



# BUILD GRANT APPLICATION

JULY 19, 2018

*CONTAINER  
TRANSFER YARD  
DEVELOPMENT  
PROJECT*

---

PROJECT TITLE: CONTAINER TRANSFER YARD DEVELOPMENT  
PROJECT

LOCATION: PADUCAH-McCracken COUNTY, KENTUCKY

APPLICATION TYPE: RURAL MARITIME DEVELOPMENT PROJECT

APPLICANT NAME: CITY OF PADUCAH

ELIGIBILITY TYPE: PORT AUTHORITY

FUNDING REQUEST PHASE 1: \$10,711,090

TOTAL PROJECT COST: \$27,508,386

WEBSITE: [WWW.PADUCAHRIVERPORT.ORG](http://WWW.PADUCAHRIVERPORT.ORG)

---

U.S Department of Transportation

Better Utilizing Investments to Leverage Development

“BUILD FY18”

Grant Application Project Narrative

Project Name: *Riverfront to Riverport: Investing in Paducah’s Maritime Hub*

Container Transfer Yard Development Project  
Phase I of III phased Build-Out Plan

Project Type: Port Infrastructure – Multi-Modal

Project Location: Rural McCracken County, Kentucky

Project Website: [www.paducahriverport.org](http://www.paducahriverport.org)

Funds Requested: \$ 10,711,090 (100%)

Other State and Local Funds: Not available

Contact: Bill Miller  
Executive Director  
Phone: (270) 442-9326  
Email: [bmiller@paducahriverport.org](mailto:bmiller@paducahriverport.org)

Applicant: City of Paducah

DUNS#: City of Paducah – 082397217

# Table of Contents

I.	Introduction .....	1
	Regional Background.....	3
	Project Background.....	4
	The Market Opportunities.....	5
	Transportation Challenges .....	6
	Transportation Challenge 1: .....	6
	Transportation Challenge 2: .....	6
	Transportation Challenge 3: .....	7
	Solution to these challenges:.....	7
II.	Project Description .....	8
III.	Project Location .....	12
IV.	Grant Funds, Sources, & Uses of Project Funds .....	15
	Project Costs .....	17
V.	Merit Criteria.....	18
	A. Safety.....	18
	B. State of Good Repair .....	18
	C. Economic Competitiveness .....	19
	D. Environmental Protection.....	21
	E. Quality of Life .....	22
	F. Innovation.....	23
	G. Partnership.....	23
	H. Non-Federal Revenue for Transportation Infrastructure Investment.....	24
VI.	Project Readiness .....	24
	A. Technical Feasibility .....	24
	B. Project Schedule.....	26
	C. Required Approvals.....	26
	1. Environmental Permits & Reviews .....	26
	a. NEPA Status.....	26
	b. Information on Reviews, Approvals & Permits by Other Agencies .....	27
	c. Environmental Studies / Other Documents .....	27

d.	Discussion with the appropriate DOT Operating Administration Field or Headquarter Office regarding NEPA status and Environmental reviews .....	27
e.	Description of Public engagement about the project.....	27
2.	State & Local Approvals .....	28
3.	Federal Transportation Requirements affecting State & Local Planning.....	28
D.	Assessment of Project Risks and Mitigation Strategies .....	28
VII.	Benefit Cost Analysis .....	29
VIII.	Conclusion.....	30

Appendix A: Benefit Cost Analysis Summary  
Appendix B: Benefit Cost Analysis  
Appendix C: Container on Barge Letters of Support  
List of Acronyms

**Appendices and Letters of Support may be found by visiting:**  
<http://paducahky.gov/build-grant-2018>



*Figure 1: The Paducah-McCracken County Riverport Authority's Container on Barge Test Run in 2015*

# I. Introduction

The City of Paducah and the Paducah-McCracken County Riverport Authority in Kentucky are pleased to submit this application for \$10.7 million through the BUILD Discretionary Grant Program (BUILD FY18). This grant application addresses the opportunity to provide the land side infrastructure needed to provide a cost-effective Container on Barge (COB) service from the Paducah area that can serve the region. The COB service will empower the Western Kentucky Region to become an economic engine by enabling the Paducah-McCracken County Riverport Authority to facilitate foreign and domestic trade for current and future clients. In addition, the COB service has the potential to attract manufacturing and distribution centers to the region due to the direct access to blue water ports that this service will allow.

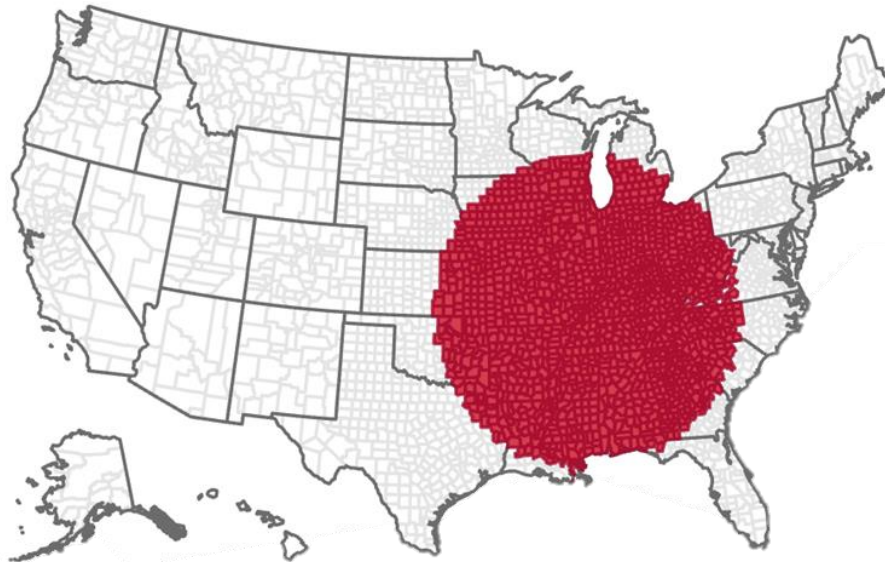
The City of Paducah, KY, in partnership with the Paducah-McCracken County Riverport Authority (PMCRA) is requesting \$21,987,697 in BUILD Act Funds for the program of projects referred to as *Riverfront to Riverport: Investing in Paducah's Maritime Hub*. There are two projects within the program. The first is the Paducah Riverfront Commons and Steamboat Landing/Excursion Pier Project. The City is requesting \$11,276,607 in BUILD funding with a total project cost of \$14,095,759. The second project is the PMCRA Container Transfer Yard Development Project. The PMCRA is requesting \$10,711,090 with a total project cost of \$27,508,386. BUILD funding will support the engineering, design, and construction of all project components. The proposed program of projects will address the transportation challenge associated with expanding inadequate maritime infrastructure at Paducah-McCracken County Riverport Authority complex to enhance downtown/Riverfront Connections and economic development opportunities. The City of Paducah will serve as the lead applicant. The project area is considered an Urban Cluster according the U.S. Census Bureau; therefore, the projects serve a rural area.

The Paducah-McCracken Riverport Container Transfer Yard Development Project is a rural maritime development in the Jackson Purchase Region of Kentucky. This project will have a significant impact on our four-state region (Kentucky, Illinois, Tennessee, and Missouri) by offering a safe, economical, and eco-friendly transportation mode for international and domestic shippers of containerized and general cargos. The project will foster manufacturing and distribution center developments, the construction and engineering industries, as well as the river industry, and create opportunity for job creation and security for the under and un-employed residents in the region. The project will better utilize established multimodal connectors, reduce heavy long-haul truck miles traveled from Blue Water and Inland ports on our nation's Interstate systems, decreasing highway maintenance and future infrastructure requirements for the Southeastern United States, and reduced transportation expense with a lower cost alternative for the region's shippers. The project will open global markets to our agricultural communities that prefer container shipments of Kentucky's superior agricultural products. The project will support the Paducah-McCracken County Riverport Authority's U.S. Department of Transportation - MARAD's Marine Highway Designation granted on July 7, 2016, on a long-term basis to support economic development in Kentucky, Tennessee, Illinois, and Missouri.

The proposed program of projects has garnered overwhelming enthusiasm locally, regionally, and nationally. Majority Leader Mitch McConnell, U.S. Senator for Kentucky, as well as,

Kentucky Congressman James Comer, are among the most notable supporters. Other advocates for the program of projects include the McCracken, Marshall, Ballard and Carlisle County Judge Executives, the Ballard County Economic Development Corporation, and the West Kentucky Alliance for a Vibrant Economy – comprised of Ballard, Carlisle, Hickman, and Fulton Counties. These counties stand to benefit directly from the container transfer yard project. Paducah Economic Development (PED), the Paducah Chamber of Commerce, the Purchase Area Development District, Paducah Convention and Visitors Bureau, and the Paducah Riverfront Development Advisory Board are just a few other advocates for the project. To view the Letters of Support for the *Riverfront to Riverport: Investing's in Paducah's Maritime Hub* program of projects, please visit: <http://paducahky.gov/build-grant-2018>.

In addition, the investment in infrastructure that will support the COB service can contribute benefits to business and residents in a 500-mile area surrounding the project that includes 1,415 counties and encompassing roughly one-third of the US population (103,489,177).



*Figure 2: Major 500-Mile Population Radius from Paducah, KY*

Major urban centers that could be accessed within that 500 miles include:

- Atlanta
- Chicago
- Columbus
- Detroit
- Indianapolis
- Kansas City
- Nashville
- Milwaukee
- St. Louis



*Figure 3: Example of Container on Barge Service*



This project will enable containers to move on the Department of Transportation – Maritime Administration’s (MARAD) Marine Highway System. The purpose of this project is multi-fold. The first and most important is to provide regional shippers with a safe, cost-effective option to move goods to both domestic and international markets. The second is to contain congestion by reducing vehicle miles traveled (VMT) on the local and regional highways. This in turn improves Safety and “State of Good Repair” on our regional road network through the reduction in VMT which will reduce the required maintenance of these roads and highways and make them safer as freight is moved by river instead of by road.



Figure 4: Map of MARAD’s Marine Highways surrounding

## Regional Background

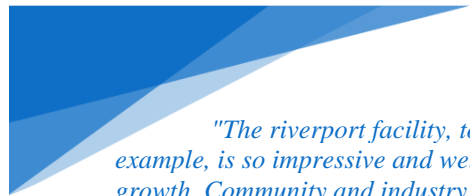
The first residents of what is now the City of Paducah were the Chickasaw Native American tribe and their indigenous ancestors dating back thousands of years. These first inhabitants of Western Kentucky settled the land as consequence of its unique geographical location – the confluences of the Mississippi, Cumberland, Tennessee and Ohio Rivers. The Chickasaw tribe was the first to establish the region at the confluence of the Tennessee and Ohio Rivers and created a large trading post by utilizing the extensive river systems to connect with other Native American tribes.

The first western settlers, who referred to Paducah as Pekin, arrived in 1815 and also chose to establish their settlement at the confluence of the Ohio and Tennessee Rivers. The residents of Pekin and the Chickasaw Native Americans lived harmoniously together, and in turn, developed an interdependent relationship by the trading of goods and services. In 1827, William Clark arrived in Pekin with a title deed to 37,000 acres – which he purchased for \$5.00 from the United States Supreme Court as part of a grant for his late brother George Rogers Clark’s service in the Revolutionary War. Clark chose to rename the city – in honor of the Padoucas, a once-great Native American tribe who were killed by early Europeans. The Padoucas’ legends and stories were told to Clark by other Native American tribes during his famed expedition with Meriwether

Lewis. The city was officially incorporated as Paducah in 1830 and has since become one of Western Kentucky's largest cities.

Throughout Paducah's rich history, there has been a solitary trade that has influenced and reinforced the city's economic growth and was the very reason for its initial settlement – the river industry. The movement of goods by water is arguably the oldest mode of transportation that is still utilized in the modern era. It is reliable, economically and environmentally friendly, and considered the safest mode of transportation. Paducah has always thrived due to its close proximity to four of the largest navigable rivers in the U.S., geographically placing Paducah at the heart of the U.S. inland waterway system. In addition to its critical location on MARAD's Marine Highway system, Paducah is also home to 23 barge companies and home to more U.S. – flag inland waterway operators than anywhere else in the nation.

## *Project Background*



*"The riverport facility, to cite one example, is so impressive and well situated for growth. Community and industry leaders have demonstrated great commitment to the Maritime Administration's vision to improve the maritime transportation system, including ports, connectors and MARAD's Marine Highways. Thank you for giving Washington, and indeed, the rest of the nation an example they can follow."*

**– The Honorable Elaine Chao, Secretary of Transportation, regarding the PMCRA on May 2, 2018**

[\[The Paducah Sun\]](#)

MARAD's American Marine Highway Program was established by Section 1121 of the Energy Independence and Security Act of 2007 to reduce landside congestion through the designation of MARAD's Marine Highway Routes. The program was further expanded from reducing landside congestion to generate public benefits by increasing the utilization or efficiency of domestic freight or passenger transportation on MARAD's Marine Highway Routes between U.S. ports. In 2016, The National Defense Authorization Act for Fiscal Year 2016 added to the definition of short sea shipping to include cargo shipped in discrete units or packages that

are handled individually, palletized or unitized for purposes of transportation; or freight vehicles carried aboard commuter ferry boats. The Paducah-McCracken County Riverport Authority (PMCRA) submitted a MARAD's Marine Highway Designation Application for a Container on Barge Service (COB) along the M-55, M-65, and M-70 systems on December 30, 2015. After an extensive review, The Paducah-McCracken County Riverport Authority was honored with a MARAD's Marine Highway Designation on July 7, 2016 from MARAD.

Since this designation was awarded, the PMCRA has been focused on getting this COB up and running. Using their Operations Concept as presented in the MARAD Project Designation application as a basis, PMCRA has been diligently formalizing the concept and searching for the funds needed to start the service as the PMCRA's financial position is not such that they can initialize the COB service without additional external funds. With their funding plan as a guide, the PMCRA has applied to the state for match monies, to MARAD for demonstration funding and in a previous TIGER application to USDOT for infrastructure. Based upon feedback from



these different agencies, PMCRA has revised their initial plans by dividing it into three phases to complete the expansion needed for the full COB service and auxiliary services. This application is a scaled down request for Phase I using less expensive equipment than first envisioned.

## ***The Market Opportunities***

Through our partnership with Ingram Barge Company, the COB service is actively being marketed as a service for customers. Ingram has spoken to potential customers of the service from the automotive industry, scrap metals, the grain, hay, and agricultural industries, and chemical production companies. Letters of support from parties interested in COB may be found in Appendix B.

Building on the Hub and Spoke concept, the PMCRA has identified the following partnering port opportunities:

### **Missouri and Upper Mississippi River Region:**

#### *Port Kansas City*

The U.S. Gulf region is currently experiencing a surge of polymer resin production from the expanding petrochemical industry. The market is predicted to continue to increase with demand from Asia for this product, resulting in a significant container imbalance in the Gulf region. The ocean carriers are required to reposition empty containers from either foreign soil or by truck/rail to meet this growing demand. The Port of Kansas City, MO, has the reverse container imbalance (more import than exports). The Port Authority of Kansas City, MO, has been in positive discussion with several ocean carriers regarding the use of a Container on Barge from Port of Kansas City, MO, to the U.S. Gulf region to move their empty containers inventory for the growing export volume. The Port of Kansas City, MO, is projecting the movement of up to 144 containers weekly on the service. This volume along with collaborating partners on the service will provide an affordable option for the ocean carriers.

#### *St. Louis Regional Freightway*

Empty southbound containers would be loaded onto barges and sent to the Port of New Orleans. Household goods would be sent northbound back to St. Louis for distribution.

### **Ohio River and Tennessee River Region:**

#### *Port of Louisville*

The Port of Louisville has a container imbalance. Because of the surge of the polymer resin trade expanding in the U.S. Gulf region, the port is able to provide the ocean carriers with a Container on Barge service for the repositioning of empty containers. In addition, the Container on Barge service can offer a lower cost service to the Caribbean and South American trades.

#### *Paducah-McCracken County Riverport Authority*

A start up volume for the southbound leg is projected at 1,040 FEUs southbound movements annually from chemical companies in Calvert City, KY. These units are moved via the East coast port of Savannah, GA. The cargo is being trucked to warehouses, which are then loaded into ocean containers. Using the Container on Barge service from Paducah, KY, this would eliminate approx. 956,280 heavy truck highway miles from U.S. Interstates. Additional interest from the agricultural industry for spot shipments in containers for overseas has been expressed in order for

regional farmers to obtain the highest price for their superior products. We project the volume would be approximately 200 FEUs annually during the start-up period.

Projected northbound volume is approximately 520 FEUs annually of consumer sporting goods and industry supplies.

The long-term vision for the Paducah-McCracken County Riverport's Container on Barge service is a self-sustaining operation driven by economic development in the region. A plant upgrade of a current Riverport customer will introduce another 700 units annually. In addition, the announcement of an automotive part manufacturing being added to the region will offer additional volume for the service.

PM CRA is working diligently to pull together funds and partners to launch this COB to help meet Kentucky's goal to become the leading manufacturing and distribution center State in the nation, making the Western Kentucky region an ideal location for potential growth and development.

## ***Transportation Challenges***

### **Transportation Challenge 1:**

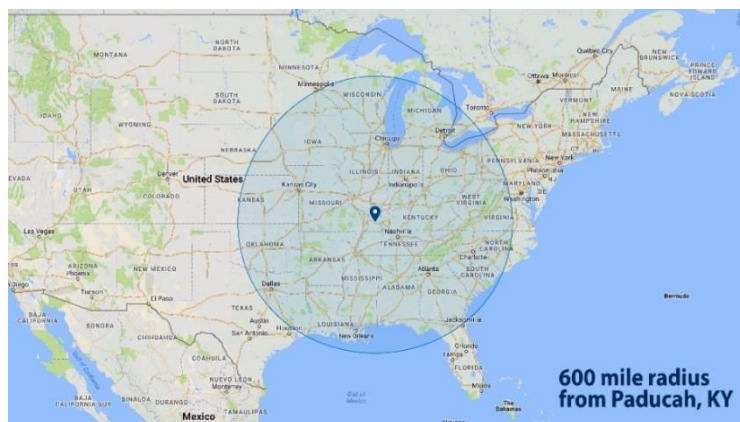
#### ***Congestion on the Regional Highways***

According to the U.S. Maritime Administration's information on MARAD's Marine Highway 70 and MARAD's Marine Highway 65, which merge at Paducah, truck volumes are expected to reach 25,000 per day on each of those two highway corridors by 2035. The investment in this project will utilize established multimodal connectors and reduce heavy long-haul truck miles traveled from blue water and inland ports on our nation's highway systems. Using MARAD's Marine Highway routes to ship these goods will decrease highway maintenance and future highway and/or rail infrastructure requirements for the Midwest and Southeastern U.S. regions and reduce transportation expenses while simultaneously relieving congestion, conserving energy and reducing emissions.

### **Transportation Challenge 2:**

#### ***Regional Shippers need cost-effective transportation options***

Kentucky's goal to become the leading manufacturing and distribution center State in the U.S. makes Western Kentucky an ideal location for that potential growth. The local and regional economic development agencies are responding daily to inquiries from companies looking for sites to either expand or relocate their enterprises to a lower cost environment.



*Figure 5: 600-Mile Radius from Paducah, KY, or One Day's Drive*

Currently, heavy industries in the region use road transportation as their primary transportation option. Some locations are lucky to be either rail served or have a rail hub within a reasonable distance. But there is not a barge option available for our manufacturers and producers that need a reliable and predictable but cost-effective option to move containerized as well as high-wide and heavy cargos.

### **Transportation Challenge 3:** ***National Driver Shortages Predicted***

America needs more truck drivers. The trucking industry is facing a growing shortage of drivers that is pushing some retailers to delay nonessential shipments or pay high prices to get their goods delivered on time.

A report from the American Trucking Associations (ATA) says more than 70 percent of goods consumed in the U.S. are moved by truck, but the industry needs to hire almost 900,000 more drivers to meet rising demand. The ATA report further notes that the industry has struggled with a driver shortage for the past 15 years. During the Great Recession, freight volumes dropped, allowing the industry to meet demand with fewer drivers. But when volumes recovered in 2011, the driver shortage became a problem again.

According to an industry analysis by DAT Solutions, just one truck was available for every 12 loads needing to be shipped at the start of 2018, which is the lowest ratio since 2005.

### ***Solution to these challenges:***

The Paducah-McCracken County Riverport Authority (PMCRA) intends to create the first Container on Barge service on the Tennessee River, the Ohio River, and the first in the state of Kentucky. Container on Barge (COB) at its simplest form is a method of transportation utilizing containerized cargoes, as seen on international container ships, and placing the containerized cargoes on barges for transport throughout the inland waterway system.

This project is based upon a “Hub and Spoke” concept on the M-65 and M-55 water routes to improve cost-effective, eco-friendly and reliable freight transportation. The Hub and Spoke concept provides the lowest possible water transportation cost, reduces/eliminates Blue Water ports labor guarantee expense, decreases the environmental impact of freight movement as opposed to other methods of transport, and fosters a streamlined collaboration of inland ports into a single operation. The approach utilizes a single towboat for the transit on the common waters of the Lower Mississippi and Tennessee-Tombigbee Waterway shared by the inland ports. For example, barge(s) from Upper Ohio would be transited down using a single tug from several inland ports to a fleeting area. The group of Ohio River barges would be joined together with the Upper Mississippi River barge(s) for the transit to a Blue Water port. Along the transit of the common waters of the Lower Mississippi River, additional barges could be married to the tow at Memphis, Arkansas River and Baton Rouge. The concept will allow inland ports, who receive smaller container volumes, the ability to grow their market and maximize the MARAD’s Marine Highway System usage and create a sustainable and viable economic platform.

The PMCRA envision their site as a multi-modal operation. The MARAD’s Marine Highway service will work in concert with truck, rail, and air industries. The project site is bounded by US

60 on the South and has rail adjacent to the proposed container yard along the eastern side of the property with the Tennessee Rive across the road. The PMCRA is the right locale to site this multi-modal hub.

Not all cargoes find barging to be the best option. That is why the multi-modal approach offers something for every shipper. The Paducah-McCracken County Riverport Authority projects that 40% of the northbound and 20% of southbound cargo will be time sensitive requiring truck service.

The COB service will offer cost reductions for shippers, offset the current and projected future truck driver shortages, reduces particulate matter pollutants, and foster economic development in our region. Global corporations implementing “Green policies requirements” would be able to obtain their commitment to reduce carbon footprints. Public benefit improvements include reduced emissions, less congested highways, and extended life of our highway systems along with lower maintenance cost. National health care costs will be reduced with fewer roadway fatalities and injuries, respiratory illness, and hearing loss, thus lowering federal funding requirements. Use of the MARAD’s Marine Highway System will reduce infrastructure deterioration of U.S. interstates and highways. Fewer truck highway miles will slow down the current replacement and maintenance expenses for infrastructure repairs. A study by The Victoria Transport Policy Institute found that heavy trucks impose road wear costing hundreds of times greater than passenger vehicles.



– Admiral Mark H. Buzby, Maritime Administrator regarding the PMCRA on September 6, 2017

[\[MARAD\]](#)

The City and Riverport believe this application meets the criteria for the BUILD FY18 Grant Program and further, that this project represents the type of project envisioned. Funding of this Grant will support the Riverport’s recent designation as a Container on Barge Project selected by MARAD in 2016.

## II. Project Description

The PMCRA was established in 1964 by the legislative bodies of the County of McCracken and the City of Paducah under an equal ownership agreement. The PMCRA is a quasi-government agency that provides essential maritime services for the rural regions of Western Kentucky, Southern Illinois, Southeast Missouri, and Northwestern Tennessee. We are a self-funded agency, without taxing authority that operates and invests in our growth from revenues generated exclusively from our operations.

The PMCRA is requesting funds to create a Container Transfer Yard – a rural maritime container yard development project. Containerized cargoes must be stored securely in an area that has at least 12” of concrete slab. The Container Transfer Yard Development Project will allow containerized cargoes to be stored securely, safely and efficiently to support the new COB service at the estimated volumes so that the service will begin immediately upon completion of the project. The estimated volume for the COB service of containers per week is an estimated 280 FEUs (forty-foot equivalent unit). The initial service will be a weekly service. Based upon initial volume estimates, is estimated that there will be container volume to fill 8 barges per week which will be placed in a tow to be taken down river by tug. This number does not include the shipment of empty containers repositioning. The estimated annual volume is 14,560 FEUs. The estimated annual barge calls are estimated to be 405 calls for the first three years of the service.

The volumes used in the Benefit Cost Analysis were determined using conservative figures and have been estimated by counting only half of the projected volume resulting from the execution of a still-confidential economic development project that will be locating to Western Kentucky.

The Container Transfer Yard Development Project will develop nine acres of PMCRA brownfield property. BUILD grant funding will be used to develop 27,150 square yards of 12” concrete paving, security fencing and solar-powered lighting, a three-truck lane interchange, which will be expandable to five lanes to accommodate project future volume demand, and the purchase of three reach stackers and three yard hustlers with bomb carts. The project at maximum capacity will hold 450 FEUs at one time and an annual capacity of 23,400 FEUs.

This project will have a significant and immediate impact on a four-state region (Kentucky, Illinois, Tennessee, and Missouri) and an indirect impact on surface transportation resulting in reduced infrastructure deterioration and congestion in *at least* a five-state region (Arkansas, Tennessee, Alabama, Mississippi, and Louisiana) by offering a safe, economical, and eco-friendly transportation mode for international and domestic shippers of containerized cargos. Economic impact will be seen across a 200-mile radius from the development of manufacturing and distribution centers and increased opportunities in the construction, engineering and river industries in the Jackson Purchase region. Economic development resulting from the investments in the Riverport and Paducah Commons will improve the quality of life and generate jobs in this mostly rural area. New job opportunities will allow rural residents to create wealth and the under and unemployed residents in the region will be able to secure steady, high-paying employment opportunities.

A key benefit of expanding the use of the inland waterways for moving freight is that it is by far the safest mode of transportation. In fact, a Texas Transportation Institute study most recently amended in 2009 for the U.S. Maritime Administration indicates that the ratio of fatalities per ton-mile is 2,171.2 for trucks and over 125.5 for rail movements compared to just one for barge transport on the inland waterways.

The COB service will allow the local agricultural industry to have unprecedented access to global markets that prefer containerized shipments of Kentucky’s superior agronomical goods.



The COB service has attracted recent rail activity in Paducah from BNSF and P&L RR. With the P&L RR having access near the container transfer yard, multimodal shipping options will provide even greater opportunity for shippers to create customized supply chain solutions across modes.

If successfully awarded BUILD grant funds for the project, the PMCRA would increase its operations staff with the hiring of 8 additional team members for the Container Transfer Yard. These jobs consist of crane operators, heavy machinery operators, general laborers, and support staff with competitive wages and full benefits. Local trucking and rail jobs will be created from the PMCRA Container Transfer Yard to the point of the customer's facility. Tug boat operations will provide a dedicated fleet that will only run the COB service. To maintain a weekly service, the barge company will provide two tugs running concurrently – one northbound and one southbound - dedicated to this service. Each tug on the service employs 10 highly skilled U.S. merchant marines per sailing. Tugboat labor is based on a 14-day trip, switching crews at each home port, thus doubling the amount of people to operate the tug continuously. We anticipate a two-tug boat operation, which will create 40 jobs immediately upon the initial launch of the COB service, as there are two crews operating the tug within one month. As volumes increase in the near future, the number of jobs could double. An estimated 38 construction jobs will be created for the design and construction period of the Container Transfer Yard Development project. Additional jobs will be created at blue water ports to directly support the COB service. For every barge sailing, 23 longshoremen and clerical union laborers are needed to unload or load the barge. This does not include additional employment of support staff that is not unionized labor.

The Container Transfer Yard Development Project is Phase 1 of a three-phase, \$27.5 million capital improvement plan for the PMCRA. Investment in this project will leverage additional non-federal investment of \$17 million in Phases 2 & 3. Upon completion, it is the goal of the PMCRA that the revenues generated by the Container Transfer Yard Development Project and the relate COB service will fund the remaining two phases.

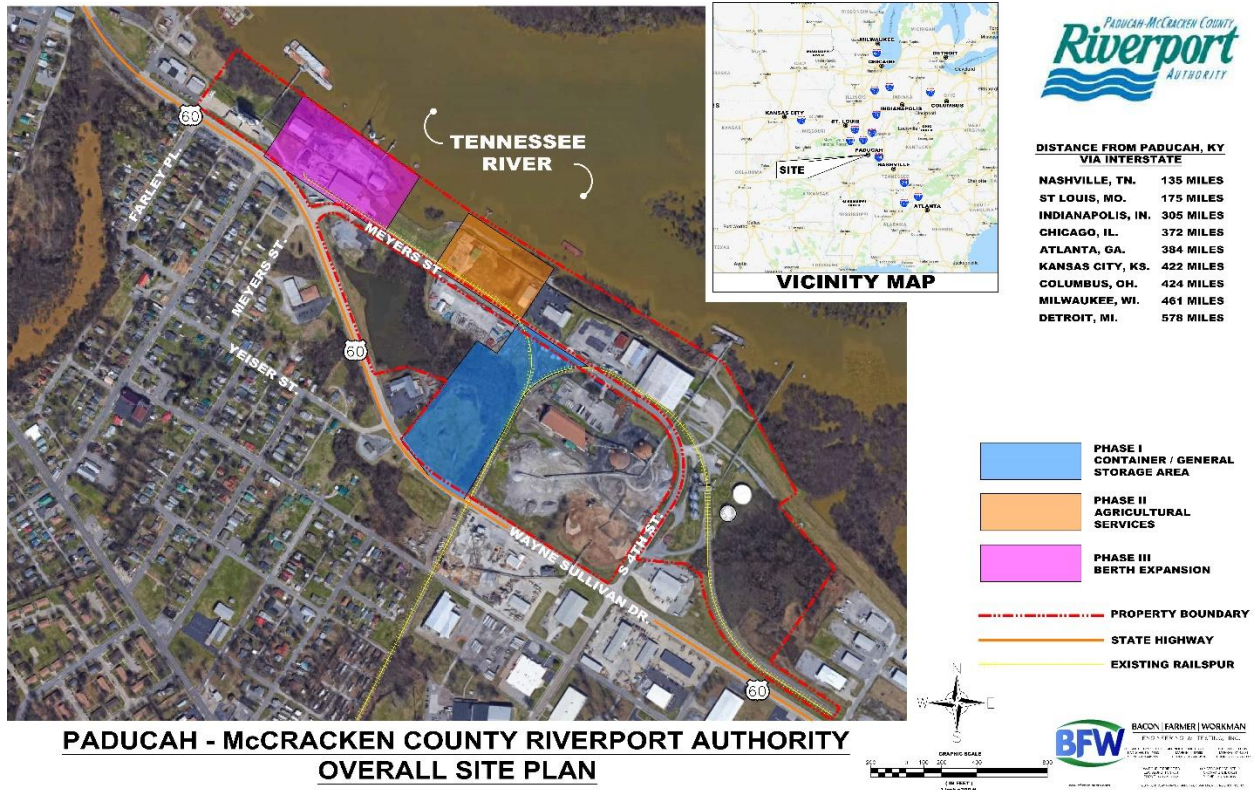


Figure 6: Three Phase Capital Improvement Plan Map

Phase 2 will develop 2.3 acres of PM CRA property for agricultural services. The facility is designed to handle bulk and containerized cargoes that will allow regional agricultural industry access to global markets. The project consists of 4,500 sq. yards of 12" concrete paving, security fencing and solar-powered lighting, three agricultural product storage bins with a capacity of 35,000 bushels each, a truck lane interchange with a double pit, a 20 ft. and 40 ft. container tipper system for loading agricultural products, an empty container handler, and a waterside bulk conveyor belt for loading barges.

Phase 3 will include the development of approximately 4.5 acres of PM CRA waterside property. The project will consist of 20,000 sq. ft. of 12" concrete paving, 1,000 linear ft. of anchored bulkhead, security fencing and solar-powered lighting, a new reach stacker, and a roll-on-roll-off (Ro-Ro) ramp facility. The purpose of this phase is to expand the current berth area so that the PM CRA can provide additional storage for containers and general cargoes.

The third phase will also construct a Ro-Ro Ramp that will benefit the entire region by enabling the movement of vehicles and oversized cargoes, like heavy machinery and height-restricted cargoes, to move via waterways instead of by truck that requires permitting to move. The Ro-Ro ramp can also function for the U.S. Government in times of need or national crisis to move such items like military and humanitarian aid cargoes. By moving the cargo via waterways, any possible clearance, infrastructure damages, freight-related accidents, environmental damages, and congestion created by oversized truck movements on our highways and interstates can be mitigated. The ability to move wheeled-cargoes via waterways as opposed to traditional highway

routes allows the PMCRA, as well as the entire region, the ability to attract new markets and industries that have been otherwise unreachable due to current infrastructure constraints. This expansion also allows sufficient space for the addition of a mobile harbor crane in the future as our requirements and volumes expand. As stated above, the goal of the PMCRA is to self-fund the remaining two phases of our capital improvement project using the revenues generated by the new COB service which will be facilitated by the Container Transfer Yard Development Project.

### **III. Project Location**

*Latitude: 37-065036° Longitude: -88.578798°*

Paducah is at the heart of the Central U.S. MARAD's Marine Highway System. It lies at or very near the confluence of the M-65(Tennessee-Tombigbee Waterway), M-70 (Ohio River) and M-55 corridors (Mississippi River). The intent of the MARAD's Marine Highway System, as stated on the Maritime Administration's webpage indicates that Marine Highways "work to reduce landside congestion by focusing public and private efforts on increasing the amounts of cargoes and passengers transported on the [Nation's] commercially navigable waterways". USDOT projects that daily traffic along the M-65 and M-70 Marine Highway routes could grow by 25,000 long haul trucks each. By connecting to the M-55 route just to the west at Cairo Illinois, Paducah also is an important location for agricultural interests and rural America, 92% of the nation's agriculture exports are produced in the Mississippi River Basin (which includes the Ohio River) and 60% of U.S. grain exports move on the Mississippi.

The PMCRA is physically located at 2000 Wayne Sullivan Drive in Paducah, Kentucky, at the confluence of the Ohio and Tennessee Rivers. The PMCRA is located approximately 30 miles from the confluence of the Ohio and Mississippi Rivers. The PMCRA is located on a section of 0.43 miles on the banks of a channel on the Tennessee River. The PMCRA is also the northernmost, ice-free inland port facility in the U.S., which guarantees year-round shipment of cargoes. The PMCRA can also serve as a diversion port for cargoes to be offloaded in the event of northern ports being frozen. The BUILD grant funds will develop the Container Transfer Yard on approximately nine acres of brownfield property that was previously used as an industrial dumping site for concrete on land owned by the PMCRA. The BUILD grant funds will develop the Container Transfer Yard on approximately nine acres of brownfield property owned by the PMCRA which was previously used as an industrial collection site for concrete waste that could be recycled or repurposed on land before the Riverport purchased the property.

Paducah is an inland waterways gateway – our location creates intermodal access from coast to coast. The Container Transfer Yard will support regional multimodal infrastructure, including multimodal aspects of the project including connections to the Paducah and Louisville Railway (P&L), a short line rail company with connections to 4 Class I railroads (BNSF, CSXT, NS and the Canadian National) and interchange connections with the UP and 3 other regional and/or short line railroads. The nearby access to the P&L increases the marketability of the proposed Container Transfer Yard and will help potential customers minimize shipping costs.

By way of the Mississippi River (M-55), freight can reach the blue water port of New Orleans, LA, or go north to access the Great Lakes (M-90) at Chicago, IL, and further on to Canada. From the Ohio River (M-70), you can reach the states Indiana, Ohio, Pennsylvania, and West Virginia.



From the Tennessee-Tombigbee Waterway you can reach the blue water port of Mobile, AL. and from the Cumberland River, you can reach Nashville and Knoxville, TN. At any point, the freight can be removed from the waterway and put on other surface transportation modes – creating coast-to-coast access.

The Paducah-McCracken County Riverport is ideally located at the confluence of the Ohio and Tennessee Rivers, and within a 30-mile radius of the confluences of the Cumberland and Mississippi Rivers – four of the largest navigable waterways in the nation. According to the U.S. Army Corps



Figure 7: MARAD's Marine Highway Map

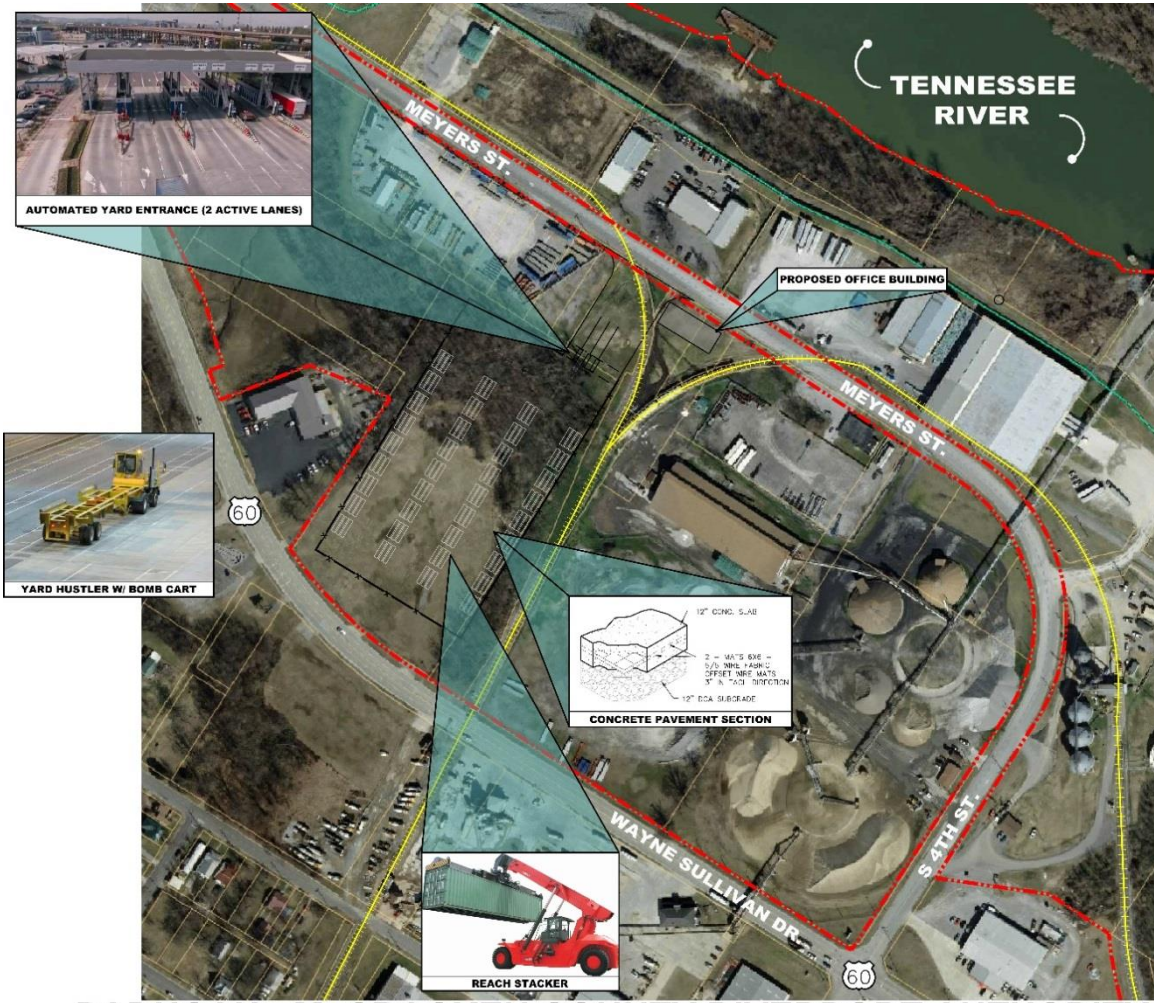
of Engineers, Kentucky has the fourth most miles of navigable waterways with 1,591 miles. According to Kentuckians for Better Transportation, Kentucky waterways and ports create more than 15,000 jobs and contribute \$2.5 billion to the economy annually. Over 100 million tons of cargo was moved last year via Kentucky waterways, ranking 7<sup>th</sup> in the nation and amounted to \$29.2 billion in exports. Our location provides any industry a strategic logistical advantage, which allows the Jackson Purchase Area region of Kentucky to become a major hub for manufacturing and distribution centers access to utilize all four multimodal modes of transportation - water, rail, road, and air. The region offers a reliable supply chain model with access to over 65% – according to the Kentucky Cabinet of Economic Development – of the U.S. population and Canadian border within a single day's drive.



Figure 8: Major Urban Areas & Mileage to Paducah

As can be seen for the Phase I drawing on the next page (Figure 9), the proposed Container Yard is on the dry side of the levee across Meyers St. /So. 4<sup>th</sup> St from the Tennessee River. The proposed project backs up to US-60 on the south. The proposed yard operations will include trucks arriving through the truck gate on Meyers St. where the trucks and containers are checked in and directed to the correct container stack. At the stack, a reach stacker will unload the container and place the container in the assigned stack based upon destination and departure schedule. When the barge has arrived for containers going to a specific destination, those containers are loaded by reach stacker onto the port owned hustler/ bomb carts for deliver to dock side where the port's crane will lift the containers onto the barge. Once the barge is full, the barge will be move to the fleeting area as the rest of the tow is prepared. Once the tow is finalized, a tug will push the tow to destination.

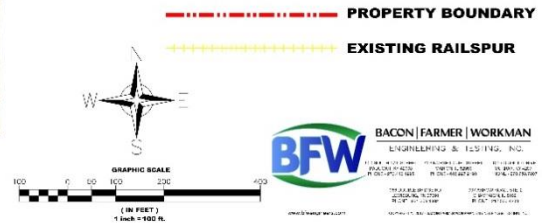
Figure 9: Container Transfer Yard Development Project Phase Map



**PADUCAH - McCRACKEN COUNTY RIVERPORT AUTHORITY  
PHASE I - GENERAL STORAGE AREA**



PROJECT ESTIMATE	
CONSTRUCTION:	\$7,841,900
EQUIPMENT:	\$2,085,000
ENGINEERING & PERMITTING:	\$784,190
<b>PROJECT TOTAL ESTIMATE:</b>	<b>\$10,711,090</b>





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

BUILD 2018 funding is critical to the completion of this project. Cost analysis completed by the Port’s engineering consultant shows that the cost to complete this phase of the Project is \$10.7 million in 2017 dollars. The BUILD 2018 request is for a federal investment of \$10.7 million to complete the Project.

Paducah-McCracken Co Riverport - Phase I Container Yard			
Funding Sources	Amount in Millions	Status	Purpose
BUILD FY18	\$ 10.7		Yard Construction and Equip.
<b>Total Project Funding</b>	<b>\$ 10.7</b>		
	<b>Total Project Cost</b>		
Total Federal	\$10.7	100%	
Total Local	\$0.0	0%	
<b>Total Project Funding</b>	<b>\$10.7</b>	<b>100%</b>	

Figure 10: Phase I Container Transfer Yard Project Costs

Kentucky Revised Statutes prohibits the use of fuel-tax revenues for non-highway projects. The PMCRA 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 PMCRA must receive approval from the City of Paducah and McCracken County governments, as well as receive public approval by a county-wide vote. Public-Private Partnership funding opportunities are limited by the Kentucky Constitution; Section 164, to a 20-year period, thus negatively impacting opportunities for private partnership funding for this 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 state legislature during biennial budget session. These funds are available to all eight public port 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 our capital improvement projects to be self-funded or by grant opportunities like the BUILD grant.

It should be noted that during the past decade, Western Kentucky has not been the recipient of any competitive federal grant award. With this BUILD application that 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.

Although, the PMCRA requests a 100 percent grant for this phase of the project, it should be noted that PMCRA has recently invested over \$6.7 million in necessary equipment and terminal updates. This recent investment includes the purchase of the largest flat-top crane in North America, capable of handling 53 tons in 2014 and the purchase of a new material handler for our bulk operations in 2016. The PMCRA is projecting additional investments of \$7 million in necessary terminal upgrades and equipment before 2020. As these recent investments demonstrate, PMCRA has a track record in generating additional revenues by focusing resources on developing infrastructure to better utilize MARAD's Marine Highway capacity. Federal investment in the container transfer facility will likewise leverage additional revenues for further developing the nation's MARAD's Marine Highway system to safely and efficiently move freight.



*Figure 11: Largest flat top 53-ton crane in North America*

Due to our limited abilities to attract private partners and the self-funding of the two cranes, we are requesting 100% funding from the BUILD grant to develop the Container Transfer Yard Development Project.



*Figure 12: New Material Handler Purchased in 2017*

The source of new non-federal revenue will be from the net revenue created by the Container Transfer Yard. The PMCRA has determined a throughput rate of \$90.00 per container that enters the PMCRA Port Complex. This revenue will generate an estimated \$1.31 million annually based on our potential volumes of 14,560 FEUs annually. Other revenue opportunities such as the stuffing and stripping of containers, storage, and additional Foreign Trade Zone sites under PMCRA management are not included in this new revenue stream.

Our volume is based on current potential clients of the service including, chemical companies, agricultural products, and consumer products. A local economic development project nearing execution requires the development of COB capabilities at PMCRA to ship its product to market. The projected volumes included in this application are based, in part, on scaled back volumes from the estimates provided by the economic development project. This company will be exporting via containers to a blue water Gulf port. The Kentucky Cabinet for Economic Development contacted the PMCRA regarding the development of this new industry because of our ability to have a COB service and has been in contact with this company for some time. Through their conversation with the company, it was determined that their primary freight

transportation mode will be COB. We are currently the only inland port in the state of Kentucky and on the Ohio River that has a MARAD's Marine Highway Designation. The PMCRA met with the company during their due diligence process and provided them rates for both the PMCRA as well as for Ingram Barge Company, who will facilitate the COB service.

### *Project Costs*

The PMCRA is requesting \$10,711,090 to develop the Container Transfer Yard. The project budget below depicts how the funds received from the BUILD grant award will share in each major construction activity.

**Paducah-McCracken County Riverport Authority  
Trans-Loading Area Project  
Project Budget**

Construction Item	Unit	Quantity	Unit Price	Extended Price	% of Cost
Earthwork	CY	20,000	\$ 20.00	\$ 400,000.00	3.73%
Storm Piping	LF	1,500	\$ 110.00	\$ 165,000.00	1.54%
Storm Inlets	Each	11	\$ 8,000.00	\$ 88,000.00	0.82%
Concrete Paving	SY	27,150	\$ 200.00	\$ 5,430,000.00	50.70%
Container Anchors	Pair	9	\$ 4,000.00	\$ 36,000.00	0.34%
Automated Yard Entrance	Each	2	\$ 450,000.00	\$ 900,000.00	8.40%
Lighting	LS	1	\$ 70,000.00	\$ 70,000.00	0.65%
Fencing	LF	2,000	\$ 20.00	\$ 40,000.00	0.37%
<b>Subtotal Construction</b>				\$ 7,129,000.00	66.56%
<b>Contingency (10% of total cost)</b>				\$ 712,900.00	6.66%
<b>Total Construction</b>				<b>\$ 7,841,900.00</b>	<b>73.21%</b>

Equipment	Unit	Quantity	Unit Price	Extended Price	% of Cost
Yard Hustler w/ Bomb Cart	Each	3	\$ 160,000.00	\$ 480,000.00	4.48%
Reach Stacker	Each	3	\$ 535,000.00	\$ 1,605,000.00	14.98%
<b>Total Equipment</b>				<b>\$ 2,085,000.00</b>	<b>19.47%</b>

Additional Costs	Price	% of Cost
Engineering & Permitting	\$ 784,190.00	7.32%
<b>Total Additional Costs</b>	<b>\$ 784,190.00</b>	<b>7.32%</b>

<b>Total Construction</b>	<b>\$ 7,841,900.00</b>	<b>73.21%</b>
<b>Total Equipment</b>	<b>\$ 2,085,000.00</b>	<b>19.47%</b>
<b>Total Additional Costs</b>	<b>\$ 784,190.00</b>	<b>7.32%</b>
<b>Total Project Cost Estimate</b>	<b>\$ 10,711,090.00</b>	<b>100.00%</b>

*Figure 12: Estimated Project Costs*

## V. Merit Criteria

### A. Safety

Waterborne freight movement is considered to be the safest mode of transportation. There are 155 truck-freight related fatalities and 22.7 rail-freight related fatalities for every 1 inland-marine related fatality. For every 1 inland marine-related injury, 2,171.5 injuries occur with truck freight and 125.2 injuries with rail freight. The spill rate for truck freight per million-ton miles is 68% higher than the inland marine spill rate. The PMCRA as is authorized to move hazardous cargoes. Hazardous cargoes move through metropolitan areas via truck on interstates, a spill would have a greater impact on these densely populated areas. By diverting hazardous cargoes to water, the chances for a spill in an urban area will decrease significantly. Hazardous cargoes via rail are unreliable mode of transportation as they are heavily restricted as to what they can move.

Safety is the PMCRA's highest priority. The PMCRA has not experienced a lost-work day injury in over 14 years. We train our staff utilizing the most current and stringent safety regulations for our industry, including regular safety meetings, routine inspections and maintenance of equipment, and quarterly emergency protocol drills with the U.S. Coast Guard.

Diverting freight from highways to the inland waterways will result in fewer long haul trucks on our nation's highways and interstate system, resulting in fewer truck-related accidents and improved travel times for the public and remaining commercial traffic. According the Federal Motor Carrier Safety Administration 2016 Large Truck and Bus Crash Facts, there are 1.5 fatalities per 100 million vehicle miles traveled by large trucks annually. By providing a marine-based alternative to move containers, this project will result in fewer fatal crashes involving trucks. The Paducah-McCracken Riverport Container Transfer Yard Development Project will remove an average 7,588,377 annual truck miles from our highways and 151,767,594 miles over the study period without rail grade crossings.

In our project costs for the Container Transfer Yard Development Project, we have included tie-down straps to secure containers during inclement weather, which will stabilize containers and prevent container stacks from becoming compromised, which would be a severe safety hazard resulting in personal injury or death.

The PMCRA, blue water ports, and tugboat employees are all required to possess a TWIC (Transportation Work Identification Card) issued by U.S. Customs and Border Control to work the COB service. The process to obtain a TWIC card from U.S. Customs and Border Control involves a thorough background check and regular information monitoring.

### B. State of Good Repair

The BUILD grant funds will be used to develop approximately nine acres of PMCRA owned land for a Container Transfer Yard Development and equipment. Developing this property will offer shippers a new opportunity for freight transportation and reduce heavy truck miles from the nation's highway system. The project will be maintained by the PMCRA in the same condition as when the project is completed, less normal wear. Future improvements and equipment needs for the project will be funded by the new COB revenue stream.

The existing facilities of the PMCRRA limit potential for growth and ability to accommodate high volumes of containerized cargo, as well as bulk and other general cargo such aluminum, steel, and heavy-lift cargoes. Our region's accessibility for international and domestic container shipments relies solely on direct long-haul trucking from the U.S. East and Gulf Coasts or trucking the containers to Memphis intermodals to transfer and move the cargoes by rail to the East and West Coasts. The higher cost, extended transit times, current and future truck driver shortages, and rail congestion renders this region as uncompetitive in attracting economic development in manufacturing, industrial and distribution. Due the projected increase in the shortage of truck drivers, maximizing the capacity of the river system and the railroads will be critical in the nation's economic success. The development of this project will provide a low-cost, direct, and reliable third mode of transportation – water access – for containerized cargos allowing the region to compete with larger metropolitan areas to attract manufacturing, industrial and distribution center opportunities currently not available in our rural region due to current infrastructure limitations.

An estimate of weekly barge service of 8 barges laden with 280 FEUs containers to and from the blue water gulf ports will reduce heavy truck traffic on our highway system by 26,546,542 miles annually after the initial three-year start up period. The projected truck diversion over the study period is 259,096,150 miles.

## C. Economic Competitiveness

The development of the Container Transfer Yard Development Project will allow our region to expand its economic engine due to the creation of the COB service. This service will help attract



distribution centers, manufacturing industries, as well as foster numerous construction projects. The COB service would allow our rural region to compete with urban and larger metropolitan areas for these kinds of industries to relocate to this area rather than locate to areas that have access to transportation options that

are not currently available in this region.

COB is the most economical mode of transportation. Due to current driver shortages, the cost of a containerized shipment via truck from a blue water gulf port to Paducah, KY, costs approximately \$3,200.00. Our estimate for a containerized shipment via rail costs approximately the same, as Paducah, KY, does not currently have an intermodal yard to support containerized shipments and requires a truck drayage. The container would be shipped into Memphis, TN, costing an estimated \$2,800.00 with an additional \$752.00 truck trip to Paducah, KY. A COB containerized shipment for Paducah from a blue water gulf coast port saves the shipper/customer at least \$339.00 per container. Larger volume customers will save even more per container by utilizing service contracts for guaranteed volumes. By offering the maritime option, U.S. businesses and agriculture can further lower their transportation costs, making them even more competitive in the U.S. and global marketplace.



The Container Transfer Yard development project will provide a safe, efficient, reliable, and cost competitive mode of freight movement for the region. The development of the Container Transfer Yard will increase the efficiency and effectiveness of the existing multi-modal system by enabling large volume movement of freight to the region for the last-mile movements – such as trucking the containerized cargoes to the local customer. This project would also provide supply chain dependability by avoiding the current and long-term anticipated truck driver shortages and future rail and highway congestion projected by 2040.

Large-volume freight transit time in our region requires approx. 14 – 20 days via truck from the East and Gulf Coast and 15 to 20 days from the West Coast via Memphis rail. The project, alongside the COB service, will support large volume container shipments with an improved transit time, a projected 14 to 16 days, at a lower cost to all parties involved. After the initial shipment delivery by water, the freight shipment will be ready for dispatch throughout the region’s manufacturing and distribution centers on a weekly basis. Additionally, blue water gulf ports’ terminal velocity will improve by the reduced dwell times, creating increased throughput abilities without additional capital investments. The Container Transfer Yard Development Project will provide manufacturers and distributors with quick and reliable supply chain access to much needed inventory to avoid plant shutdowns and product delivery delays. Containers shipped to the PMCRA can be delivered to the point of destination within hours as opposed to days that it took before the COB service began to avoid plant shutdowns due to delayed freight. Barges will deliver containerized cargoes faster than long haul trucks and rail shipments.

### Paducah-McCracken County Major Highway Connections Daily Vehicle Usage

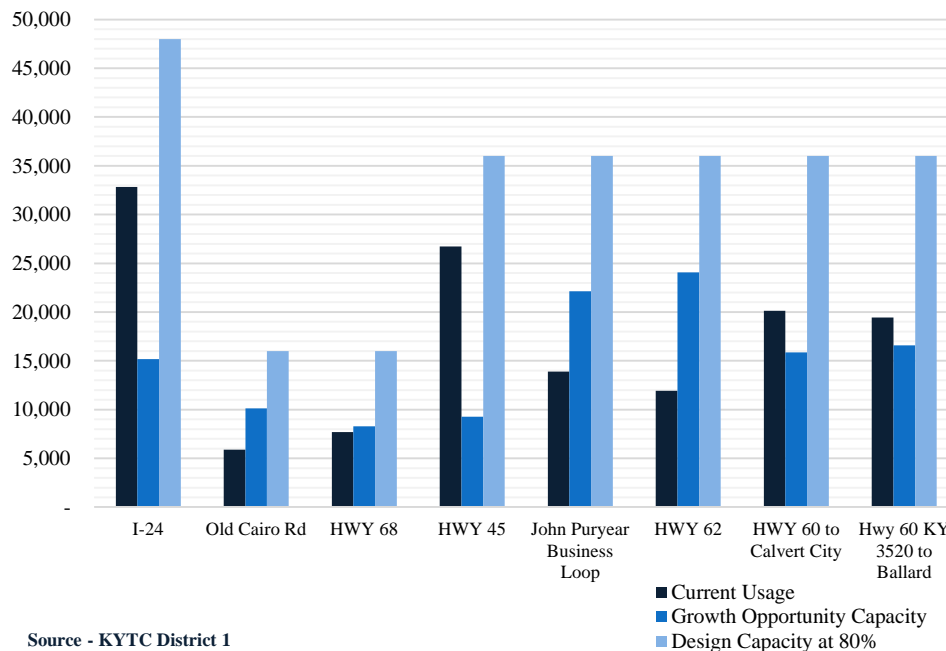


Figure 13: Daily Vehicle Usage on Area Major Highways

The region's uncongested road system includes Interstate-24, Interstate-69, and U.S. Highways 45, 60, 62, and 68, and other regional and local roads that provide an extensive last-mile distribution network for waterborne freight. With Interstate 24 running through Paducah, the City is situated on the National Highway Primary Freight Network designated by FHWA easily connecting truck cargo to the East Coast, Gulf of Mexico and Great Lakes via truck. Based on the usage study of these highways from the KYTC District 1, at an 80% of designed capacity, they can handle an additional 625 vehicles per day from current volume. The PMCRA's central location is within a one-day drive distance to more than 65% of the U.S. population and Canadian border. Furthermore, the PMCRA's advantageous location as the northernmost ice-free inland port is an ideal supply chain distribution point that serves as a quick, overlapping cover for both Northern and Southern distribution points during inclement weather or other unexpected interruptions.

Like many rural communities, the Western Kentucky region struggles with poverty and unemployment. According to Ersi Infogroup, the current unemployment rate in the 50-mile radius surrounding Paducah, KY, is 5.6%, 1.6 % higher than the current national unemployment rate of 4.0% at the time of submittal (July 2018). An estimated 394,698 people live within this 50-mile radius and have a per capita income of \$24,310 and a median household income of \$41,973. According to Census.gov, the median household income in 2016 was \$ 55,322 (\$2016) and the median household income of Paducah residents was \$33,574 (\$2016).

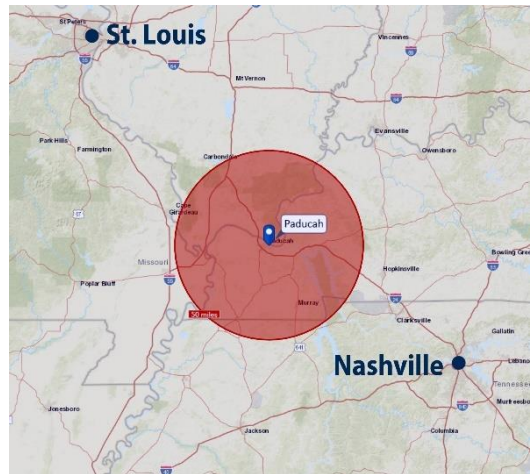


Figure 14: 50-Mile Radius from Paducah, KY

## D. Environmental Protection

The Container Transfer Yard Development Project will increase the PMCRA's capacity for large volumes of containerized cargoes by transporting freight in an eco-friendly matter while simultaneously reducing greenhouse gas and other harmful emissions. The PMCRA plans to use environmentally friendly solar-powered security lights and plans on becoming as paper-free as possible for the COB service by utilizing the practices and technology found at blue water ports. The project will enable shippers to use the inland waterways encouraging the diversion of freight from surface transportation to waterways. The project will support economic development in the region that will have immediate benefits for the public in terms of better air quality, sustainability, and economic growth. Emissions impacts were determined with the BUILD Benefit-Cost Analysis Resource Guide. The methodology used to determine the emissions impact was from the diversion of freight from truck to water based on a single barge load of containers each week from Mobile and New Orleans on a ton per mile basis.

This project is in an industrial area on a brownfield site that prior to the Riverport's purchase in 2010, was used to store cement remnants. The PMCRA did environmental testing on the site

when it purchased the land and did not find any contaminants in the soil at that time. But the site was deemed a brownfield site due to its prior use.

The land use adjacent to the project is a Cement Plant, Diesel Repair shops, and the Paducah-McCracken County Riverport Authority Bulk Yard. The regional land use is mostly agricultural, manufacturing, chemical plants, ship yard repairs, and small businesses.

## E. Quality of Life

Reduced highway congestion and noise from trucks will improve the quality of life in the states of Kentucky, Tennessee, Illinois, Arkansas, Mississippi, Missouri, and Louisiana. Interstate and highway infrastructure deterioration will be reduced as a direct result of removing freight and trucks from roadways and will also prevent injuries and collisions.

There are many Western Kentucky residents who are driving nearly 150 miles to jobs in Illinois, Missouri, and Tennessee because there are not quality jobs currently available in the region. If these residents were to be able to have local jobs like in the river industry, manufacturing and distribution centers, supply chain logistics, and construction and engineering industries – highway and interstate systems traffic and damage to infrastructure would be reduced. By having higher-paying jobs in the area, it will encourage students who leave for secondary education opportunities to return to the area, which will continue to increase the general workforce education levels.

The development of the Container Transfer Yard Project will create 8 new jobs as a direct result of the development of the project. Rural Americans are less likely to have employer-offered health plans than Urban Americans. The new PM CRA employees will have full employer-provided health and life insurance policies as well as options for health and life insurance policies for their families and dependents. The PM CRA pays competitive wages which will be invested back into the regional economy and the local housing market due to their ability to create wealth and have high-paying river industry jobs. As volume increases, we expect the jobs created to increase as well.

According to the National Rural Health Association, the difficulties facing patients in rural areas are immensely different than those in urban areas. Economic factors, cultural and social differences, educational shortcomings, lack of recognition by legislators and the sheer isolation of living in remote areas all conspire to create health care inequalities. Rural Americans have greater distances to travel than those who live in urbanized areas and often travel great distances to see a healthcare professional. The Container Transfer Yard Development Project and the relating COB service will increase rural connectivity – both socially and economically – and will strengthen the foundation of our local healthcare services to keep essential services like area hospitals nearby. Medical centers located in Paducah are the largest regional medical centers in the area. Our award-winning hospitals will continue to thrive and continue to develop regional satellite campuses due to the ever-increasing need for services.

More river-based opportunities will be created for residents, both economic development and leisure opportunities will become available because of the *Paducah: Riverfront to Riverport*

Riverfront Commons and Excursion Pier development project, which will create jobs in tourism and foster economic development for all industries.

## **F. Innovation**

The COB service would be the first service of its kind in Kentucky and in the Ohio River watershed. The PMCRA is the only inland port in Kentucky and in the Ohio River watershed with a MARAD's Marine Highway Designation for COB. The PMCRA envisioned the increased future use of containers and proactively went after the MARAD's Marine Highway Designation in 2015. It was awarded to the PMCRA in July of 2016. This relatively new method of containerized shipping would revolutionize the inland barge industry as entire fleets of tugs would be dedicated to the service. Shippers and manufacturers that have historically heavily relied on containerized shipping methods would be able to consider our area from a logistically strategic view as they would continue to receive containerized cargoes and by locating to the Western Kentucky region, they are within one days' drive to 65% of the U.S. population.

COB service uses an innovative concept traditionally found at large blue water ports for international freight transportation methods. COB is rarely seen outside of large, coastal, metropolitan areas and has never been taken on at such a large scale as the PMCRA is proposing. It is our belief that this method of transportation would generate economic development for every industry that would utilize the service. The PMCRA plans to use a Terminal Operating System (TOS), comparable to those used by the ports of New Orleans and Mobile for the electronic transfer of shipping information to take steps to become paper-free facility.

## **G. Partnership**

This project is a multi-faceted partnership between state and local and public and private entities. The U.S. Maritime Administration has provided important contributions through the designation of the MARAD's Marine Highway project and recognizes the significant economic potential of COB service on the Nation's inland waterways. A U.S. DOT investment of BUILD grant dollars can build on these partnerships and serve as a model for other rural areas looking to take advantage of their natural and built transportation assets.

The PMCRA and the City of Paducah have a long standing dynamic partnership. Together, we have formed a Program of Projects to develop a riverfront port complex that will assist with the shared transportation problem. The BUILD funding will support the planning, design, and construction of all project components. The proposed program of projects will address the transportation challenge associated with expanding inadequate maritime infrastructure at Paducah's riverport complex to enhance downtown/Riverfront Connections that will foster economic development and tourism in our region. The City of Paducah is requesting \$11,276,607 to fund the Paducah Commons and Excursion Dock project. The PMCRA is requesting funds for the development of the Container Transfer Yard for the economic development aspect of this Program of Projects. This unprecedented partnership formed between the PMCRA and the City of Paducah allows for our economy to once again be fueled and supported by the river industry. Our region is the hub of the inland waterways in our country.

The PMCRA has partnered with Ingram Barge Company, the second largest barge company in the U.S., to facilitate the COB service. The PMCRA and Ingram have worked hand in hand to determine rates for the COB service. Ingram has been actively marketing the COB service utilizing their vast network of contacts and resources to initiate the COB service as quickly as possible.

The PMCRA has partnered with Kentucky Economic Development, the State's economic development arm, to assist with the relocation of a confidential company to the area that will be utilizing the COB service with an annual volume of 12,480 FEUs. Kentucky Economic Development reached out to the PMCRA during the potential company's due diligence process and asked us to present the benefits of the COB service and how it can lower their logistical and supply chain costs. The new industry will create at least 500 direct jobs and create indirect jobs in both the trucking and warehouse industries.

## **H. Non-Federal Revenue for Transportation Infrastructure Investment**

The new non-Federal revenue stream required by the DOT to apply as a Program of Projects will be generated by the revenue created by the new COB service. The PMCRA determined a rate of \$90.00 per container is the most profitable rate for the PMCRA and most competitive rate for potential customers. The PMCRA believes that this is a reasonable rate to charge as we determined it by evaluating all costs incurred with this service - such as labor, employee benefits, insurance, equipment maintenance, crane usage, market trends, and profit margins to support Phase 2 and Phase 3 of the project.

## **VI. Project Readiness**

The PMCRA Container Transfer Yard Development Project is prepared to proceed upon receipt of a BUILD grant award, if successful. The PMCRA has completed the project development process. The project schedule is dependent on the BUILD grant award. If the BUILD grant is awarded for the project, we estimate completion within 24 months without inclement weather conditions. See the project schedule for the anticipated timeline.

### **A. Technical Feasibility**

The PMCRA staff has extensive experience in the containerized cargoes and maritime industry. Their experience includes blue water port dock work, ocean carrier experience, international port service and administrative negotiations, carrier alliance agreements, blue water terminal management experience, blue water terminal expansion and construction experience, experience in hazmat cargoes and segregations, and experience in all types of cargo commodities – bulk, general, and containerized cargoes. This project will utilize that experience to ensure completion of the project and effective implementation of the new service.

PMCRA has consulted with a state-qualified local engineering firm that has provided project estimates and renderings. The project consists of earthwork, storm drain piping, storm inlets, concrete paving, terminal interchange gates, solar-powered lighting, and fencing, on yard



hustlers with bomb carts, and reach-stackers on brownfield PMCRA owned property. The design criteria meet applicable state and local standards. The project's design plans are as follows:

1. Earthwork – 20,000 Cubic Yards
2. Storm Piping – 1,500 linear feet
3. Storm Inlets – 11
4. Concrete Paving – 27,150 Square Yards
5. Terminal Interchange Gates – Canopy, 3 Truck lanes with scales, booths
6. Solar-powered lighting
7. Fencing – 2,000 linear feet
8. Container Anchors – 9 pairs
9. Yard Hustler with Bomb Cart – 3 units to transit the containers to and from crane side to the stacking area.
10. Reach-Stacker – 3 units for delivery and repositioning of containers.

The project will be co-managed by the PMCRA staff and The City of Paducah, while under the guidance of the Kentucky Transportation Cabinet. We will work directly with a qualified engineering firm with in-depth knowledge and experience and in all phases of engineering, pre-construction and construction activities. The firm that will be retained has extensive experience in transportation infrastructure projects including on the National Highway System and state and local highways, as well as work on previous PMCRA projects.

An effective asset management approach that will maximize the long-term cost structure and ensure the highest standard will be met. The approach includes:

- Direct supervision of contractors during construction activities.
- Review of all contractor's safety policies and procedures.
- Random safety inspections before, during, and after the project construction.
- Random inspections of the project infrastructure and maintenance on equipment.
- Mandatory monthly written inspections of security, maintenance, and operating reports.
- A formal, preventative maintenance schedule.
- Semi-annual operations and marketing meeting with State and Regional officials as well as with regional Economic Development organizations.

The project site is currently an undeveloped brownfield property that restricts the Paducah-McCracken Riverport ability to become a greater economic engine for the region. As industries develop and service reliability is demonstrated by PMCRA, volumes will increase and will exceed current capacity of the PMCRA facilities beyond year two of operation. With a successful application for BUILD grant funding, the project's condition would be enhanced to allow for expanded economic opportunity for the PMCRA and the surrounding region for expanded volumes and manufacturing and distribution.

## B. Project Schedule

The entire project is estimated to take 35 months and the construction period will be 14 months, projected to begin April 2020 and be completed by October 2021. Milestones will be considered as completed at the end of each construction step listed below (*Figure 15*).

*Figure 15: Container Transfer Yard Project Schedule*

Major Activity	2018					2019					2020					2021														
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
BUILD Grant Application	■																													
BUILD Grant Award					■																									
Grant Agreement Activities						■	■	■	■	■	■	■	■	■	■	■	■	■												
Final NEPA Approvals																														
Engineering Design											■	■	■	■	■	■	■	■												
Construction Bidding																														
Equipment Bidding																														
Construction Contract Award																														
Equipment Award																														
Pre-Construction Meeting																														
Construction																			■	■	■	■	■	■	■	■	■	■	■	■
Equipment Delivery/ Training																														
Construction Closeout																														
Equipment Startup																														
Final Inspection and Closeout																														

## C. Required Approvals

### 1. Environmental Permits & Reviews

#### a. NEPA Status

For submittal purposes, at this time the PMCRRA assumes that the BUILD grant will be awarded to the City of Paducah. It is assumed that MARAD will be the final approval agency relative to NEPA. Given this is a brownfield site that is on the dry side of an existing flood wall we anticipate that the required environmental document will most likely be a level 2 categorical exclusion (CE level 2).

The following items may be required to be addressed in the CE level 2:

1. Fisheries
2. Freshwater macroinvertebrates
3. Water quality
4. Botany
5. Terrestrial zoology
6. Wetlands
7. Prehistoric and historic archaeology
8. Operational noise analysis
9. Air quality analysis
10. Stream mitigation
11. Socio-economic analysis
12. Cultural-historic analysis
13. U.S.T and hazmat preliminary site assessment
14. U.S.T closure assessment
15. U.S.T site investigation (Phase II)
16. U.S.T corrective action
17. Hazmat site investigation (Phase II)

18. Hazmat corrective action

The PMCRA has been coordinating with a local engineering firm to meet the NEPA requirements. If a BUILD grant is awarded, PMCRA and its consultant is prepared to accelerate the necessary documentation and coordination with the responsible federal agency to fully comply with all NEPA requirements.

**b. Information on Reviews, Approvals & Permits by Other Agencies**

The PMCRA will obtain permitting from the City of Paducah, as the project is located within city limits. Because of the unprecedented partnership between the City and PMCRA, no delays in the permit process are anticipated. The PMCRA expects to receive permitting from the City of Paducah within a few weeks of submitting the project for approval.

**c. Environmental Studies / Other Documents**

This project is in an industrial area on a brownfield site that prior to the Riverport's purchase in 2010, was used to store cement remnants. The PMCRA did environmental testing on the site when it purchased the land and did not find any contaminants in the soil at that time. But the site was deemed a brownfield site due to its prior use. The PMCRA does not expect to undergo any additional environmental studies before the Container Transfer Yard Development Project begins construction other than those required by the NEPA process.

**d. Discussion with the appropriate DOT Operating Administration Field or Headquarter Office regarding NEPA status and Environmental reviews**

The PMCRA has quarterly meetings with MARAD, during which we discussed the initialization of COB with the Department of Transportation – Maritime Administration (MARAD) extensively. We have notified our field director, Branden Criman Director, Inland Waterways Gateway of MARAD - St. Louis of all construction activities that will take place if awarded BUILD grant funding and all NEPA and environmental reviews that we believe that we will have to submit.

**e. Description of Public engagement about the project**

The PMCRA's Container Transfer Yard project has been celebrated by every regional economic development group in Western Kentucky as a life-changing service for the economic impact it will have on the residents of our community and surrounding rural area. Because this project will be developed on existing PMCRA property, no public meetings were held to discuss the project. The PMCRA holds monthly Board of Directors meetings, at which the project has been discussed extensively every month for years. The PMCRA Board of Directors is comprised of members of the community who have been appointed by the Mayor of Paducah and who see the importance the Riverport plays in the community. The Board of Directors is comprised of individuals who have backgrounds in economic development, engineering, the river industry, and former elected officials.

The Paducah-McCracken Riverport Container Transfer Yard Development Project has acquired significant political support at the Federal, State and Local levels. The legislative support is listed below:

- U.S. Senator Mitch McConnell
- U.S. Congressman James Comer
- Secretary Greg Thomas - Kentucky Transportation Cabinet
- Mayor Brandi Harless – City of Paducah, Kentucky
- Judge Executive Robert Leeper – McCracken County, Kentucky
- Judge Executive Todd Cooper – Ballard County, Kentucky
- Judge Executive Greg Terry – Carlisle County, Kentucky
- Judge Executive Kevin Neal – Marshall County, Kentucky

## ***2. State & Local Approvals***

The Project does not need any additional state or local approvals other than the permits outlined above.

## ***3. Federal Transportation Requirements affecting State & Local Planning***

The Paducah-McCracken County Riverport Trans-Loading Area Development Project is mentioned in the Kentucky Transportation Cabinet’s Strategic Highway Investment Formula for Tomorrow Program (SHIFT). The SHIFT Program was spearheaded by Kentucky Governor Matt Bevin designed to create a new system for prioritizing transportation dollars that is data-driven, objective, and transparent. The Kentucky Transportation Cabinet developed a strategic funding model to invest the limited transportation budget across the state in an intentional and impartial manner. The SHIFT Program is comprised of both statewide and regional infrastructural projects and is shaped by the state and local transportation leaders’ contribution and feedback. This unbiased approach to appropriating funding creates a more balanced and equitable plan that is fair for both large metropolitan and rural areas.

The SHIFT Program is a collaborative input allocation model that uses quantifiable data to access the remunerations of planned projects and compare them to one another. The SHIFT Program allows policy makers and leaders in transportation to see all projects compared together to see just how far down the priority list the limited infrastructure budget will go and which projects can be funded if additional fiduciary means are generated.

Aspects of the project have been discussed with the State, McCracken County, and City of Paducah leadership. Engineering disciplines involved in the design and cost estimates are integrated to ensure the project will advance smoothly and seamlessly as possible.

## **D. Assessment of Project Risks and Mitigation Strategies**

The key factor in the success of the project is identification, assessment, mitigation, and management of risk. The PMCRA realizes a proactive approach in management of the project risk and will develop an extensive Risk Management Plan. The Risk Management process consists of Identify, Analyze, Address, Track, and Control. This process will allow us to assess

the identified risk, determine the probability and impact of each risk, develop mitigating strategies, implement the corrective measure strategies, develop and implement the strategies, and monitor the risk. A risk list will be developed and recorded throughout the project for each portion of the project.

PMCRA is an operating inland waterway Riverport conservatively managed with consistently positive cash flows. The Executive Director of the PMCRA, who is responsible for all operational, safety and financial aspects of the port, has 33 years of progressively responsible experience in various aspects of shipping and port terminal management. He has an extensive network of relationships within the industry, oversight agencies and with area shippers. He has successfully delivered other port projects including terminal upgrades and equipment upgrades at the PMCRA. In addition, over his career he has delivered an extensive list of projects including a project expanding berth capacity at an East Coast blue water port as well as other similar projects to the Container Transfer Yard. His experience together with the support of the City of Paducah will ensure that the project is successfully managed; minimizing risks associated with project delivery and ensuring operation metrics exceed expectations.

*Figure 16: Chart of Risks and Mitigation Strategies*

Potential Risk Area	Risk Type	Status/Proposed Mitigation	Risk Level
Technical Feasibility	Feasibility	Preliminary design developed in coordination with qualified engineering consultant.	Low
Environmental Approvals	Cost, schedule	Environmental documentation expected to be a CE, site is brownfield on dry side of the levee. MARAD is expected to be assigned as the lead federal agency. Port has coordinated with the Administration on past and current projects. An EA on the property was done when the brownfield site was purchased by the PMCRA with no environmental hazards identified.	Low/Medium
Permitting	Cost, schedule	Project will require a City of Paducah permit. As the Port is a function of the City of Paducah and McCracken County, this should move through the City process easily.	Low
Construction	Cost, schedule	Project consists of equipment concrete, security fence, interchange gates and related improvements on a brownfield site. Conservative prices and quantities were used in the cost estimates and project contains sufficient contingency.	Low
Operations and Maintenance of Completed Project	State of Good Repair	Project will be managed by an experienced Port Director with a record of expanding service and delivering cost savings while maintaining infrastructure appropriately based on asset management principles. The project estimate includes an estimate for annual life cycle costs.	Low

## VII. Benefit Cost Analysis

Figure 16 displays the summary of the BCA. Quantified benefits include the transportation cost savings of modal conversion to barge, reduced emissions due to reduced truck miles, better fuel efficiency, and improved safety by the reduction of potential accidents anticipated from the reduction of truck vehicle miles traveled when this project is completed.



This BCA follows guidance set forth in the Benefit-Cost Analysis Resource Guide and the 2018 Benefit-Cost Analysis Guidance for Grant Applications.

A discount rate of 7 % was used, following the Discretionary Grant BCA Resource Guide updated June 2018. Bottom line, the present value (PV) of capital costs in 2017 dollars is \$8.4 million and the PV of net benefits is \$46.0 million. This rate yields conservative estimates of NPV and benefit cost ratio. This is appropriate because funds are public and would be spent on other public projects. This analysis yields a NPV of \$37.6 million and a benefit-cost ratio of 6:1. The greatest share of benefits is Economic Competitiveness from operational savings as a result of the use of barges versus trucks for the forecasted freight shipments. More detail on the BCA can be found in Appendix A.

Figure 16: Benefit Cost Analysis Summary Chart

Benefit Cost Analysis Summary					
Long-term Outcomes	Social Benefit	Inputs	Value	Monetized Value	
				Discount Rate 7%	Discount Rate 3%
Quality of Life	Fuel savings due to reduced miles traveled by cargo using Rail from the terminal vs. Truck	Gallons of fuel saved	12.6 million gallons of fuel saved with modal shift to Barge Benefit not included as the fuel saving is accounted for in Econ. Comp.	\$ -	\$ -
Economic Competiveness	Operational cost savings	Savings of barge transport vs. truck transport	\$339/ container	\$ 32,767,385	\$ 55,648,497
State of Good Repair	Reduction of maintenance on US Roads & Hwys, Consistent with State and Regional Plans	Maintenance, preservation and upgrade savings of Highways	152 million VMT reduced off the highways	\$ 6,889,850	\$ 11,700,958
Environmental Protection	Environmental Benefits from Reduced Emissions by modal change to barge	CO <sub>2</sub> cost savings	112.073 metric tons of CO <sub>2</sub> saved	\$ -	\$ -
Environmental Protection	Environmental Benefits from Reduced Emissions by modal change to barge	Non-CO <sub>2</sub> Emission cost savings	Not Calculated		
Safety	Reduced fatalities from reduction of VMT	Fatality cost savings of 1.64 fatalities	\$15.7 million saved	\$ 5,952,830	\$ 10,109,628
Total Cost					
Total Benefits				(\$8,401,767)	(\$9,631,627)
Net Present Value				\$ 37,625,758	\$ 69,241,268
Benefit to Cost Ratio				6:1	8:1

## VIII. Conclusion

It is with great honor that the Paducah-McCracken County Riverport Authority submits our application for the 2018 Better Utilizing Investments to Leverage Development Transportation Discretionary Grant Program. It is our sincere hope that the Department of Transportation understands the extraordinary impact that these life-changing funds would have on the rural citizens of Western Kentucky. We would like to sincerely thank you for your time and consideration of our project.