s) meet the criteria for categorical exclusion. If any answer is checked "Yes" or "Uncertain," then an environmental assessment will be prepared unless there is no doubt that an environmental impact statement is required.

1. This action would have significant adverse effects on public health or safety. No Uncertain _____ Yes _____
2. This action would have significant effect on wildlife resources or would affect unique geographical features such as: wetlands, wild or scenic rivers, refuges, floodplains, etc., or lands protected by section 4(f) of the DOT Act. No _____ Uncertain Yes _____
3. This action will have highly controversial environmental effects. No Uncertain _____ Yes _____
4. This action will have highly uncertain environmental effects or involve unique or unknown environmental risk. No Uncertain _____ Yes _____
5. This action will establish a precedent for future actions. No Uncertain _____ Yes _____
6. This action is related to other actions with individually insignificant but cumulatively significant effects. No Uncertain _____ Yes _____

- 7. This action will affect properties listed or eligible for listing in the National Register of Historic Places, or otherwise protected by section 106 of the National Historic Preservation Act. No Uncertain _____ Yes _____
- 8. This action will affect a species listed or proposed to be listed as Endangered or Threatened. No _____ Uncertain Yes _____
- 9. This action is inconsistent with Federal, State, local or tribal law or requirements imposed for protection of the environment. No Uncertain _____ Yes _____
- 10. This action or group of actions would involve unresolved conflicts concerning alternative uses of available resources. No Uncertain _____ Yes _____

Conclusion:

NEPA Action-Categorical Exclusion _____
EA Required _____
EIS Required _____
Explanation and/or Remarks: _____

Preparer's Name and Title:

Concur: _____ Date: _____
(Signature, Name, and Title of Program Official)

Concur: _____ Date: _____
(Signature, Name, and Title of Environmental Activities Coordinator)

APPENDIX L



Communications with Governing Authorities

April 21st, 2022 – ERIDA Meeting with Chad Dorsey Director, Inland Waterways Gateway – Paducah Maritime Administration

- Project briefing of the ERIDA Inlet conceptual plan and commodity improvement

May 4th, 2022 – ERIDA Board notification to USACE of intent to construct inlet.
Correspondent: Kayl Kite, USACE Lake Barkley

- Project briefing of the ERIDA Inlet and impacts to USACE. Pre-application

May 5th, 2022 – ERIDA Meeting with Kristine Gilson, REM, CHMM Director Office of Environmental Compliance, Maritime Administration

- Project briefing and discussion on environmental impacts for the project.

APPENDIX M

Letters of Support Received through 5/13/2022

ERIDA PIDP INLET PROJECT Letters of Support			
Organization	Title	First Name	Last name
U.S. Senate	Senator	Mitch	McConnell
Lake Barkley Partnership	Executive Director	Amanda	Davenport
U.S. House of Representatives	Congressman	James	Comer
Louisville Riverport Authority	Vice President	Miguel	Zamora II
Owensboro Riverport Authority	President/CEO	Brian	Wright
Kentucky Association for Economic Development	President/CEO	Matthew	Tackett
Caldwell County	Judge/Executive	Larry	Curling
Farmers Bank and Trust	President	Jeff	McDaniels
Kentucky Farm Bureau Federation	President	Mark	Haney
Kentucky Department of Agriculture	Commissioner	Dr. Ryan	Quarles
Lake Barkley Chamber of Commerce	Executive Director	Deb	Domke
Pennyrile Area Development District	Executive Director	Jason	Vincent
Paducah Barge		Michael	Taylor
Kentuckians for Better Transportation	Executive Director	Jennifer	Kirchner
State Senate	Senator	Jason	Howell

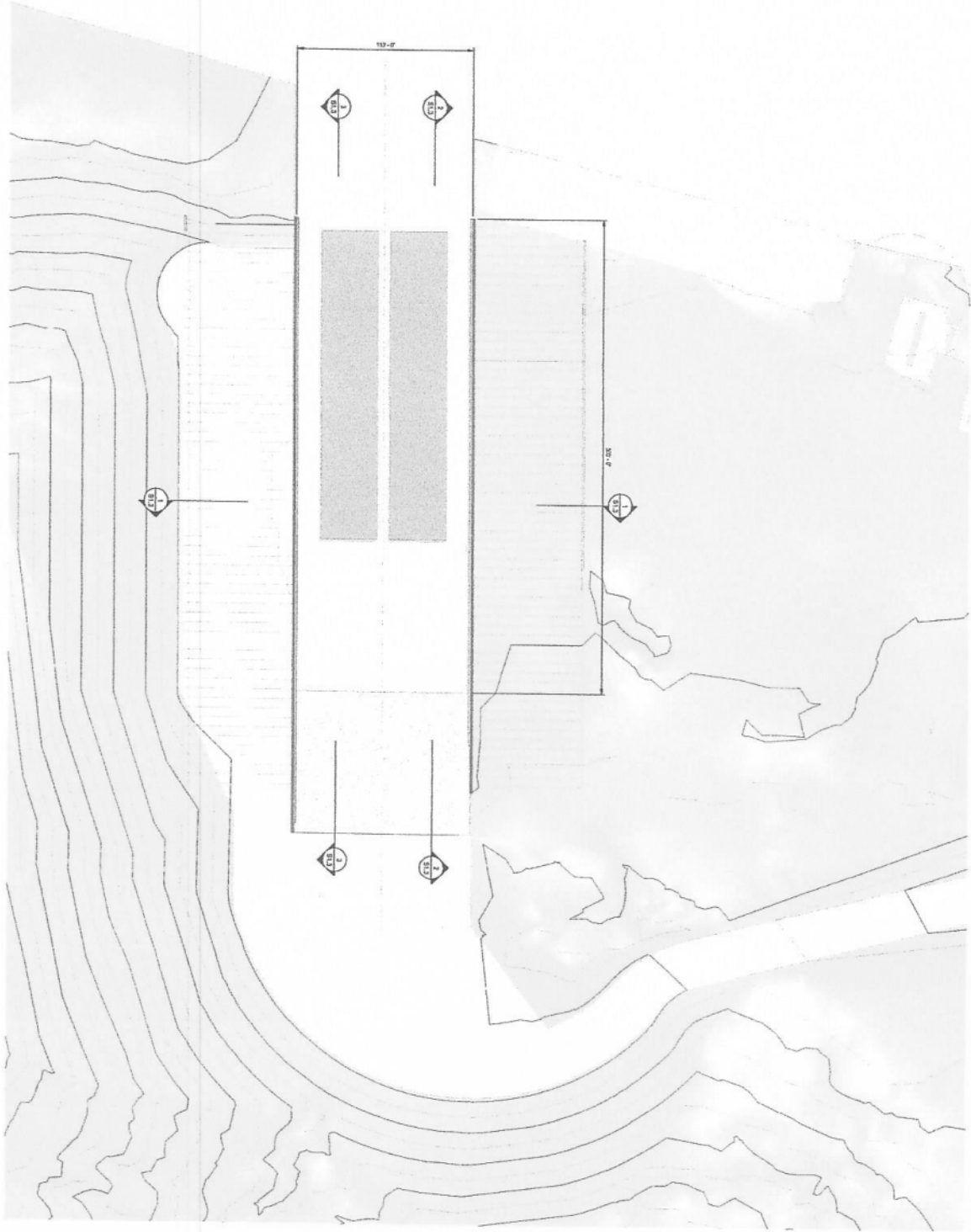
All letters of support can be viewed at:

<https://www.eddyvilleriverport.com/pidpinlet>

APPENDIX N

Inlet Project Renderings

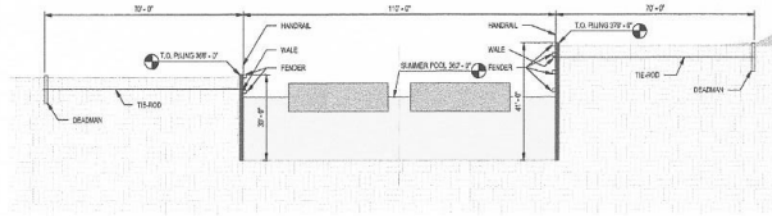




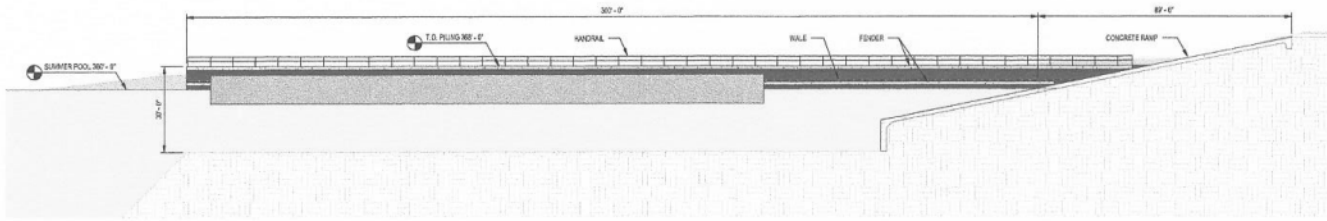
STRUCTURAL PLAN

SHEET
S1.1

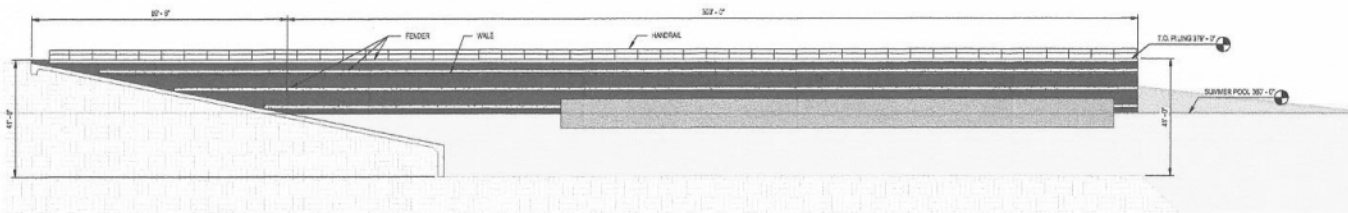
PROJECT NO. 2001	DATE: Sheet Issue Date		
DRAWN BY: Author	CHECKED BY: Checker		
REV.	DESCRIPTION	BY	DATE



1 CROSS SECTION
SCALE: 1" = 20'-0"



2 LONGITUDINAL SECTION - FACING NORTH EAST
SCALE: 1" = 20'-0"



3 LONGITUDINAL SECTION - FACING SOUTH WEST
SCALE: 1" = 20'-0"

REV.	DESCRIPTION	BY	DATE

SECTIONS

SHEET
S1.3

ATTACHMENTS FORM

Instructions: On this form, you will attach the various files that make up your grant application. Please consult with the appropriate Agency Guidelines for more information about each needed file. Please remember that any files you attach must be in the document format and named as specified in the Guidelines.

Important: Please attach your files in the proper sequence. See the appropriate Agency Guidelines for details.

1) Please attach Attachment 1	1235-ERIDA FY 22 PIDP Applica	Add Attachment	Delete Attachment	View Attachment
2) Please attach Attachment 2	1236-Appendx A ERIDA Audit Re	Add Attachment	Delete Attachment	View Attachment
3) Please attach Attachment 3	1237-Appendix B ERIDA Inlet E	Add Attachment	Delete Attachment	View Attachment
4) Please attach Attachment 4	1238-Appendix C ERIDA Inlet P	Add Attachment	Delete Attachment	View Attachment
5) Please attach Attachment 5	1239-Appendix D ERIDA Inlet M	Add Attachment	Delete Attachment	View Attachment
6) Please attach Attachment 6	1240-Appendix E ERIDA Inlet P	Add Attachment	Delete Attachment	View Attachment
7) Please attach Attachment 7	1241-Appendix F ERIDA PIDP In	Add Attachment	Delete Attachment	View Attachment
8) Please attach Attachment 8	1242-Appendix G ERIDA Non-Fed	Add Attachment	Delete Attachment	View Attachment
9) Please attach Attachment 9	1243-Appendix H ERIDA Inlet	Add Attachment	Delete Attachment	View Attachment
10) Please attach Attachment 10	1244-Appendix I ERIDA Communi	Add Attachment	Delete Attachment	View Attachment
11) Please attach Attachment 11	1245-Appendix J ERIDA Inlet P	Add Attachment	Delete Attachment	View Attachment
12) Please attach Attachment 12	1246-Appendix K ERIDA Inlet P	Add Attachment	Delete Attachment	View Attachment
13) Please attach Attachment 13	1247-Appendix L ERIDA Inlet C	Add Attachment	Delete Attachment	View Attachment
14) Please attach Attachment 14	1248-Appendix M ERIDA Letters	Add Attachment	Delete Attachment	View Attachment
15) Please attach Attachment 15	1249-Appendix N ERIDA Inlet P	Add Attachment	Delete Attachment	View Attachment

Application for Federal Assistance SF-424		
* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): <input type="text"/> * Other (Specify): <input type="text"/>
* 3. Date Received: <input type="text" value="05/13/2022"/>	4. Applicant Identifier: <input type="text"/>	
5a. Federal Entity Identifier: <input type="text"/>	5b. Federal Award Identifier: <input type="text"/>	
State Use Only:		
6. Date Received by State: <input type="text"/>	7. State Application Identifier: <input type="text"/>	
8. APPLICANT INFORMATION:		
* a. Legal Name: <input type="text" value="Eddyville Riverport and Industrial Development Authority"/>		
* b. Employer/Taxpayer Identification Number (EIN/TIN): <input type="text" value="(b)(4)"/>	* c. UEI: <input type="text" value="(b)(4)"/>	
d. Address:		
* Street1: <input type="text" value="978 Port Authority Road"/>	Street2: <input type="text"/>	
* City: <input type="text" value="Eddyville"/>	County/Parish: <input type="text" value="Lyon"/>	
* State: <input type="text" value="KY: Kentucky"/>	Province: <input type="text"/>	
* Country: <input type="text" value="USA: UNITED STATES"/>	* Zip / Postal Code: <input type="text" value="42038-7337"/>	
e. Organizational Unit:		
Department Name: <input type="text"/>	Division Name: <input type="text"/>	
f. Name and contact information of person to be contacted on matters involving this application:		
Prefix: <input type="text" value="Mr."/>	* First Name: <input type="text" value="Glen"/>	
Middle Name: <input type="text"/>	* Last Name: <input type="text" value="Kinder"/>	
Suffix: <input type="text" value="IV"/>	Title: <input type="text" value="Treasurer"/>	
Organizational Affiliation: <input type="text"/>		
* Telephone Number: <input type="text" value="6185213988"/>	Fax Number: <input type="text"/>	
* Email: <input type="text" value="gskinder4@hotmail.com"/>		

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

D: Special District Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Maritime Administration

11. Catalog of Federal Domestic Assistance Number:

20.823

CFDA Title:

Port Infrastructure Development Program

*** 12. Funding Opportunity Number:**

MA-PID-22-001

* Title:

2022 Port Infrastructure Development Program Grants

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

*** 15. Descriptive Title of Applicant's Project:**

ERIDA - Eddyville River Port Inlet Project

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant

* b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

17. Proposed Project:

* a. Start Date:

* b. End Date:

18. Estimated Funding (\$):

* a. Federal	<input type="text" value="4,912,631.00"/>
* b. Applicant	<input type="text" value="1,228,158.00"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="0.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="6,140,789.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- a. This application was made available to the State under the Executive Order 12372 Process for review on
- b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

Yes No

If "Yes", provide explanation and attach

Add Attachment

Delete Attachment

View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:
Middle Name:
* Last Name:
Suffix:

* Title:

* Telephone Number: Fax Number:

* Email:

* Signature of Authorized Representative: * Date Signed:

BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
2. Land, structures, rights-of-way, appraisals, etc.	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
3. Relocation expenses and payments	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
4. Architectural and engineering fees	\$ <input type="text" value="882,403.00"/>	\$ <input type="text"/>	\$ <input type="text" value="882,403.00"/>
5. Other architectural and engineering fees	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
6. Project inspection fees	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
7. Site work	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
8. Demolition and removal	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
9. Construction	\$ <input type="text" value="4,600,445.00"/>	\$ <input type="text"/>	\$ <input type="text" value="4,600,445.00"/>
10. Equipment	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
11. Miscellaneous	\$ <input type="text"/>	\$ <input type="text"/>	\$ <input type="text"/>
12. SUBTOTAL (sum of lines 1-11)	\$ <input type="text" value="5,482,848.00"/>	\$ <input type="text"/>	\$ <input type="text" value="5,482,848.00"/>
13. Contingencies	\$ <input type="text" value="657,942.00"/>	\$ <input type="text"/>	\$ <input type="text" value="657,942.00"/>
14. SUBTOTAL	\$ <input type="text" value="6,140,790.00"/>	\$ <input type="text"/>	\$ <input type="text" value="6,140,790.00"/>
15. Project (program) income	\$ <input type="text" value="0.00"/>	\$ <input type="text"/>	\$ <input type="text" value="0.00"/>
16. TOTAL PROJECT COSTS (subtract #15 from #14)	\$ <input type="text" value="6,140,790.00"/>	\$ <input type="text"/>	\$ <input type="text" value="6,140,790.00"/>
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter eligible costs from line 16c Multiply X <input type="text" value="80"/> % Enter the resulting Federal share.			\$ <input type="text" value="4,912,632.00"/>

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

OMB Number: 4040-0013
Expiration Date: 02/28/2025

1. * Type of Federal Action: <input type="checkbox"/> a. contract <input checked="" type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. * Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input checked="" type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. * Report Type: <input checked="" type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change
--	--	--

4. Name and Address of Reporting Entity:

Prime SubAwardee

* Name: Eddyville Riverport and Industriail Development Authority

* Street 1: 978 Port Authority Road Street 2: _____

* City: Eddyville State: KY: Kentucky Zip: 42038

Congressional District, if known: KY-001

5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:

6. * Federal Department/Agency: USDOT- MARAD	7. * Federal Program Name/Description: Port Infrastructure Development Program CFDA Number, if applicable: 20.823
--	--

8. Federal Action Number, if known: _____	9. Award Amount, if known: \$ _____
---	---

10. a. Name and Address of Lobbying Registrant:

Prefix _____ * First Name N/A Middle Name _____

* Last Name N/A Suffix _____

* Street 1 N/A Street 2 _____

* City N/A State _____ Zip _____

b. Individual Performing Services (including address if different from No. 10a)

Prefix _____ * First Name N/A Middle Name _____

* Last Name N/A Suffix _____

* Street 1 N/A Street 2 _____

* City N/A State _____ Zip _____

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

* Signature: Glen Kinder

* Name: Prefix _____ * First Name Glen Middle Name _____
* Last Name Kinder Suffix IV

Title: Treasurer Telephone No.: 6185213988 Date: 05/13/2022

Federal Use Only: _____ Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)

**EDDYVILLE
RIVERPORT**
AND INDUSTRIAL DEVELOPMENT AUTHORITY

PIDP GRANT APPLICATION

MAY 2022

INLET PROJECT

PROJECT TITLE: INLET PROJECT
PROJECT LOCATION: EDDYVILLE, KENTUCKY
APPLICATION TYPE: SMALL INLAND RIVER PORT, SMALL PROJECT
PROJECT TYPE: 5) FIXED LANDSIDE IMPROVEMENTS IN SUPPORT OF CARGO OPERATIONS
APPLICANT NAME: EDDYVILLE RIVERPORT AND INDUSTRIAL DEVELOPMENT AUTHORITY
ELIGIBILITY TYPE: PORT AUTHORITY
FUNDING REQUEST: \$4,912,631 million
TOTAL PROJ COST: \$6,140,789 million
WEBSITE: WWW.EDDYVILLERIVERPORT.COM

MARITIME ADMINISTRATION (MARAD), U.S DEPARTMENT OF TRANSPORTATION
PORT INFRASTRUCTURE DEVELOPMENT PROGRAM
PIDP FFY 2022
GRANT APPLICATION PROJECT NARRATIVE

PROJECT TITLE: INLET PROJECT
PROJECT LOCATION: EDDYVILLE, KENTUCKY
APPLICATION TYPE: SMALL INLAND RIVER PORT, SMALL PROJECT
PROJECT TYPE: 5) FIXED LANDSIDE IMPROVEMENTS IN SUPPORT OF CARGO OPERATIONS
APPLICANT NAME: EDDYVILLE RIVERPORT AND INDUSTRIAL DEVELOPMENT AUTHORITY
ELIGIBILITY TYPE: PORT AUTHORITY
FUNDING REQUEST: \$ 4,912,631million (80%)
NON-FEDERAL FUNDS: \$ 1,228,158 million (20%)
TOTAL PROJ. COST: \$ 6,140,789 million
WEBSITE: <https://www.eddyvilleriverport.com/>
APPLICATION WEBSITE: <https://www.eddyvilleriverport.com/pidpinlet>

Contact: Glen Kinder IV
Treasurer
Phone: 270-388-9671
Email: gskinder4@hotmail.com

UEI: TR91X2DUCHE9

Table 1: Required Cover Page

Field Name	Response
Name of Applicant	Eddyville Riverport and Industrial Development Authority
Is the applicant applying as a lead applicant with any private entity partners or joint applicants?	No
Project Description	This Project will fund the development and construction of a new 110' wide, 300' long, 30'- 41' deep inlet. The end of the inlet will have a concrete ramp constructed in order to allow for pulling of barges. Access will be immediately provided on the low side of the inlet. A road access is planned for future development as well and will be funded by the ERIDA.
Is this a planning project?	No, however the Project does include preliminary and design engineering for construction of the project.
Is this project at a coastal, Great Lakes or inland river port?	Inland Riverport
GIS Coordinates (in Latitude and Longitude format)	Latitude: 37.065346° Longitude: -88.070681°
Is this project in an urban or rural area?	Rural area
Project zip code	42038
Is the project located in a Historically Disadvantaged Community or a Community Development Zone?	No
Has the same project been previously submitted for PIDP funding?	No
Is the applicant applying for other discretionary grant programs in 2022 for the same work or related scopes of work?	No
Has the applicant previously received TIGER, BUILD, RAISE, FASTLANE, INFRA or PIDP funding?	No
PIDP grant amount requested	\$4,912,631
Total future eligible project costs	\$6,140,789
Total Project cost	\$6,140,789
Total Federal Funding	\$4,912,631
Total Non-Federal Funding	\$1,228,157
Will RRIF or TIFIA funds be used as part of the project financing?	No

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I. Executive Summary

The Eddyville Riverport and Industrial Development Authority (ERIDA) in Kentucky is excited to submit this Small Project at Small Ports application for \$4.9 million through the MARAD Port Infrastructure Development Program (PIDP FY22). This grant application will make port cargo operations more efficient and expand capacity to handle additional commodity tonnage by creating additional water frontage sites with the construction of a new inlet at the port site. The concrete ramp included in this inlet project also allows for additional intake of barges for at least one of the Riverport’s tenants, allowing for diversification in means and methods of product movement. The Riverport provides more resilient shipping options being located on Lake Barkley with minimal water level fluctuations that provide shippers reliable operations during extreme weather events and flooding. By adding additional capacity, the project increases the resiliency of the inland waterways.

The ERIDA Inlet Project is a rural maritime development in the Pennyriple Region of Kentucky. For the three years between 2019 and 2021, the Port averaged just over 490,000 tons of freight as shown in an independent audit included in Appendix A, qualifying the

Riverport as a small port as outlined

in the 46 U.S.C. 54301(b). ERIDA adopted a Strategic Master Plan in December 2020 that guides development and infrastructure improvements at the Riverport. The Strategic Master Plan, found in Appendix B, lays out the vision, mission and goals for ERIDA. The Plan included an extensive review of commodity flows and identified future opportunities for the Riverport to accommodate growing demand for bulk cargo transportation in the region appropriate for river transport. The market-based approach to the Master Plan provides the framework for future growth. The Plan is flexible so that as opportunities become available, the projects identified can be re-sequenced to meet current demand. The Project was identified as a long-term project targeted for completion beyond 20 years (see page 169). However, due to current interest in the Project, ERIDA is applying for this grant opportunity to construct the inlet.

The Project will enable ERIDA to provide expansion opportunities to its’ existing industries while creating opportunities for enhanced intermodal and inland waterways freight shipping. By expanding the capacity to handle additional dry and liquid bulk commodity tonnage and providing opportunities for existing tenants to maintain and expand their operations, the Project will create economic vitality for the region, which has a significant number of low-income residents. This area of Kentucky has been especially vulnerable to the shift to cleaner energy sources which has resulted in declining demand for coal. Opportunities to expand river



***Our mission is to bring people,
resources and industry together to
foster economic prosperity and family
wage jobs through strategic
partnerships and investments.***

ERIDA Strategic Master Plan 2020

commerce is a key strategy identified in the Pennyriple Region’s Comprehensive Economic Development Strategy to grow and modernize the economy and create jobs in the region. Infrastructure investments at the ERIDA Riverport are included as strategic projects in the CEDS. A copy of the CEDS can be found in Appendix C.

Local workforce training programs provide students and adult learners with course work that includes associate degrees in marine engineering, marine logistics and wheel house management as well as welding courses that include internships with one of the Port’s largest tenants, Paducah Barge, where they work with full time staff in the construction of barges that are used extensively on inland waterways and the Marine Highway System. The Project, once constructed, will complement and build on these workforce training opportunities.

Lyon County Kentucky, where the Riverport is located, has a poverty rate of 14.4% with 20.3% of the population over 25 without a high school diploma. In addition, 26% of the population is over the age of 65 and another 26.1% of the residents under the age of 65 have a disability¹. The ERIDA Board is proactively working to create living wage jobs to retain younger cohorts in the area and attract additional residents to the region. As part of the strategy to create living wage jobs, ERIDA is part of the Lake Barkley Partnership.

The Lake Barkley Partnership was originally formed as the Caldwell-Lyon Partnership for Economic Development more than 20 years ago as a joint effort to consolidate resources for economic development in Western Kentucky. Since that time, the Partnership has worked on several successful manufacturing project expansions at Hydro-Gear, Par 4 Plastics, TreeHouse Foods and Porter Road; certification as a Work Ready Community in Caldwell, Crittenden, and Livingston counties; and certification of a Build Ready Site in Caldwell County. The Partnership is a regional approach to economic development that builds on the strengths of the partners helping the region. Additionally, ERIDA has recently approved the construction of two build ready sites at their Industrial Park located near the Riverport.

The ERIDA Board also completed an *Environmental Justice and Racial Equity Impact Analysis* for the Project to better understand the community context of the project and to plan, design, and implement the Project without negatively impacting surrounding communities vulnerable to climate change. As discussed in more detail in Section V. C., the analysis concluded that the Project would not have a disproportionate negative effect on low-income and elderly populations in the area and the benefits resulting from the Project would accrue equitably to all community members. As part of the Project, a Public Involvement Plan has been developed to provide information to all residents and to offer opportunities to provide input or raise concerns during development and execution of the Project.

A Disadvantaged Business Enterprise (DBE) goal will be developed based on the project work items and the number of Kentucky Transportation Cabinet certified DBE firms available to

¹ <https://www.census.gov/quickfacts/lyoncountykentucky?msclkid=3de8c299ce4c11ec86858b776ed69c87>

perform the work. The work will be performed by contractors required to comply with Federal prevailing wage requirements. Many of the contractors in Western Kentucky work with union labor, and if the lowest bidder is a union contractor, the Project will support union jobs.

Exhibit 1 provides a summary of the proposed Project outlining the current and future conditions of the Riverport.

Exhibit 1: Summary of Proposed Project Current and Future Conditions

Improvement	Current Condition	Future Condition
Inlet (110' wide, 300' long, 30' – 41' deep)	Limited waterfront access	Increased waterfront access and doubling loading/unloading capacity
Addition of 110' wide concrete ramp	Limited off-loading and loading conditions	Diversified product movement

Project Location

Latitude: 37.065346° Longitude: -88.070681° Census Tract 21143960101.

Exhibit 2: Project Location



Eddyville, is in rural Kentucky. The Riverport is positioned on Lake Barkley. The lake levels are regulated year-round via Barkley Dam. As a result, the Riverport currently possesses approximately 5,850 feet of waterfront that is not susceptible to large river level fluctuations which makes it the only Riverport in Kentucky that is not impacted by flooding. To date, there are 60 acres with direct waterfront access and 190 acres with access via conveyor, pipe, or short haul. Exhibit 2 provides an overview of the Project location.

Project Parties

Funding for the Project is being provided by ERIDA from revenues generated at their facilities at the Riverport and Industrial Park for the non-Federal share. A copy of the Riverport’s balance sheet is included in Appendix D. ERIDA is requesting PIDP funds in order to complete the Project as expeditiously as is needed to meet current demand.

Grant Funds, Sources, and Uses of Project Funds

Exhibit 3: Sources of Funds

Source	Status	Amount (\$ in millions)	Percent Contribution (%)
PIDP FY22 Discretionary Grant	Requested	\$4,912,631	80%
Federal – other		\$0	0.0%
Federal		\$4,912,631	80%
Local- ERIDA	Committed	\$1,228,157	20%
Non-Federal		\$ 1,228,157	20%
TOTAL		\$6,140,789	100%

Merit Criteria

Project Meets Grant Statutory Criteria

- ✓ The Project is a small project at a small port in a rural area with a 3-year average annual tonnage for 2019 – 2021 of just over 490,000 tons as shown by an independent audit.
- ✓ The Project meets the non-Federal share requirement with a 20% funding commitment from the ERIDA Board.
- ✓ This Project is low risk and can be under construction before the required obligation date of September 30, 2025.

Exhibit 4: Criteria Summary

Meets Criteria	Description
<i>a) Merit Criteria</i>	
<i>i. Safety, efficiency, or reliability improvements</i>	
Loading and unloading goods at a port	The Project, when completed, will improve the throughput of the Riverport by providing additional waterfront access for loading and unloading bulk commodity cargoes including grain, fertilizer, aggregate and metals. The new ramp at the end of the inlet will provide tenants and potential tenants with the ability to pull barges directly onto land without having to raise them out of the water. The Riverport recently had to forego a new tenant opportunity because this capability was currently not available.
Movement of goods into, out of, around, or within a port	The Project will result in improved movement of goods with the addition of the inlet that is engineered to maximize efficiency and flow of traffic on both the land and water side of the Riverport.
Operational improvement, including projects to improve resilience	The Project will make operations of the Riverport more efficient and allow area shippers the benefits of reliable access to the inland waterway system due to minimal water fluctuations at the

	Riverport. Operationally, the location of the Riverport on a lake also requires less dredging than other Riverports located directly on rivers, reducing ongoing maintenance demands.
Environmental and emissions mitigation measures	The goal of the Project is to expand capacity and enhance the reliability of goods moving via the inland waterways. Exhibit 10 illustrates the energy efficiency of the inland waterway barge industry. The Project also will improve the throughput of goods being transported to final destinations, reducing inside the gate congestion, decreasing truck fuel usage and related emissions.
<i>ii. Economic Vitality</i>	
Impact on economic advantage of the port	The Project will double the throughput capacity of the port making it a viable option for area shippers needing to reach markets outside the area. The Project is proposed based on current interest in the Riverport to expand existing tenant operations and attract an additional tenant needing the added waterfront access.
Contribution to freight transportation at, around and through the port	The Project will provide surface transportation access to the added water frontage that is engineered to improve the flow of goods moving to and from the new barge access created by the Project. On the water side, the addition of the inlet creates more waterside access increasing the ports capacity to transload goods more efficiently.
Overcoming competitive disadvantages	The added waterfront access with the addition of the Inlet Project is an innovative approach to increase waterside capacity of the Riverport within its existing footprint. This provides area farmers more access to a nearby outlet rather than shipping grain to facilities at ports further away. As mentioned above, the new ramp at the end of the inlet provides tenants and potential tenants the ability to pull barges directly onto land without having to raise them out of the water. The Riverport had to forego a new tenant opportunity because this capability was unavailable.
<i>iii. Climate Change and Environmental Justice</i>	
Greenhouse gas reduction	Added capacity to transload bulk dry and liquid cargo truck-to-barge and barge-to-truck at the Riverport, results in reduced harmful emissions per million-ton-miles for commodities shifting to the waterways. In addition, by adding capacity, less repositioning of barges will be required, reducing fuel usage by tow boats thereby lowering emissions at the Riverport. See Section V. C. for additional information.
Promote energy efficiency	The Project will promote energy efficiency by providing additional capacity for area shippers to move product via the inland waterways. As shown in Section V.C., a truck moves a ton of freight 59 miles on a gallon of fuel compared to 202 miles per gallon via railroad and 514 miles per gallon via an inland waterway tow. Also, as noted above, the Project will reduce the repositioning

	of barges for transloading, which lowers the fuel usage required to move freight through the Riverport.
Increase climate resilience of port infrastructure	The Project increases climate resiliency of the inland waterway freight system by increasing capacity at the Eddyville Riverport which does not experience the fluctuations in water levels due to more extreme weather events since water levels are controlled and do not fluctuate. This allows for continued movement of goods in and out of the Riverport and further up and down stream as long as channels on the connecting rivers are navigable.
Public Involvement Plan	A detailed Public Involvement Plan (PIP) has been developed for the Project and will be implemented across all phases of project development and delivery. More information can be found in Section V. C.
<i>iv. Advancing Equity and Opportunity for All</i>	
Advance equity (impact analysis, DBE, outreach, jobs, PLA, apprenticeships)	ERIDA has conducted an <i>Environmental Justice and Racial Equity Impact Analysis</i> for the Project with results discussed in Section V. C. ERIDA is committed to establishing a DBE goal as appropriate for the Project and project development.
Promote workforce opportunities	ERIDA is supported in expanding workforce opportunities through two area institutions. The West Kentucky Community and Technical College has a Marine Technology program specifically to support river industries in Western Kentucky which includes associates degrees in marine culinary management, marine engineering, marine logistics, and wheelhouse management. Additionally, the Caldwell Regional Career Center offers welding courses with some students placed in internships with Paducah Barge in constructing barges at their facility at the Riverport.
<i>vii. Leverage of Federal Funding</i>	
Efforts to improve non-federal leverage	Through the Lake Barkley Partnership, ERIDA is working to bring additional funding partners to assist with the non-federal contribution to the Project. The Board is also approaching tenants and potential tenants that will benefit from the Project to contribute resources for project development and construction.
<i>b) Project Readiness</i>	
Technical capacity	ERIDA regularly consults with design engineering firms with extensive experience in Phase I, Phase II, Testing, and Construction Engineering. The Board retains legal services and is prepared to retain the services of an experienced federal grants manager to support the technical capabilities of the Board, Board Treasurer, and Lake Barkley Partnership leaders. ERIDA has also successfully delivered prior grant funded initiatives at both the state and Federal level. A list of prior grants receive by ERIDA are provided in Appendix E.

Environmental Risk	ERIDA’s initial review of the project has determined that the site will require an Environmental Assessment based on a review of MARAD’s Categorical Exclusion checklist and preliminary coordination with MARAD personnel. In an effort to reduce timeline gaps, ERIDA has reached out to establish communications with the appropriate resource agencies and by submitting a pre-application to the USACE.
Risk Mitigation	A Risk Mitigation matrix is included in Section VI. A. 3.
<i>c) Domestic Preferences</i>	
	The Project components will comply with domestic preferences including Buy American. Additionally, when fully implemented, the Project will provide more reliable supply chains for American products used in construction and agriculture.

II. Project Description

The ERIDA inlet project was identified in its recently completed Master Plan as a long-range project needed to make the Riverport more competitive. Due to development interests and market demand, the Project is being accelerated.

The width of the inlet is proposed as 110’ which is based on a three (3) barge width, and the lock widths located near the Riverport. The length of the inlet, 300’, was determined based on additional waterfront needs, the concrete ramp proposed at the end of the inlet, and land topography. It is anticipated that the inlet will be approximately 30’ in depth on the low side of the inlet, and 41’ in depth on the high side of the inlet. The depths were estimated based on the summer pool elevation of 360 feet, which is the critical design elevation, maintaining an approximate 22-foot depth based on existing lake floor elevations. The concrete ramp at the end of the inlet is proposed to be the full width of the inlet, with an estimated concrete depth of 18 inches to allow for heavy loading. The grade is designed such that barges, scrap metal, or other large products can be pulled up the ramp for offloading instead of being lifted.

Upon construction completion, existing and prospective tenants will be able to use the inlet immediately on the low side. A future phase of this project includes a gravel or paved road development to create another loading and offloading space on the high side of the inlet. The height of the high side of the inlet considers this future expansion capability. The current design status is preliminary conceptual, with enough consideration given to know the project is sustainable as proposed. Preliminary concepts have been developed (Appendix N) based on recent maintenance projects performed by ERIDA, including a refacement and structural repair of the main dock, as well as the installation of a sheet pile wall along the waterfront for stabilization. Nearby project data was beneficial in assumptions made for conceptual design both in cost and technical aspects. Full engineering design is included in the grant request, as well as environmental permitting and assessments.

III. Project Location

Latitude: 37.065346° Longitude: -88.070681° Census Tract 21143960101.

ERIDA’s Riverport resides in Lick Creek, a bay of Lake Barkley that has sufficient water depth throughout the year and boasts 10 Mooring Cells spanning nearly 2,000 feet along the Riverport’s lakefront plus two additional Mooring Cells in the Lick Creek Bay that are stationed 100 feet apart for additional fleeting opportunities. In addition to the mooring cells, the Riverport has 100+/- feet of seawall apron for ease of loading and unloading. Recently the ERIDA completed a project to lengthen the seawall at the Riverport, providing additional waterfront opportunities which made the Riverport the only one in Kentucky located on a lake which receives limited silting buildup. This minimizes the need for regular dredging.

Even though ERIDA’s transportation infrastructure accessing its facilities needs upgrades, it currently has easy connections to major interstate highways (i.e., I-24 and I-69) as well as rail access at the Industrial Park portion of ERIDA’s property. Additionally, ERIDA is geographically positioned approximately 100 miles from an international airport.

The ERIDA is physically located at 978 Old Railroad Road in Eddyville, Kentucky on Lake Barkley, part of the Cumberland River. The ERIDA is a small port moving 502,000 tons in 2019, 428,000 tons in 2020, and 540,000 tons in 2021 for a three-year average of 490,000 tons as shown in Appendix A. For the last three years, 84% of the average tonnage came from farm commodities and another 15.5% was fertilizer.

IV. Grant Funds, Sources, & Uses of Project Funds

The Project brings together various regional partners focused on economic development and maximizing the benefits of the only Kentucky Riverport located on a lake, which increases resiliency of goods movement and limits necessary maintenance expenditures on dredging.

A. Project Costs

The ERIDA is requesting \$4.9 million to develop the Project. The Project budget below depicts how the funds received from the PIDP grant award will be allocated toward Project costs.

Exhibit 5: Project Costs by Category

Eddyville Riverport and Industrial Development Authority Inlet Project	
Cost Category	Amount
Construction	\$4,600,445
Professional Services	\$882,402
Contingency	\$657,942
Total Cost	\$6,140,789

A detailed cost summary is included in Appendix F.

B. Eligible Costs, Sources, and Amount of Funds

Exhibit 6: Sources of Funds

Source	Status	Amount \$s in millions	Percent Contribution (%)
PIDP FY22 Discretionary Grant	Requested	\$4,912,631	80%
Federal - other		\$0	0.0%
Federal		\$4,912,631	80%
Local- ERIDA	Committed	\$1,228,158	20%
Non-Federal		\$ 1,228,158	20%
TOTAL		\$ 6,140,789	100%

C. Documentation of Funding Commitments

The ERIDA Board has committed to funding up to 20% of the non-Federal share and is working to secure funding commitments from tenants and other area stakeholders. Documentation on all non-Federal funding commitments can be found in Appendix G.

D. Amount and Nature of Federal Funds

Exhibit 7: Summary of Sources and Uses of Funds by Agency

Source PIDP FY21 Grant Request	Amount in Millions	Percent Contribution (%)	Use
Federal			
PIDP FY22 Discretionary Grant	\$4,912,631	80%	Final Design /Env. /Construction
Total Federal Funding	\$4,912,631	80%	
Non-Federal /Local Funding			
ERIDA	\$1,228,158	20%	Construction
Total Non-Federal Funding	\$1,228,158	80%	-
	\$6,140,789	100%	

E. Use of Funds by Source

Exhibit 8: Sources and Uses of Funds

Eddyville Riverport and Industrial Development Inlet Project			
Funding Sources	Amount	Status	Purpose
ERIDA	\$1,228,158	Committed	Construction
PIDP FY 22	\$4,912,631	Requested	Construction/ Professional Services/Contingency
Total Project Funding	\$6,140,789		
Total Federal	\$4,912,631	80%	
Total Local	\$1,228,158	20%	
Total Private	0	0%	

V. Merit Criteria

A. Achieving Safety, Efficiency, or Reliability Improvements

Loading and unloading of goods at a port

The Project, when completed, will improve the throughput of the Riverport by providing additional waterfront access for loading and unloading bulk commodity cargoes including grain, fertilizer, aggregate, and metals. The inlet will be 110' wide and 300' long and include a sheet pile and tie back system. The standard dry hopper river barge is 35' wide and 195' long. The Project will accommodate a standard three-wide dry hopper barge configuration providing loading and unloading capabilities for 4,500 tons which doubles the Riverport's current capacity. The standard liquid tank river barge is between 35' and 54' wide and 150' to 300' long. The Project will accommodate between two to three liquid tank barges simultaneously.

This increase in transloading capabilities at the Riverport will reduce the need to reposition barges, thereby making loading and unloading more efficient in both crew resources and fuel consumption. The Project effectively adds 900' (three barge lengths) of waterfront access which is 15% more than the current 5,280'.

Movement of goods into, out of, around, or within a port

The Project will result in improved movement of goods with the addition of the inlet and access via a road on the low side of the inlet that is engineered to maximize efficiency and traffic flow on both the land and water side of the Riverport. With the effective 15% increase in waterfront access, the movement of goods both into and out of the facility will be enhanced.

According to the U.S. Grains Council, there are 39.368 bushels of corn in a metric ton. The increased capacity will allow the port to transload over 177,000 bushels of corn without repositioning barges. This is over 2% of the 3-year annual average tonnage of corn handled by the Port. Similarly, the U.S. Soybean Export Council indicates that there are 36.74 bushels of soybeans in a metric ton which will increase the capacity of transloading soybeans by over 165,000 bushels without having to reposition barges. This is almost 4.6% of the 3-year average annual tonnage of soybeans handled by the Port.

Operational improvement, including projects to improve resilience

The Project will make operations of the Riverport more efficient and allow area shippers the benefits of reliable access to the inland waterway system due to minimal water fluctuations at the Riverport. Operationally, the location of the Riverport on a lake also requires less dredging than other riverports located directly on rivers.

Environmental and emissions mitigation measures

The goal of the Project is to expand capacity and enhance the reliability of goods moving via the inland waterways. Exhibit 10 illustrates the energy efficiency of the inland waterway barge industry. The Project also will improve the throughput of goods being transported to final destinations which reduces inside the gate congestion and decreases truck fuel usage and related emissions.

B. Supporting Economic Vitality at the Regional Level

Economic Advantage of a Small Port

The Project will increase the throughput capacity of the Port making it a viable option for area shippers needing to reach markets outside the area. The Project was developed based on current interest in the Riverport to expand existing tenant operations and attract additional tenants needing the added waterfront access.

Right now, the Riverport primarily supports the regional agricultural industry through inbound fertilizer distribution and outbound commodity movement. Being a small port in a rural community allows the Riverport to provide efficient service to regional farmers in Caldwell, Crittenden, Livingston, Lyon, and Trigg counties. The value of commodities of grain, corn, and soybeans from this region is over \$210 million from the most recent USDA Census of Agriculture. Access to the Riverport saves the farming industry fuel and labor costs by bringing their products to the Riverport located within 40 miles of most farms instead of driving 75 miles to the other riverports in either Paducah or Owensboro. The extra time saved by utilizing this regional port generates a return of time and labor to support the harvesting and planting seasons. The majority of surrounding farms are family owned with only one or two producers working on each farm. Regionally, farming is a major industry and economic driver. We have over 2,000

farms in the region which creates nearly 3,200 jobs. Those jobs account for 20% of our regional labor force making agriculture the second largest industry behind manufacturing.

The 2022 Russian invasion of Ukraine has severely impacted global food supply, specifically the wheat production. Our region alone produces sales over \$110 million in wheat. Having a regional port allows our farmers to effectively move their product to market and ensures that the food supply continues without additional supply chain disruption.

Contribution to freight transportation

The Project includes an access road to provide surface transportation access to added water frontage. The access road will improve the flow of goods moving to and from the new barge access created by the Project. On the water side, the addition of the inlet creates more waterside access increasing the Riverport's capacity to transload goods more efficiently.

ERIDA is a unique organization which owns and operates both as a public riverport and a public industrial park with rail services. This is the only organization in the state to own two types of industrial assets. Both the Riverport and Industrial Park are located within two miles of Interstate 69 and Interstate 24 giving the area direct access to both north-south and east-west transportation networks. ERIDA is currently making industrial site improvements at the Industrial Park to accommodate more and larger economic development projects and industrial recruitment efforts. The Riverport is effectively out of waterfront access at the Port. This inlet allows the port to develop more access to the water and it makes loading and unloading much easier. This expansion also allows the Riverport to ensure they have enough capacity to support multimodal transportation projects between rail transportation at the Industrial Park and water transportation at Riverport.

The Eddyville Riverport is also located along I-69 between Glendale, Kentucky and Stanton, Tennessee, home to both Ford and SK Innovation battery plants. Having river, road, and rail access allows our community to become competitive in the supply chain development for electric vehicles. As we move to more sustainable transportation modes, being in the middle of the innovation hub for battery development will benefit our region.

Overcoming competitive disadvantages

The added waterfront access with the addition of the Inlet Project is an innovative approach to increase waterside capacity of the Riverport within its existing footprint. This provides area farmers more access to a nearby outlet rather than hauling grain to facilities at ports further away to ship to markets for processing or final delivery. The addition of the ramp at the end of the inlet overcomes one competitive disadvantage by allowing barges to be pulled out of the water without having to lift them out. ERIDA missed out on a recent industrial development opportunity since it currently lacks this capability.

Rural communities are at a disadvantage when competing for industrial projects usually due to workforce challenges, transportation infrastructure, and perceptions that exist with decision

makers based in urban areas helping companies to find new locations. The Eddyville Riverport has been working to overcome these disadvantages by partnering with the Lake Barkley Partnership on a regional marketing campaign to change the narrative about what it means to be in a rural community. The West Kentucky region has strong workforce partners through the local school systems, regional career center, three community colleges within our service territory, and partnership with Murray State University. In addition, the Riverport has multiple modes of transportation to get products to market quickly. However, we need to develop additional ways to access the waterfrontage at the Riverport. This project not only increases our capacity to serve our existing industries by creating space for more barges, it also makes loading products easier with the new ramp. Though our primary industry is in the service of agriculture, we have a growing niche in the barge and boat service industry. Two tenants at the Riverport are in the construction and repair industry for barges and pleasure boats. This inlet also allows these organizations to expand their operations.

C. Addressing Climate Change and Environmental Justice Impacts

Greenhouse gas reduction

Providing additional capacity to offer shippers water transportation encourages movement by the mode with the least emissions per ton mile. According to a Texas Transportation Institute study completed in 2017, an inland waterway tow produces 15.6 tons of Greenhouse Gas (GHG) emissions per one-million-ton miles compared to rail which produces 21.2 tons and diesel trucks which produce 154.1 tons of GHG emissions per one-million-ton miles. Table 2. illustrates the modal comparison of emissions included in the TTI study.²

Table 2: Summary of Emissions - Grams per Ton Mile 2014

Emissions (grams/ton mile)					
Mode	HC (VOC for Truck)	CO	NO _x	PM	CO ₂
Inland Barge Tow	0.0094	0.0411	0.2087	0.0056	15.62
Railroad	0.0128	0.0558	0.2830	0.0075	21.19
Truck	0.08	0.27	0.94	0.05	154.08

An inland barge tow produces 26% less GHG emissions than rail and 90% less GHG emissions than trucks per one-million-ton-miles. Additionally, by increasing capacity at the Riverport the number of tow movements are reduced, thereby lowering emissions at the Riverport.

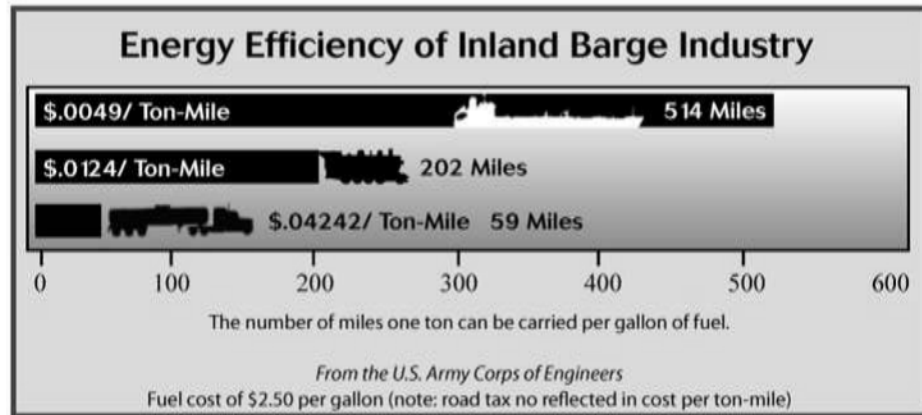
² <http://nationalwaterwaysfoundation.org/documents/Final%20TTI%20Report%202001-2014%20Approved.pdf>

Promote energy efficiency

There currently is not a State of Kentucky Climate Action Plan, Equitable Development Plan, or an Energy Baseline Study. There also are not any at a regional or local level.

However, there are Project measures to increase energy efficiency which include:

Exhibit 9: Efficiency of Barge Transportation



1. Transportation - Supporting alternative-fueled technology and implementing systems that increase the efficiency of transportation and reduce energy consumption.

The goal of the Project is to expand capacity and enhance the reliability of goods moving via the inland waterways. Exhibit 10 illustrates the energy efficiency of the inland waterway barge industry. The Project also will improve the throughput of goods being transported to final destinations, reducing inside the gate congestion, and decreasing truck fuel usage.

Exhibit 10: The Efficiency of Barges versus Truck and Rail

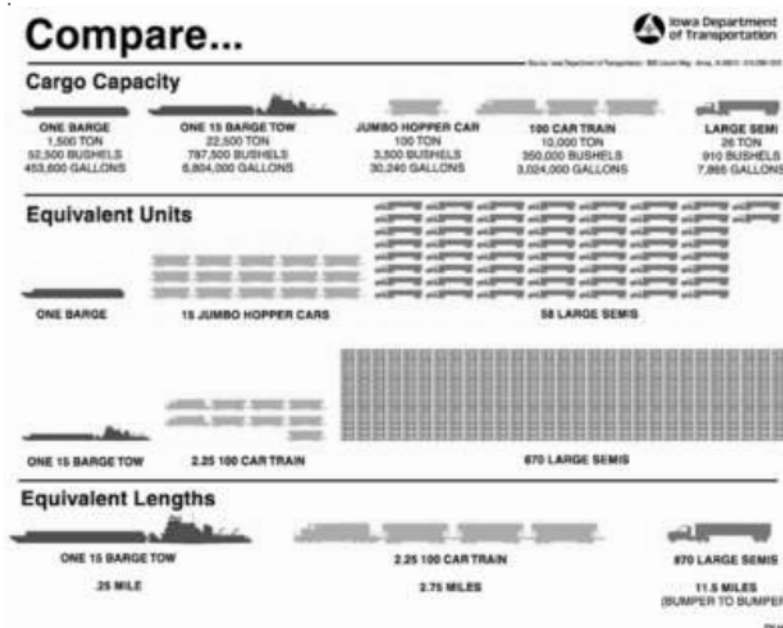


Exhibit 10 displays the efficiency of a barge versus other transportation modes. This Project intends to remove heavy loads off the local roads by moving bulk materials by barge on the waterways.

2. Energy Conservation and Efficiency - Employing energy strategies in buildings and exterior spaces that save money on utility costs, reduce GHG emissions and provide other community benefits.

Increase climate resilience of port infrastructure

The Project increases climate resiliency of the inland waterway freight system by increasing capacity at the Eddyville Riverport which does not experience the fluctuations in water levels due to more extreme weather events since water levels are controlled by dams. This allows for continued movement of goods in and out of the Riverport and further up and down stream as long as channels on the connecting rivers are navigable. Nearby riverports are addressing climate resiliency with the addition of flood walls; however, as rainfall increases and events become more intense, the additional flooding will make the Eddyville Riverport the only viable option for regional shippers.

The four characteristics and filters included under “Climate Exposure” in Neighborhoods at Risk are indicators of land area that may experience more significant impacts from climate change. These variables (hurricane flood zones, floodplains, impervious surface, and lack of tree canopy) represent characteristics of the physical environment that make a population more or less vulnerable to climate change by affecting the likelihood of extreme heat and flood events.

The following are the Climate exposure characteristics for the Project Area

Climate Exposure	Tract 9601	Lyon County, KY
Area lacking tree canopy	67.2%	55.1%
Area of impervious surface	1.0%	0.5%
Area in 500-yr floodplain	0%	0%

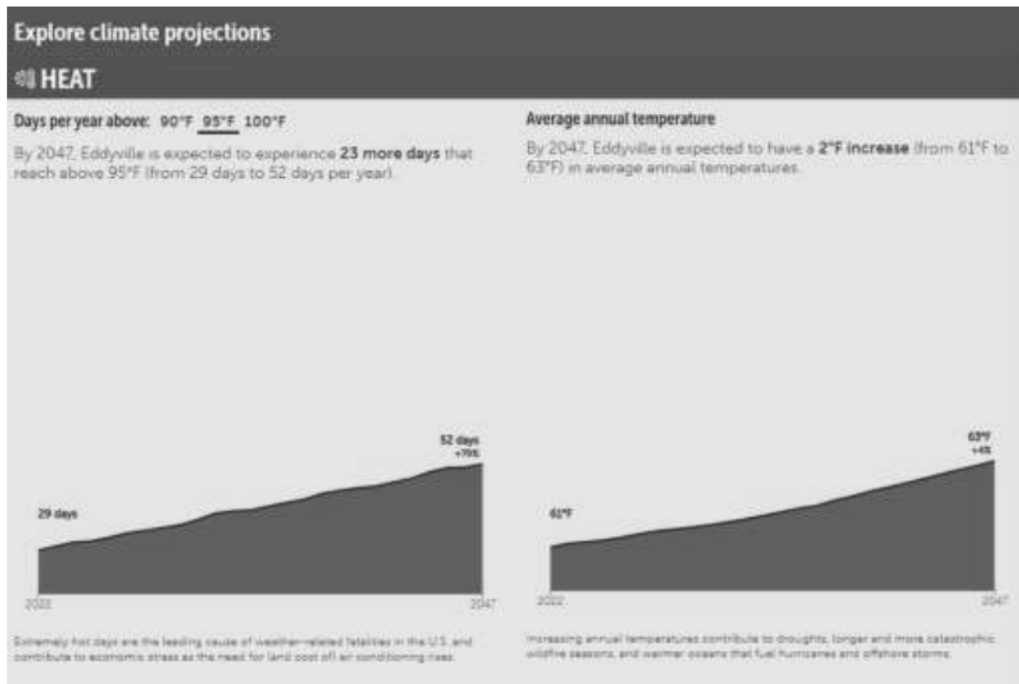
It should be noted that since this is an inland location, the Climate Exposure characteristics only display three of the four variables as hurricane flood zones, the fourth variable, is not applicable for this area.

Based upon these three characteristics as well as land use, etc. the Neighbors at Risk Model predicts that by 2047, Eddyville is expected to experience a 79% increase in extremely hot days and a 11% increase in days with heavy precipitation within the next 25 years.

It is forecasted that the City of Eddyville will experience 23 more days that reach above 95°F than is expected in 2022. Average Annual Temperature by 2047 is anticipated to increase 2°F from 61°F in 2022 to 63°F in 2047.

If Emissions continue to grow, it is anticipated that there will be 0.8 more days with precipitation above 1”. Average annual precipitation is expected to have increased by 1.3” from 48.4” to 49.7” by 2047.

Exhibit 11: Climate Projections in 2047



If Eddyville can lower their emissions over the next 25 years, this increase can be reduced by 0.4 days, reducing the annual precipitation by 0.3” in average annual precipitation.

Exhibit 12: Precipitation Projections under a Higher Emissions Scenario

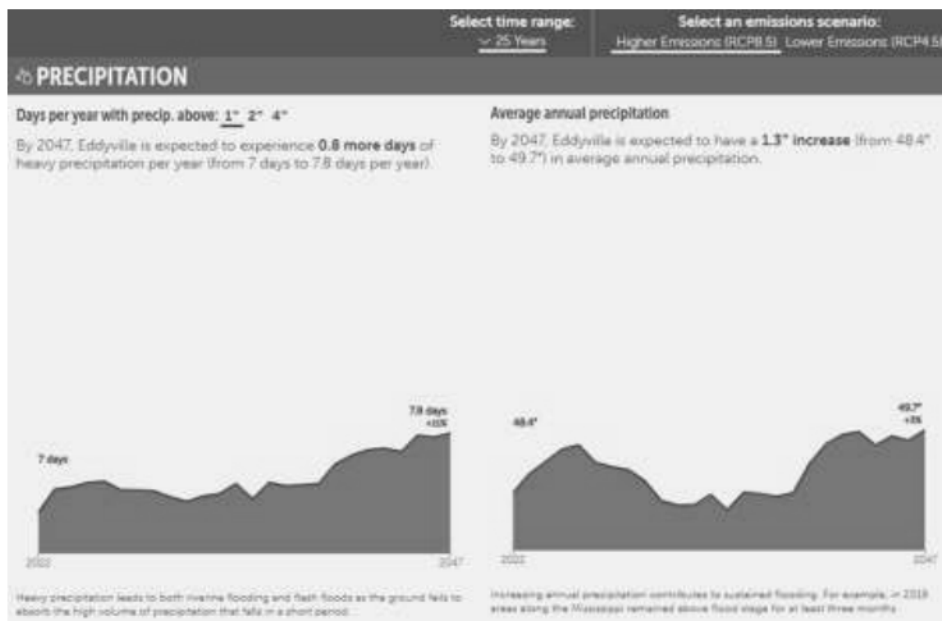
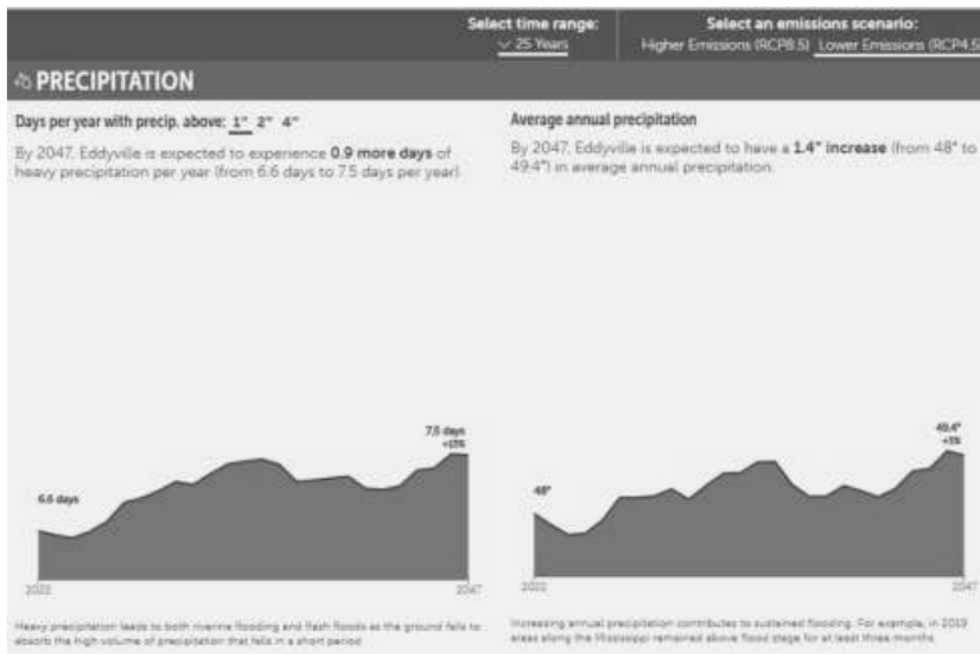


Exhibit 13: Precipitation Projections under a Lower Emissions Scenario



There are 232 properties in Eddyville that have greater than a 26% chance of being severely affected by flooding over the next 30 years. This represents 15% of all properties in the City. This count includes all property types with flood risk including vacant land and properties with unknown land use type.

In addition to damage on properties, flooding can also cut off access to utilities, emergency services, transportation, and may impact the overall economic well-being of an area. Overall, Eddyville has a moderate risk of flooding over the next 30 years, which means flooding is likely to impact day to day life within the community.

Flooding is the most expensive, natural disaster in the United States, costing over \$1 trillion in inflation adjusted dollars since 1980.

FEMA flood maps identify over 1.1 million miles of flood hazard areas, and while the maps can provide detailed information for homeowners on their flood risks, they are not available everywhere. Flood Factor's national flood model shows that flood risk is more widespread in the United States, with over 25 million properties at risk over the next 30 years. Flood Factor also includes flood risk from urban stormwater flooding, storm surge, and future conditions like sea level rise.

Flood factor is most powerful when used in conjunction with the FEMA flood maps and other available state and local flood risk resources. Flood Factor should be viewed as complementary to the adopted FEMA flood maps for a community, which need to be used for building and permitting purposes.

Flood Factor allows individuals and companies to easily view the model's flood risk information at the property level, and provides useful information on potential actions to mitigate flood risk.

Exhibit 14: Flood Risk in 30 years (2052)



As illustrated in Exhibits 14 and 15, the Riverport is at risk of flooding in the future if emissions continue to increase as projected by scientists. With that knowledge, it is imperative for the Riverport to do all it can to decrease Climate Change. As noted above, reducing emissions can reduce the projected rainfall both in duration and in level. This Project is a step in the right

direction by offering an expanded facility that can take trucks off the road and move bulk cargo more efficiently and reduce emissions by moving the product by barge versus truck.

Exhibit 15: Infrastructure at Risk



Climate Change and Environmental Justice

ERIDA commissioned a *Racial Equity and Environmental Justice Impact Analysis* specifically for this project. The full report can be found in Appendix H. As seen from the results of the various Environmental Justice (EJ) mapping tools and data collected, it is important to understand the Project and the potential impacts it may have on disadvantaged populations. Using multiple lenses through different Environmental Justice data tools helps refine the characteristics of the surrounding area. Fine tuning the scope of the analysis from the city level to the Census Tract to the Census Block and finally a one-mile radius around the project area, helps to inform planners and designers in developing their public outreach efforts. Using the characteristics of the populations near the project and evaluating project elements that could impact the underserved populations will help planners ensure negative impacts are identified and accounted for through mitigation efforts.

Since Eddyville and the surrounding Lyon County area is sparsely populated, the Census Tract 9601 is one of three Tracts that Lyon County encompasses. US EPA's EJ Screen indicates that the area surrounding the project is not considered an EJ area. However, it does show that within a one-mile buffer around the project, the population with less than a high school degree are in the 62nd percentile for the Commonwealth of Kentucky and 71st percentile for the nation. Additionally, the population over the age of 64 are in the 54th percentile for Kentucky and 59th for the U.S.

Once potential impacts are identified, then specific outreach can be designed to inform the affected populations and develop mitigation options as appropriate. Any activities and projects that reduce vehicle miles traveled and reduce vehicle idling will improve the air quality of the surrounding area as well as help reduce the effects of GHG on climate change. Since the project is wholly contained on Riverport property, it is unlikely to have any direct impacts on the disproportionately elderly population.

Public Engagement and Outreach is a continuous process that will continue throughout the planning, design, and implementation of this project. The Public Engagement will inform the design, and will continue during implementation, procurement and/or construction, and will enable the Project to address any past inequities identified relating to access and barriers to opportunity and climate change.

Current analysis indicates that the proposed project will improve multimodal access to the Riverport. At this point of the team's analysis, it is believed that the EJ populations noted above will not be disproportionately negatively impacted by the Project. Analysis and monitoring will continue as ERIDA and its partners move through the final phases of the project. All mitigation measures identified in the design and environmental review process will be implemented and monitored post-construction for compliance and community enhancement.

Public involvement plan

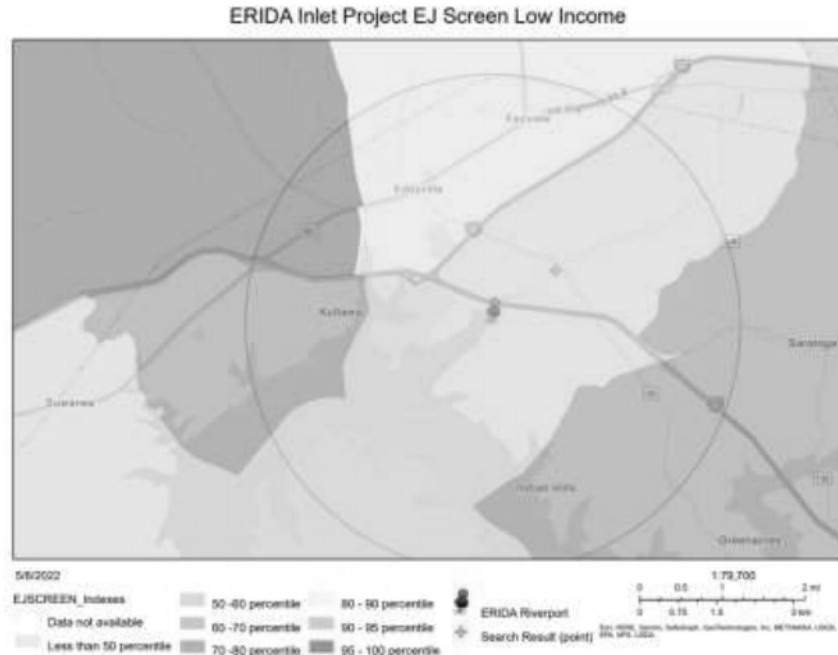
A Community Outreach Plan was developed for this project with outreach aimed at nearby disadvantaged communities as identified in the *Racial Equity and Environmental Justice Impact Analysis*. The Plan, included as Appendix I, recognizes the importance of ensuring that low income and elderly populations are not negatively impacted by the Project or the operational changes that will take place as a result of the Project. The Plan is to build on robust outreach efforts to engage the local community and provide information about the Project and Port operations.

The purpose of the Community Outreach Plan for ERIDA is to provide a detailed, transparent, and cohesive strategy for informing, consulting, and empowering the community on the Riverport Inlet project.

Effective and equity-focused community outreach to represent all stakeholders and the public-at-large will be a priority within the project planning and development. The foundation of this plan is based on ERIDA's Strategic Master Plan

Exhibit 16: Low Income Populations with 3 Miles of Project

adopted on December 15, 2020, which identified the importance of meaningful, equitable public input to the success of future projects. In support of Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government* (86 FR 7009), the Community Involvement Plan is intended to layout engagement strategies to ensure that underserved and historically disadvantaged



communities, as well as those marginalized by traditional methods of outreach, have ample opportunities to participate and engage. Through this Strategy, ERIDA is seeking to enhance and develop relationships that are mutually informative and beneficial to area communities.

Using USDOT’s Areas of Persistent Poverty (APP) and Historically Disadvantaged Community (HDC) mapping tool none of the Census Tracts in Lyon County Kentucky are considered an APP or HDC. However, according to the EJScreen tool, 40% of the population within three miles of the Riverport are low income and 17% have less than a high school education. The Community Outreach Plan will target these populations using the following methods:

- Media, direct mailings and postings in facilities frequented by the community;
- A pre-design open house to be held at convenient and accessible locations;
- A public meeting reception once the schematic design is complete; and,
- Through social media.

D. Advancing Equity and Opportunity for All

In addition to advancing equity through a robust Community Involvement Plan, ERIDA recognizes that it is important to ensure benefits of the Project are shared equally by all members of the community and that freight movements associated with the Project do not disproportionately negatively impact disadvantaged communities. As part of the project

development, a Racial Equity and EJ Assessment was done to identify any potential impacts on disadvantaged communities and help develop mitigating strategies, if necessary. The results are discussed in Section V. C. of this application.

ERIDA will assign a Disadvantage Business Enterprise (DBE) goal to the construction of the Project based on the availability of DBE firms certified by the Kentucky Transportation Cabinet for the work items needed to complete the project.

ERIDA benefits from the West Kentucky Community and Technical College's Marine Technology program that was created specifically to support river industries in the region. Additionally, Coldwell Regional Career Center, the regional vocational school, offers welding classes and places students in internships with Paducah Barge at the Riverport for hands on experience building barges for use on the inland waterway system. High school graduates with a welding certificate have a starting wage of \$70k/year in the barge construction industry. The Project will provide additional space for the construction of barges without impacting throughput at the Riverport.

Both the College and the Career Center target their programs to area high school students and adult learners. Students in both Lyon County and Caldwell County schools all receive free lunches for low-income families. As a result, these workforce development programs provide a path to good paying jobs in river industries for these disadvantaged students, including work at the Riverport for the ERIDA's tenants. New tenants are considering locating at the Riverport as a result of the Project which will expand workforce opportunities for students successfully completing the programs.

E. Leveraging Federal Funding to Attract Non-federal Investments in Infrastructure

A. The Port's efforts to maximize the non-federal share of the Project

The Riverport has very limited internal funds to provide to this Project, so we will continue to pursue state and local funding opportunities as grants and other funding vehicles become available. At this point, the Riverport has committed to a 20% percent match and requests the remaining funding (80% be provided by the Federal Government through this PIDP grant). Once completed, the Riverport's customers will pay fees that will cover operations and maintenance costs for the Project.

B. Fiscal Constraints that affect the Port's ability to increase the amount of non-federal revenue dedicated for transportation infrastructure

Kentucky Revised Statutes prohibit the use of fuel-tax revenues for non-highway projects. The ERIDA is not an authorized taxing authority; therefore, it does not have access to revenues generated from any taxes and cannot fund large scale capital improvement projects. In order to become an authorized taxing authority, the ERIDA would need to have approval from the City of

Eddyville, as well as receive public approval by a county- wide vote. Public-Private Partnership funding opportunities are limited by the Kentucky Constitution; Section 164, limits agreements to a 20-year period, thus negatively impacting opportunities for private partnership funding on our maritime Project.

The only state funding available for maritime projects in Kentucky is the designated \$500,000 set aside for riverports in the general budget that requires passage by the state legislature during the biennial budget session. These funds are available to all seven operating public port

Exhibit 17: Peer State Port Funding

Matrix of Peer State Funding Programs

	Kentucky	Ohio	Indiana	Illinois	Missouri	Tennessee	Virginia	Florida
State Port Authority			X				X	
Number of Public Port Terminals	11	8	3	19	15	5	5	15
State Budget Dedicated Funds Greater than \$500,000 Annually		\$7.5 M			\$600 K		\$42 M	\$76 M
State Budget Dedicated Funds Less than \$500,000 Annually	\$500 K				*			
State Ports Grant Programs		\$ 23 M		\$150 M	\$9.4 M		\$5 M	\$44 M
State Rail Grant Programs	X			X		X		X
State Technical Assistance		X	X	X			X	X
Provide Market Outreach Programs or Plans	X	X		X	X	X	X	X
Economic Development Business Community Partnerships	X	X		X		X	X	X

complexes in Kentucky – the Hickman-Fulton Riverport, the Paducah-McCracken County Riverport, the Eddyville Riverport, the Henderson County Riverport, the Owensboro Riverport, the Meade County Riverport, the Louisville-Jefferson County Riverport, and the Greenup-Boyd County Riverport – thus requiring capital improvement

projects to be self-funded or by grant opportunities like the PIDP grant. These funding levels are in sharp contrast to Kentucky’s neighboring states that provide substantial funding to riverports to address their needs. As part of the Kentucky Transportation Cabinet study, *Kentucky Riverports, Highway and Rail Freight Study*³, a review of funding in nearby states was done with the results shown in Exhibit 16.

The ERIDA has been the recipient of three recent Kentucky Riverport Improvement grants as well as a U.S. Department of Commerce grant and has demonstrated the ability to effectively manage federal funds. The ERIDA Treasurer has extensive experience with federal funding and procurement and the Board retains legal and professional engineering services to ensure requirements are met. This PIDP application clearly demonstrates a business case for leveraging new private funds to improve the nation’s transportation network. A federal investment will produce a lasting return on investment for the entire region.

ERIDA has a track record of responsible stewardship of the Riverport’s assets and cash flows as demonstrated by the March 31, 2022 balance sheet included in Appendix D. In addition, ERIDA recently completed a Strategic and Master Planning effort to focus investments on projects based

³ <https://transportation.ky.gov/MultimodalFreight/Documents/Summit%203%20Presentation%20Materials.pdf> See slide 82 of 118.

on market demands and those that will provide the greatest return in terms of economic activity and additional jobs.

VI. Project Readiness

The ERIDA Inlet Project is ready to begin upon receipt of a PIDP grant award, if successful. The Project schedule is dependent on the PIDP grant award. If the PIDP grant is awarded for the Project, we estimate completion within 12 months (September 2025 and August 2026) without inclement weather conditions or material supply chain issues.

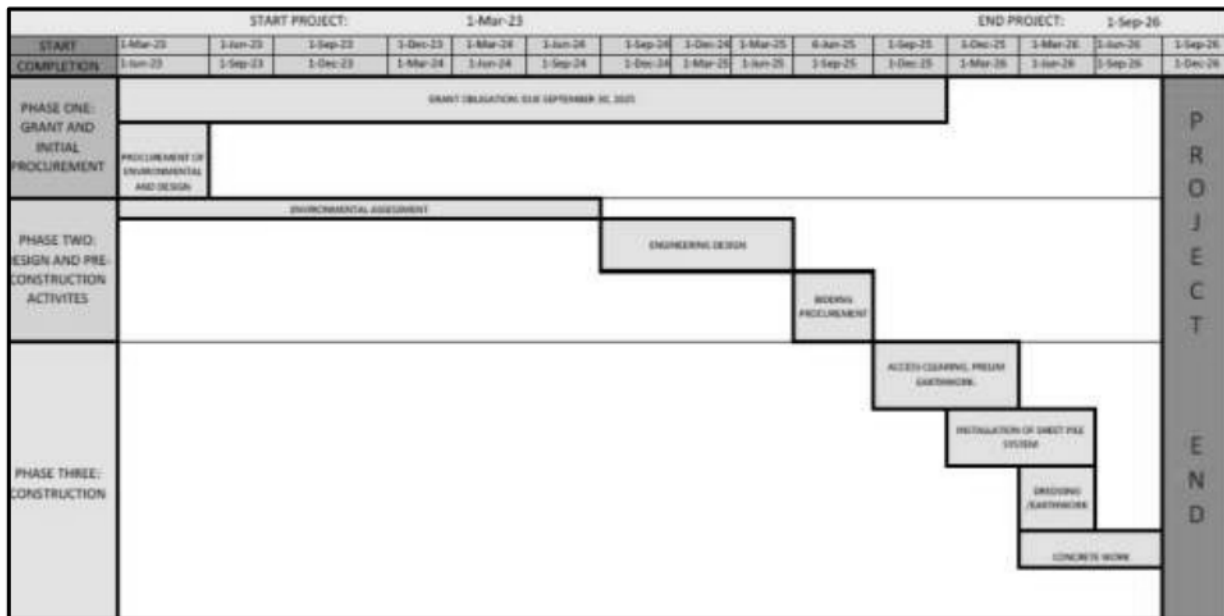
See the Project schedule for the anticipated timeline in Exhibit 17 below.

A. Technical Capacity

The ERIDA has experience with implementing capital projects and with the administration and implementation of Federal Grants. The Riverport has consulting engineers that will work with Port staff to prepare the components for bid and construction. The Riverport has years of experience implementing Federal and State Grants. See Appendix E for a detailed list of the grants, equipment acquisitions, and construction projects between 2019 and 2021.

Project Schedule

Exhibit 18: High-level Project Schedule



A Project schedule is also included in Appendix G.

B. Environmental Risk

NEPA status

The Riverport has reviewed MARAD’s Categorical Exclusion (CE) Checklist (See Appendix K). Based upon this review and discussions with Kris Gilson at MARAD, it was determined that this project will not qualify for a CE due to the potential to affect threatened and endangered species (northern long-eared bat and Indiana bat), tree clearing activities as well as the need for individual permitting activities required for construction of the Inlet. The ERIDA understand that consultation will need to occur between MARAD and USACE on determination of the roles of each agency during the EA process.

Section 106 and Tribal Concurrence (Cultural Resources) No aboveground resources are located within the project area. However, it should be noted that the SHPO could require an archaeologist to be present during construction activities to review excavated materials to ensure that no cultural resources exist.

Section 4(f) protects significant publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, as well as significant historic sites, whether they are publicly or privately owned. None of these exist within the project area or directly adjacent to the project area.

Section 7 Consultation: The Endangered Species Act (ESA) directs all Federal agencies to work to conserve endangered and threatened species – a desktop scan using IPAC has identified there are no Critical Habitats in this location. The following table identifies potential species which could be present at the site:

Table 3: Potential Threatened and Endangered Species at Project Site

Name	Status	Mitigation Required
Mammals		
Gray Bat Myotis grisescens	Endangered	Wherever found
Northern Long-eared Bat Myotis septentrionalis	Endangered	Wherever found
Threatened Indiana Bat CH Myotis sodalis	Threatened	Wherever found
Insects		
Monarch Butterfly Danaus plexippus	Candidate	Wherever found
Flowering Plants		

Prices Potato-bean Apios priceana	Threatened	
Critical habitats	Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.	

It should be noted that minimal tree clearing activities are expected since most of this project occurs within an area that is currently maintained by mowing activities and is adjacent to an existing commercial facility.

Environmental permits

- USACE and KDOW coordination will be required for this project. At this time based on the small footprint of the inlet (110’ of bank impacts) and the lack of identified wetlands in the area of the project, it is anticipated that this project will qualify for nationwide/general regional permits. Since this area is located within a floodplain, a floodplain permit will be required. However, the excavated materials will be utilized in the surrounding area and will be used to balance the site.

State and local approvals

- Other than the permits listed above, there are no other State or Local Approvals required for this Project.

Information on environmental reviews, approvals and permits by other agencies

The ERIDA has been in communication with the Director of Environmental Compliance with the MARAD office located in Washington, DC. According to these conversations, it was agreed that the project would require an Environmental Assessment. A pre-application meeting has occurred with the Lake Barkley USACE lead in which they were briefed about the inlet construction project and they provided positive feedback. Appendix L documents the coordination efforts through May 16, 2022 for the Project.

C. USACE communications and expected timeline for permits

ERIDA has submitted a pre-application to the USACE for the Project. If permits will be required, it generally requires 45 – 90 days to receive based on USACE project load at the time of submittal.

D. Assessment of Project Readiness Risks and Mitigation strategies

Exhibit 19: Risk Matrix

Potential Risk Area	Risk Type	Current Status/ Proposed Mitigation	Risk Level
Technical Feasibility	Feasibility	Conceptual	Low
Design Standards Conformance	Feasibility	ERIDA uses professional consulting engineers for infrastructure improvement projects. Once selected through a quality-based selection process, the selected firm(s) will be required to conform to industry design standards.	Low
Partner Approvals	Schedule	None anticipated.	Low
Local Jurisdiction Approvals	Schedule	None anticipated.	Low
Environmental Approvals	Cost, schedule	Based on the MARAD CE checklist and consultation with MARAD environmental staff, the project will require an EA. Initial consultation has begun for the project.	Medium
Funding	Cost, schedule	All non-Federal commitments have been made in writing. A contingency of 12% has been included in the Project Cost to cover unforeseen costs and inflationary pressures currently seen in the bidding environment.	Low
Public and Stakeholder Support	Cost, schedule	The broad range of support is demonstrated by the letters in support of the project. (Appendix M)	Low
ROW	Cost, schedule	No ROW is required.	NA
Construction	Cost, schedule	The project is a small project in a region with multiple contractors available.	Low
Procurement	Cost, schedule	Currently, the US is experiencing slower than previously experienced delivery schedules and the December 10 th tornado in Western Kentucky near the Riverport has magnified contractor and supply issues. Sheet piling and steel components may have a longer than expected lead time. Concrete is not anticipated to have a delay. Flexibility has been added into the Project schedule to provide adequate buffer to respond to these delays and meet the contractual timelines of the Grant.	Low
Grant Management	Compliance	The ERIDA has retained legal services and will retain professional engineering services for preliminary engineering and design. ERIDA also has access to a seasoned USDOT grants manager.	Low

VII. Domestic Preference

The ERIDA will bid the material purchases consistent with the requisite domestic preferences including Buy America and Buy American. All pass-through requirements will be included in the Bid documents including Domestic Preference requirements. Materials used for the construction components will be sourced locally.

The Project will support the continued supply of domestic materials for regional construction projects and support American construction and agriculture jobs.

VIII. Determinations

Project Determination	Narrative Reference or Response
1. The Project improves the safety, efficiency, or reliability of the movement of goods through a port or intermodal connection to the port.	See V.A.
2. The Project is cost effective.	Not applicable to this application because it is a small project at a small port.
3. The eligible applicant has the authority to carry out the Project.	In 2002 the City of Eddyville, by Articles of Incorporation, formed the Eddyville Riverport and Industrial Development Authority (ERIDA), combining the industrial development authority and the port operation (Resolution 2-4-02 see Table Special Ordinances.pdf (eddyvilleky.org)). Under Kentucky State statutes, KRS 65.510 – 65.650 describes the powers and duties, specifically 65.520 allows Riverports to enter into contracts.
4. The eligible applicant has sufficient funding available to meet matching requirements.	Appendix D contains the ERIDA’s March 2022 balance sheet which shows the availability of matching funds. In addition, the Board is aggressively pursuing other funding partners to contribute toward the non-federal share.
5. The Project will be completed without unreasonable delay.	It is expected that the Project will be fully obligated by the September 30, 2025 deadline. See Project schedule in the project readiness section on page 25 and in Appendix J.
6. The Project cannot be easily and efficiently completed without Federal	As shown on the current balance sheet, the ERIDA can generate matching funds, but does not have the available resources to complete the

<p>funding or financial assistance available to the Project sponsor.</p>	<p>Project without federal investment. This Project would not be completed without the PIDP grant.</p> <ol style="list-style-type: none"> 1. The Project schedule would have to be stretched at least 10 years or more based on funding availability locally. 2. The cost of construction if done as local funds become available are expected to increase significantly with inflation.
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IX. Conclusion

ERIDA is providing the foundation for growth in the Pennyriple Region of Kentucky. In November 2019, the Pennyriple Area Development District (PADD), covering nine counties in Western Kentucky, released its Comprehensive Economic Development Strategy (CEDS). The CEDS is an action plan for PADD to guide economic growth in the area. It establishes program priorities and provides a foundation of performance measures used to track progress in achieving the goals established. The Eddyville Riverport is centrally located in the PADD providing critical development opportunities that align with the CEDS. In considering the transportation and logistics trends for the area, it is important that the recommendations resulting from extensive data analysis align with the strategies, goals, and objectives for the region.

The economic base for the region includes rich mineral resources, prime agriculture opportunities and an ideal tourist destination created by Kentucky and Barkley Lakes.

Strategic projects included in the CEDS for Lyon County include a rail spur at the Riverport along with other infrastructure improvements. The Plan notes that **infrastructure improvements should be guided by growth industries that rely on water transportation for goods movement, which were highlighted in the section on projected growth areas.** The Project is being advanced to address current needs in the market for the inlet at the Riverport and is consistent with the ERIDA’s Master Plan.

Recognizing its place in the community, the ERIDA is developing strategies to address climate change resiliency and prevention. The Project is one-step in the process to improve the energy efficiency of freight movements in Western Kentucky. The ERIDA is working in partnership with the power provider to ensure clean energy alternatives are advanced in its operations.

The Authority, through its planning for the Project, understands its role in addressing EJ and Racial Equity issues impacting its neighbors and will begin efforts to engage with the community and its leaders to learn more about the impacts created by port operations and the Project. The outcome of those conversations will lead to mitigating actions by the ERIDA to reduce impacts and improve accessibility.

Without support from the Maritime Administration’s Port Infrastructure Development Program, the improvements included in the Project will face an uncertain future and result in untimely supply chain interruptions impacting the regional environment and economy. The ERIDA is working diligently to garner broad support for the Project and to maximize local investments to leverage limited ERIDA as well as federal resources. The ERIDA appreciates the difficulty MARAD and USDOT will have in selecting awards for the PIDP and respectfully submits this application for the small port small grant category. Ultimately, federal investment in the Project will advance the national goals for efficient and safe freight movement, economic vitality, addressing climate change and environmental justice impacts, advancing racial equity and leveraging federal funding.



X. Appendices

Appendix A: Audited Tonnage

Appendix B: ERIDA Strategic Master Plan

Appendix C: Pennyrile Area Development District Comprehensive Economic Development Plan

Appendix D: ERIDA Balance Sheet March 2022

Appendix E: ERIDA Grants

Appendix F: Detailed Cost Summary

Appendix G: Funding Commitment Letter

Appendix H: Racial Equity and Environmental Impact Analysis

Appendix I: Community Outreach Plan

Appendix J: Detailed Project Schedule

Appendix K: Completed MARAD CE Checklist

Appendix L: Communications with Governing Authorities

Appendix M: Letters of Support

Appendix N: Project Renderings