Kentucky's Electric Vehicle Infrastructure Deployment Plan Better Kentucky Plan





Agenda

- Presentation
 - EV Overview
 - NEVI and KY EVIDP Overview
 - KY's Priority EV Corridors/Round 6 AFCs
 - Next Steps









Electric Vehicle (EV) Types





Battery Electric Vehicle (BEV)

- Battery Power Only
- Typical Battery Range 150-400





Plug-In Hybrid Electric Vehicle (PHEV)

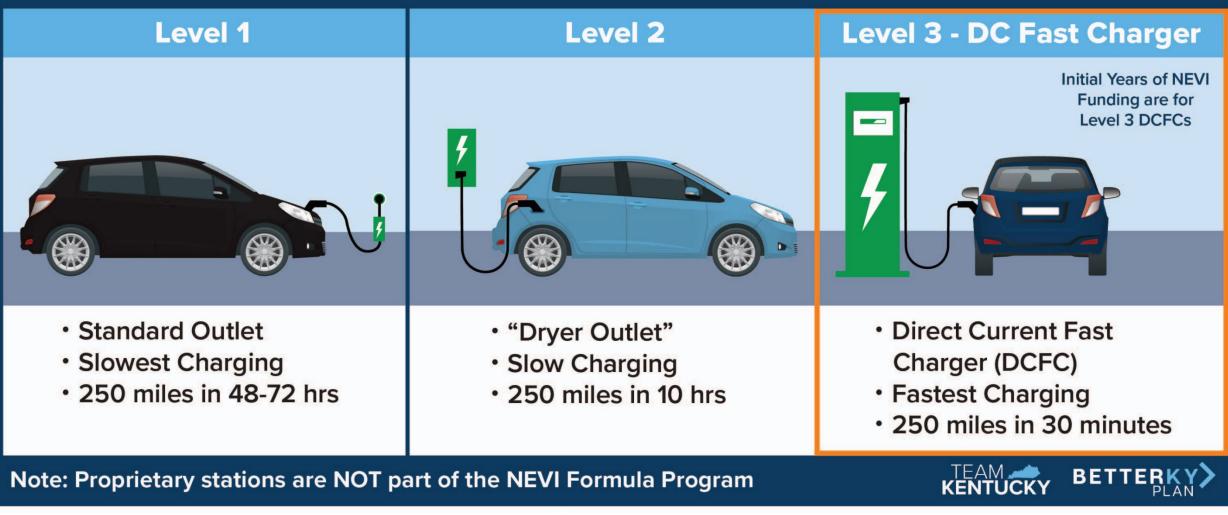
- Battery Power and Internal Combustion Engine (ICE)
- Typical Battery Range 20-40 miles

Hybrid Electric Vehicle (HEV)

- Internal Combustion Engine (ICE) Only
- Battery Charges by Regenerative Braking or Using Engine as a Generator
- Battery Allows for Smaller Engine, Powers Auxiliary Loads, and Reduces idling



TYPES OF ELECTRIC VEHICLE CHARGING STATIONS



Barriers to EV Adoption & EV Infrastructure

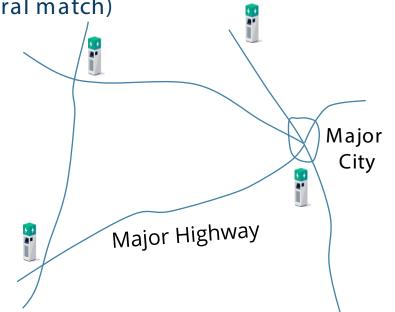




National Electric Vehicle Infrastructure (NEVI)



- Passed Nov. 2021 -- Bipartisan Infrastructure Law (BIL) or Infrastructure Investment and Jobs Act (IIJA)
- NEVI --7.5B for EV Infrastructure
 - \$5.0B In NEVI Formula Program Funds / \$2.5B in Discretionary (competitive) Grant Funds
 - KY receives \$69.5M over 5-year period (+20% non-federal match)
- Purpose of NEVI
 - Develop a plan
 - National network of Fast Chargers
 - Designed to support travel on major corridors
 - Focused on Alternative Fuel Corridors (AFCs)





KY's EV Infrastructure Deployment Plan (EVIDP)



Developed by:



In Coordination with:



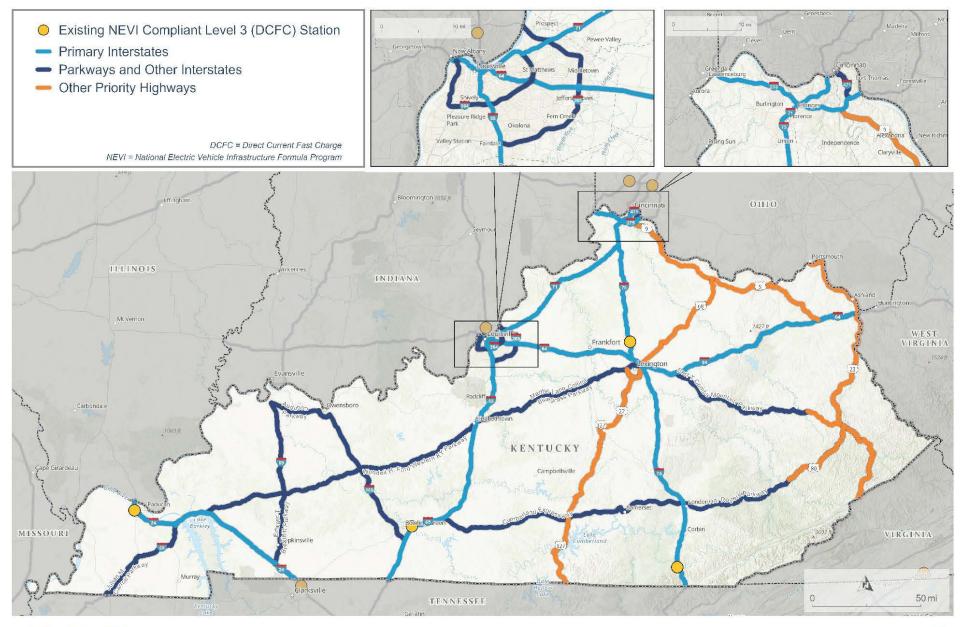
Plan Vision:

A reliable, accessible, convenient, and affordable EV charging network that supports transportation choices, energy diversification, economic development, and environmental sustainability for all Kentuckians.

- Engaged in over 100+ Meetings (approaching 1,000 people)
- Meets the Federal Requirements
- Submitted prior to Aug. 1st Deadline and Awaiting Approval by Sept. 30th



KENTUCKY'S PRIORITY ELECTRIC VEHICLE CORRIDORS

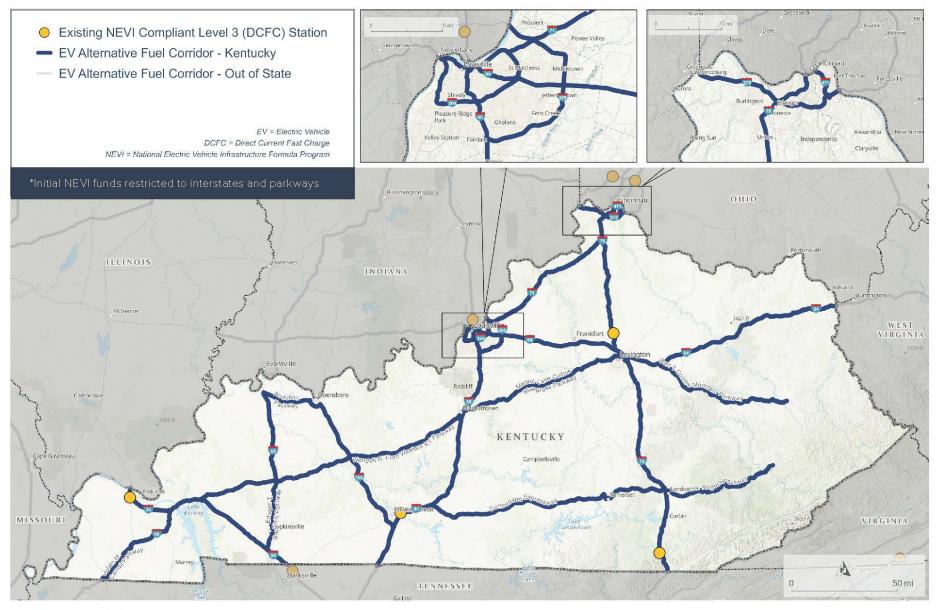




Kentucky Transportation Cabinet



THE FIRST STEPS: ELECTRIFY OUR INTERSTATES AND PARKWAYS KENTUCKY'S EV ALTERNATIVE FUEL CORRIDORS (AFCs)





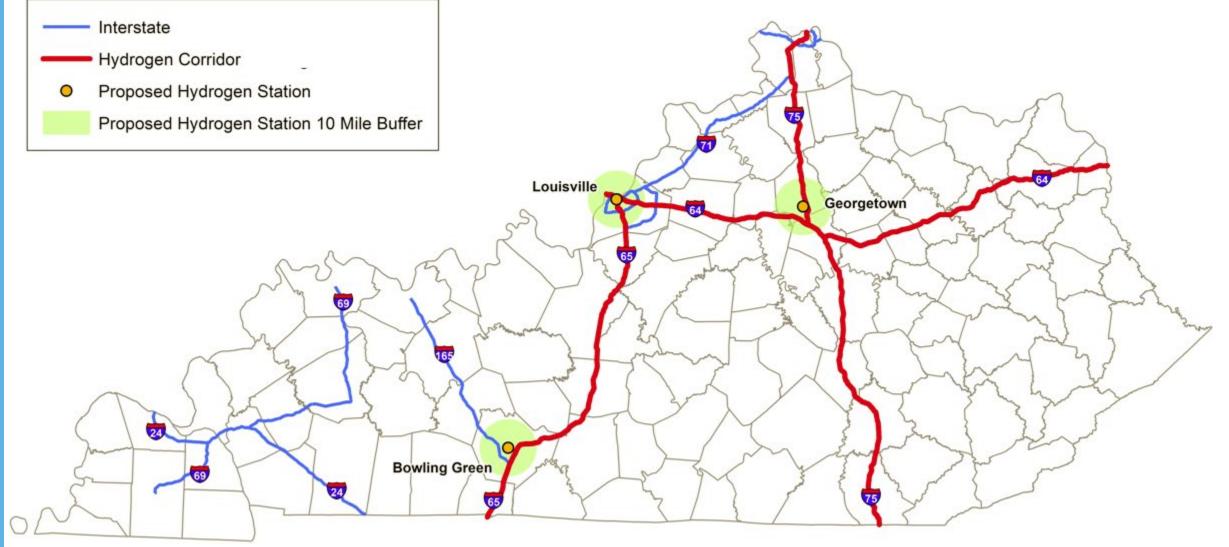
Kentucky Transportation Cabinet

Energy and Environment Cabinet



Hydrogen – Round 6 AFC







Next Steps

- EV
 - Request for Information (RFI)
 - Waiting Approval from FHWA
 - Waiting for Discretionary grant funding (Nov 2022?)
 - Waiting for further Guidance on EVs when dealing with Freight (Nov 2022?)
 - Have talked with several entities on their vision for EVs and Freight

- Hydrogen
 - Kenya..anything to add



Questions





KY EV Plan Contact Email:

EVPlan@ky.gov

Weblink to sign up for future emails: <u>KY EV Infrastructure Deployment Plan</u>



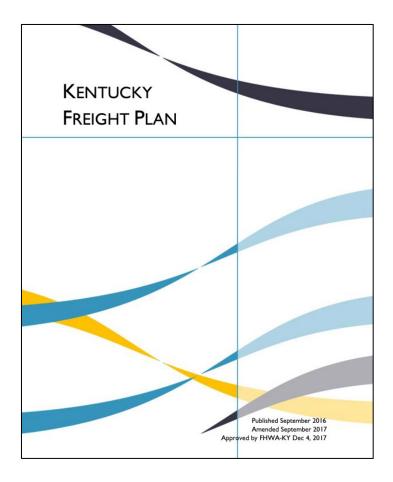
Kentucky Freight Plan 2022KY FACTUPDATE



August 15, 2022

Introduction

- 2022 State Freight Plan
 - Update of the 2016/17 State Freight Plan
 - Integrate freight planning efforts statewide and support the LRSTP
 - Comply with updated Federal Freight Plan Requirements (IIJA/BIL)
- Current Status: Finalizing Draft/Compliance with the IIJA
- What do we need from the KY FACT?
 - Any questions you may have



Freight Plan Outline

- 01 Kentucky Freight Plan's Mission, Vision, and Coordination with Other Plans
- 02 Overview of Kentucky's Multimodal Freight System
- **03** Goals and Performance Measures
- 04 Current Conditions of Kentucky's Freight System
- **05** Key Industries and Supply Chains
- 06 Trends and Challenges
- **07** Freight Operational Strategies, Conditions, and Technologies
- **08** Freight System Needs
- 09 Recommendations
- **10** Freight Investment Plan

Mission and Vision

The 2022 Kentucky Freight Plan (KFP) is designed to supplement the 2022 Long-Range Statewide Transportation Plan (LRSTP).

Mission

Provide a safe, efficient, environmentally sound, and fiscally responsible transportation system that delivers economic opportunity and enhances the quality of life in Kentucky.

Vision

Meet or exceed the needs and expectations of our customers. Our focus is on people: our customers, our employees, and our partners. We will continually improve both the delivery of our products and services and the processes which support that delivery. As we progress through the 21st century, we recognize that change is inevitable. We will strive to manage that change to the benefit of all our stakeholders.

Overview of Kentucky's Multimodal Freight System

6 major interstates and 10 state parkways

2,583 miles of freight rail: five Class I, one Class II, and seven Class III railroads



1,662 miles of USACE designated navigable waterways, including 1,020 commercially navigable, as well as 10 public riverports

Six commercial airports, including two major shipping hubs that are home to UPS Worldport (Louisville) and DHL Express/Amazon Air (Covington)

41,000 miles of pipelines moving oil, natural gas, and other commodities

Current Conditions: Pavements

The Maintenance Rating Program (MRP) Report is an annual survey of roads conducted by the KYTC Division of Maintenance. The survey rates between 300 and 400 roadway segments among 4 road types on a 100-point scale, with a target score of 80. Grades are assigned in several categories including rideability, potholes, striping, and signing.

ROAD SYSTEM	20	15	2020		
CLASSIFICATION	Score	Grade	Score	Grade	
Interstates	90.5	А	92.4	А	
National Highway System	91.0	А	90.0	В	
State Primary and Secondary	84.0	В	81.7	В	
Rural Secondary	80.6	В	78.0	С	
All Roads	83.7	В	81.4	В	

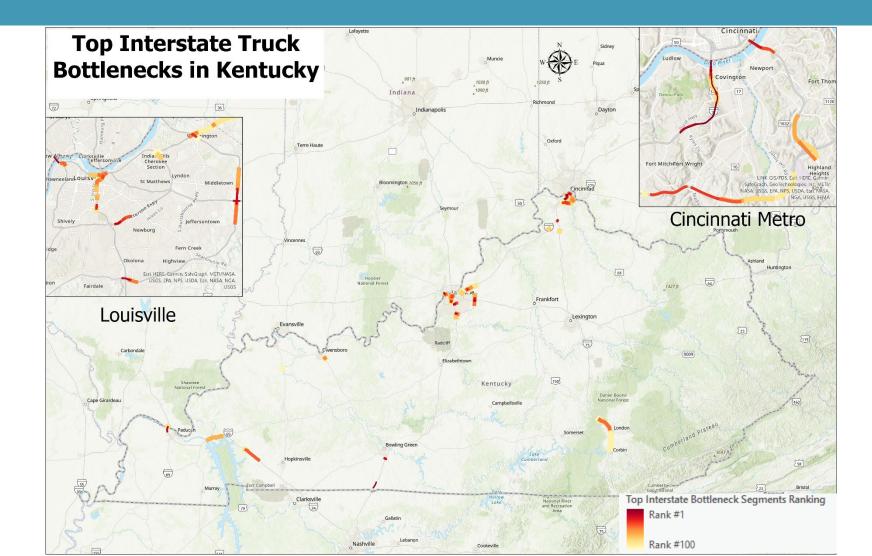
Source: KYTC, Maintenance Rating Program Reports.

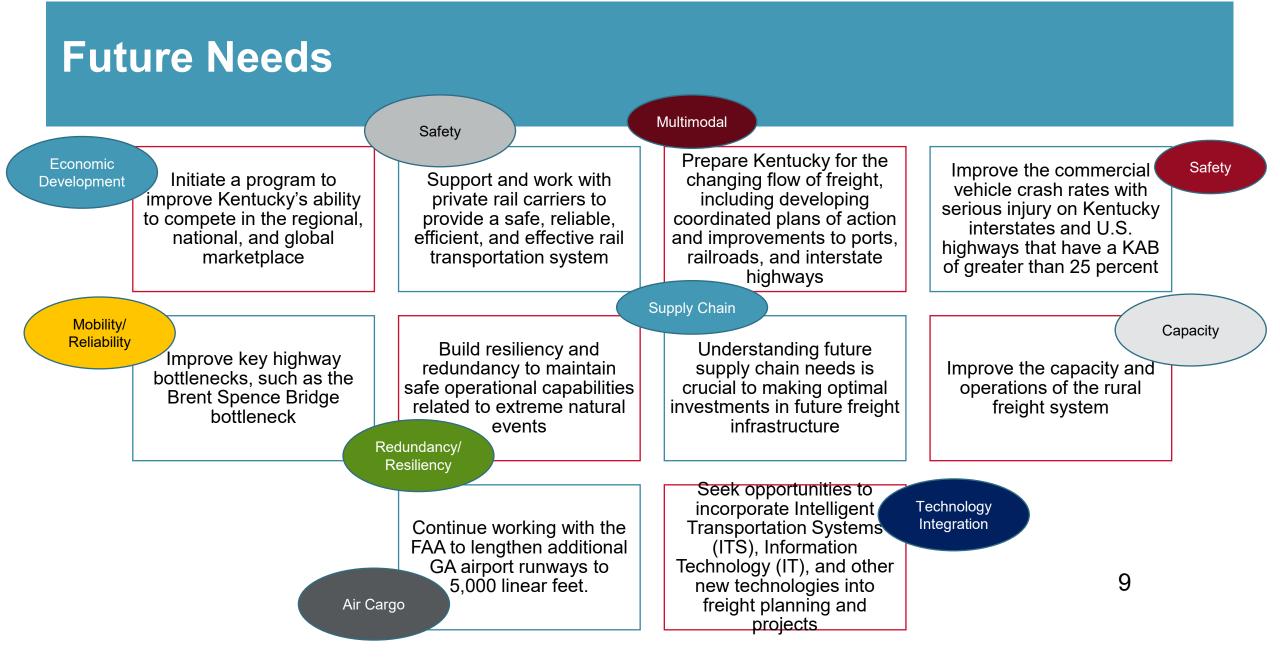
Current Conditions: Top Interstate Truck Bottlenecks

Rank	County	Route	Location	
1	Kenton	I-71	Brent Spence Bridge	
2	Simpson	I-65	South of I-65/KY-100	
3	Jefferson	I-64	Sherman Minton Bridge	
4	Campbell	I-471	Bridge over the Ohio River	
5	Jefferson	I-265	I-265/I-64 Interchange	
6	Jefferson	I-264	East of I-65/Watterson Expy Interchange	
7	McCracken	I-24	Bridge at the Kentucky/Illinois State Line	
8	Jefferson	I-65	South of I-65/I-64 Interchange	
9	Kenton	I-275	West of I-471/I-275 Interchange	
10	Jefferson	I-71	I-71/I-265 Interchange	
11	Laurel	I-75	North of I-75/KY-80 Interchange	
12	Jefferson	I-265	East of I-65/I-265 Interchange	
13	Warren	I-165	I-65/I-165 Interchange	
14	Daviess	I-165	I-165/US-60-BYP Exit 70	
15	Jefferson	I-264	I-71/Watterson Expy Interchange	
16	Webster	I-65	Webster/Henderson County Line	
17	Laurel	I-75	South of I-75/KY-192 Interchange	
18	Trigg	I-24	North of I-24/US-68 Interchange	
19	Campbell	I-471	I-471/I-275 Interchange	
20	Grant	I-75	KY-491/Exit 166	
21	Lyon	I-24	West of I-24/US-62 Interchange	
22	Jefferson	I-64	I-65/I-64 Interchange	
23	Boone	I-71	I-71/I-75 Interchange	
24	Boone	I-71	Boone/Gallatin CL	
25	Jefferson	I-65	Jefferson/Bullitt County Line	
	Source: INRIX, 2021.		•	

7

Current Conditions: Top Interstate Truck Bottlenecks





Program-Level Recommendations

Focused investment in the Kentucky Freight Network

Implement recommendations outlined in the Truck Parking Plan, Aviation Plan, Riverport Study and State Rail Plan

Continued focus and expansion of freight performance measures

Identify/Monitor/Maintain roadways that support the air cargo, advanced manufacturing, agriculture, and energy industries

Sustained work to integrate freight stakeholders in the state and MPO planning process(es)

Continued partnership with MAFC and regional initiatives like ITTS, TETC, and TPIMS expansion

Collaborate with KCED, EDCs, ADDs and MPOs to ensure transportation supports economic development strategies

Enhance Safety

- Encourage participation of freight stakeholders in the development of future KYTC safety plans.
- Work with legislators and the railroads to expand grade crossing safety funding opportunities.
- Partner with the Kentucky State Police (KSP) to address safety specifically truck parking and overweight truck enforcement.
- Expand the MAASTO Regional Truck Parking Information Management System (TPIMS) initiative to include more locations in Kentucky.
- Implement recommendations from the Truck Parking Needs Assessment and Action Plan to reduce unauthorized truck parking on highway ramps and shoulders.
- Encourage increased truck safety analysis in the next KYTC Strategic Highway Safety 11 Plan.

Deliver a high level of maintenance and resiliency

- Increase Corridor-level investment in facilities that show high truck volumes and declining pavement/bridge quality.
- Further evaluate multimodal freight corridors for the redundancy and resiliency to mitigate the impacts and severity of extreme weather or natural disasters on the multimodal freight system.
- Mitigate freight flow disruptions along key freight corridors by closely monitoring bridge inspection reports.
- Determine KYTC's role in encouraging new technologies (such as truck platooning, Unmanned Aerial Vehicles (UAV), etc.) as method to prolong the states infrastructure.
- Implement recommendations of the Kentucky Riverport, Highway and Rail Freight Study that pertain to riverport maintenance and overall resiliency of the waterway system
- Continue to work with the riverports to identify opportunities and solve unique riverport infrastructure challenges throughout Kentucky

Ensure a reliable flow of people and freight

- Work with the Kentucky State Police (KSP) to develop alternative route plans for major incidents/unplanned closures.
- Work to identify and improve highway connectivity with other modes.
- Improve and expand Intelligent Transportation Systems (ITS) technology along key corridors to increase efficiency and reliability.
- Actively work to reduce the impact and **address freight bottlenecks**.
- Proactively protect KYTC assets from potential freight-related incidents; identify potential barriers restricting freight movements, plan work zones, and detours to handle freight vehicles, etc.

Provide local, regional, and global connectivity for communities

- Partner with local governments and private partners to proactively manage the condition of intermodal connectors and connectivity points
- Develop a program to educate local officials on the importance of intermodal connectors
- Identify and address any first or last mile gaps near major manufacturing hubs and multimodal connectivity points
- Support the use of CMAQ funds for freight-related transportation projects that reduce emissions, with specific attention to the localized air quality impacts of freight movement
- Ensure that new freight infrastructure and state supported freight facility investments analyze, mitigate, and improve the impacts of freight movement on wildlife habitat loss, flooding and stormwater runoff

Project-Level Recommendations



Freight Investment Plan

- KYTC's Freight Investment Plan applies National Highway Freight Program (NHFP) funding from federal fiscal years 2023-2031 to the three projects that address major freight mobility challenges on the National Highway Freight Network.
- Potential eligible projects were identified in the 2022 Strategic Highway Investment Formula for Tomorrow (SHIFT) process and validated as the highest priority freight needs in Kentucky.
- With the passage of the IIJA/BIL, the **forecast period for a freight plan was extended from five to eight years**. With this change, the final out years of the Freight Investment Plan will include projects that are not part of a STIP/TIP or the Kentucky Highway Plan (Six Year Plan).

FAST Act & IIJA Compliance Checklist

Develop a freight plan that provides a comprehensive plan for the immediate and long-range planning activities and investments of the State with respect to freight

The most recent commercial motor vehicle parking facilities assessment conducted by the State

The most recent supply chain cargo flows in the State, expressed by mode of transportation

An inventory of commercial ports in the State

If applicable, consideration of the findings or recommendations made by any multi-State freight compact to which the State is a party;

The impacts of e-commerce on freight infrastructure in the State

Considerations of military freight

Strategies and goals to decrease:

- The severity of impacts of extreme weather and natural disasters on freight mobility
- The impacts of freight movement on local air pollution
- The impacts of freight movement on flooding and stormwater runoff
- The impacts of freight movement on wildlife habitat loss

8-Year Forecast and update every 4 years

Include a Freight Investment Plan

Discussion of enhanced reliability or redundancy

Next Steps

- Finalize Plan
- IIJA Compliance Check
 - Most new requirements were covered
 - Take a closer look at the resiliency/environmental freight mobility impact of:
 - Extreme weather and natural disasters
 - Local air pollution
 - Flooding and stormwater runoff
 - Wildlife habitat loss

Questions?

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KENTUCKY DEPARTMENT OF AGRICULTURE

2021 STATE AGRICULTURE OVERVIEW Kentucky

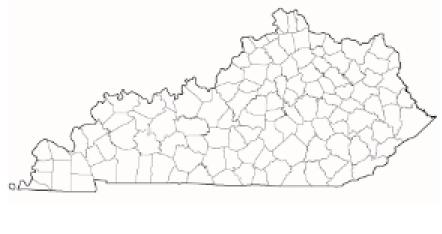
Farms Operations^T

Farm Operations - Area Operated, Measured in Acres / Operation	174	
Farm Operations - Number of Operations	74,100	
Farm Operations - Acres Operated	12,900,000	
Livestock Inventory [†]		
Cattle, Cows, Beef - Inventory (First of Jan. 2022)	966,000	
Cattle, Cows, Milk - Inventory (First of Jan. 2022)	44,000	
Cattle, Incl Calves - Inventory (First of Jan. 2022)	2,020,000	
Cattle, On Feed - Inventory (First of Jan. 2022)	18,000	ol
Goats, Meat & Other - Inventory (First of Jan. 2022)	54,000	ω _ε
Goats, Milk - Inventory (First of Jan. 2022)	5,500	
Sheep, Incl Lambs - Inventory (First of Jan. 2022)	59,000	
Hogs - Inventory (First of Dec. 2021)	435,000	
Chickens, Broilers - Production, Measured in Head	297,400,000	
Milk Production [†]		

Milk - Production, Measured in Lb / Head	19,717
Milk - Production, Measured in \$	175,051,000
Milk - Production, Measured in Lb	907,000,000

https://www.nass.usda.gov/Quick Stats/Ag Overview/stateOverview.php?state=kentucky

+ Survey Data from Quick Stats as of: Aug/15/2022



Crops - Planted, Harvested, Yield, Production, Price (MYA), Value of Production [†] Sorted by Value of Production in Dollars

Commodity	Planted All Purpose Acres	Harvested Acres	Yield	Production	Price per Unit	Value of Production in Dollars
CORN	· · · · · ·		•			
CORN, GRAIN		1,440,000	192 BU / ACRE	276,480,000 BU	5.35 \$ / BU	1,479,168,000
CORN, SILAGE		90,000	19 TONS / ACRE	1,710,000 TONS		
CORN	1,550,000					
SOYBEANS						
SOYBEANS	1,850,000	1,840,000	56 BU / ACRE	103,040,000 BU	13 \$ / BU	1,339,520,000
HAY						
HAY		2,120,000	2.63 TONS / ACRE	5,582,000 TONS	166 \$ / TON	854,818,000
HAY, (EXCL ALFALFA)		2,020,000	2.6 TONS / ACRE	5,252,000 TONS	149 \$ / TON	782,548,000
HAY, ALFALFA		100,000	3.3 TONS / ACRE	330,000 TONS	219 \$ / TON	72,270,000
HAY & HAYLAGE	· · · · · · · · · · · · · · · · · · ·					
HAY & HAYLAGE						854,818,000
HAY & HAYLAGE, (EXCL ALFALFA)						782,548,000
HAY & HAYLAGE, ALFALFA	8,000					72,270,000
TOBACCO						
TOBACCO		49,800	2,351 LB / ACRE	117,060,000 LB	2.298 \$ / LB	269,268,000
WHEAT						
WHEAT	510,000	350,000	87 BU / ACRE	30,450,000 BU	6.4 \$ / BU	194,880,000
WHEAT, WINTER	510,000	350,000	87 BU / ACRE	30,450,000 BU	6.4 \$ / BU	194,880,000
(NA) Not Available						

(NA) Not Available

(D) Withheld to avoid disclosing data for individual operations

(S) Insufficient number of reports to establish an estimate

(X) Not Applicable

(Z) Less than half the rounding unit

https://www.nass.usda.gov/Quick Stats/Ag Overview/stateOverview.php?state=kentucky

Freshness Starts in Kentucky

There is no better time than now to locate or expand a food and beverage industry facility in Kentucky. Food and beverage manufacturers and distributors, along with numerous container and packaging manufacturers, packaging plants, refrigerated warehousing operations and other food and beverage industry facilities are thriving in the commonwealth. Where freshness is vital, Kentucky's central location will ensure products get to market quickly.

The state's proximity to massive consumer markets, combined with an abundance of natural agricultural resources and transportation networks, allows companies to produce and transport quality products cost effectively and efficiently. From headquarters to food processing to an ever-expanding bourbon industry, food and beverage facilities are creating an economic feast across Kentucky. What makes Kentucky the perfect location for food and beverage industries? Our recipe for success is served in bite-sized facts.

#6 Ranked 6th in the nation for number of farms.	Agriculture contributes \$45.6 BILLION to Kentucky's economy each year.	\$867 MILLION exported in food, kindred products and distilled spirits in 2019.		
350+ food and beverage- related facilities.	52,000+ employees in Kentucky's food and beverage-related facilities.	\$7 BILLION in GDP from food, beverage and related products manufacturing.		

https://ced.ky.gov/Webfiles/publications/CED_Food_Beverage_Brochure.pdf

https://cedky.com/cdn/168_2022KentuckyGuide04.pdf

EXPORTING agriculture eni

Tobacco \$190M TOTAL LBS.

2,618 FARMS SUPPORTED

Distilled spirits

\$390.9M

5-20

MILLION BUSHELS

of Kentucky-grown corn are used by

Kentucky's bourbon

and spirits industry

PRODUCED 173.9M

canada is

the largest

importer of

Kentucky

35,200

JOBS

SUPPORTED

distilled spirits

Equine \$524.5M

Mostly pure-bred horses



Forest products \$246.9M

This includes lags, wooden casks, and lumber (oak, poplar, cherry and ash)

EVERY COUNTY **PROVIDES HARVESTED RESOURCES FOR** WOOD PRODUCTS





kyagr.com/trade

\$2.36 BILLION

TOTAL AGRICULTURAL EXPORTS FROM KENTUCKY

Kentucky needs international trade but more importantly, the rest of the world needs Kentucky agriculture.



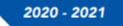
Dr. Ryan Quarles KY Commissioner of Agriculture

Soybeans \$760.4M Soybeans, soybean meal, and ails





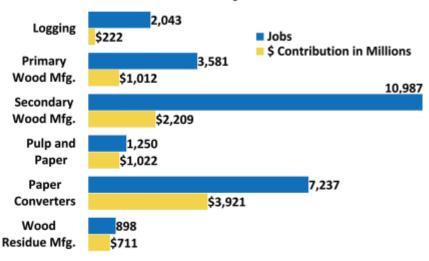




2020 Forest Sector **Economic Contribution Estimates**

The Kentucky forest sector is comprised of six sub-sectors: logging, primary wood manufacturing, secondary wood manufacturing, pulp and paper, paper converters, and wood residue manufacturing. Employment and economic contributions for each of the sub-sectors in 2020 are displayed in Figure 4.

Figure 4. Direct Employment and Economic **Contributions of Kentucky Forest Sub-Sectors**



Sector

Total Economic Contribution of Kentucky's Forest S13 Bi ion

https://forestry.ca.uky.edu/files/ky_contribution_report2020-2021.pdf

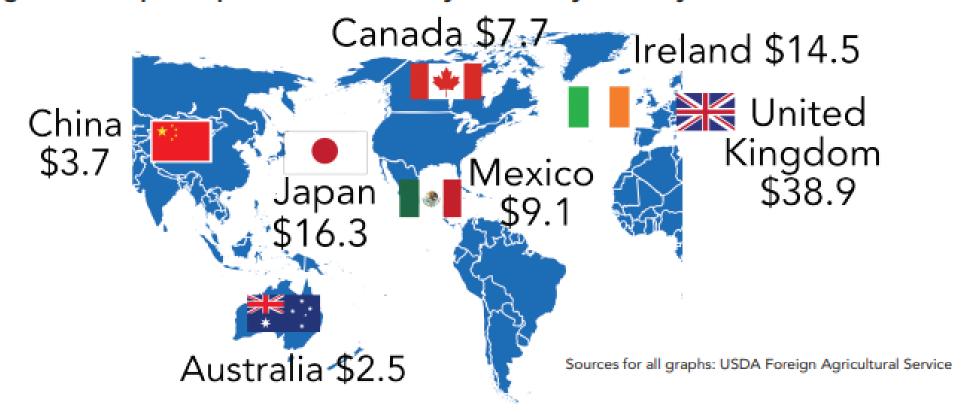


Figure 11: Top 7 Importers of Kentucky Barrels by Country in 2021 in Millions

https://forestry.ca.uky.edu/files/ky_contribution_report2020-2021.pdf

Farm Vehicle Regulations

Reference guide provided by Kentucky Farm Bureau



In coordination with the Kentucky State Police

Published 2020

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KRS TITLE XVI: Chapter 186, Chapter 189 KRS TITLE XXI: Chapter 246 KRS TITLE XXIV: Chapter 281
601 KAR 1:005: Section 1 and 3 601 KAR 1:018: Section 1, 2, 9, and 10 601 KAR 1:019
Regulatory Guidance for the Federal Motor Carrier Safety Regulations (FMCSRs): Parts 390-396
Federal Motor Carrier Safety Administration (FMCSA) Information Memorandum - "Moving Ahead for Progress in the 21st century (MAP-21)". Dated February 17, 2016.
Note: This publication, printed July 2020, may also be viewed online and printed by clicking on the Federation tab at kyfb.com.

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Kentucky Farm Bureau is a grassroots organization dedicated to serving our membership family and their communities. As the Voice of Agriculture, we identify problems, develop solutions, promote economic success, and enhance the quality of life for all.

For further information, contact:

Public Affairs Division Kentucky Farm Bureau 9201 Bunsen Parkway Louisville, KY 40220 (502) 495-5000 kyfb.com

https://www.kyfb.com/KYFB/assets/File/Federation/Commodities/Farm%20Vehicle%20Regulations%20Booklet%20FINAL%208_18_20.pdf

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BRIDGE REPLACEMENT INNOVATIONS

http://www.soytransportation.org/newsroom/Top%2020%20Innovations%20for%20Rural%20Bridge%20Replacement%20and%20Repair%20(2021).pdf



"Share the Road" Safety Campaign

https://www.kyagr.com/marketing/farm-safety.html

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Questions?

Please contact:

Tim Hughes Senior Trade Advisor <u>TimD.Hughes@ky.gov</u> 502-782-9265 <u>www.kyagr.com/trade</u>

KENTUCKY DEPARTMENT OF AGRICULTURE



Kentucky Freight Advisory Committee

August 15th, 2022

Kentucky Riverport Locations





Paducah McCracken County



















ENTUCKY ASSOCIATION OF RIVERPORTS

Henderson County Riverport

- Inquiries for natural gas pipe delivered by rail.
- Inquiries for heavy equipment used for electrical substations by barge.



Kentucky Riverport Improvement Grants

		WTAB	KRI	KRI Funding	
Riverport	Project	Rank	Requested	Recommendation	
Eddyville	Barge Positioning Winch System Project	1	\$105,058.00	\$105,058.00	
Paducah	Bulk Commodity Receiving Hopper Project	2	\$72,721.00	\$72,721.00	
Owensboro	Bucket for Liebherr LH 120 Project	3	\$57,490.00	\$57,490.00	
Hickman	Mooring Dock Cell Repair Project	4	\$50,000.00	\$50,000.00	
Hickman	Dock Dredging Project	5	\$31,800.00	\$31,800.00	
Owensboro	Caterpillar 903D Wheel Loader Project	6*	\$36,790.00	\$36,790.00	
Owensboro	Grapple for Sennebogen 875 Project	6*	\$35,912.00	\$35,912.00	
Eddyville	Laydown Yard Project	7*	\$184,896.00	\$110,229.00	
Owensboro	Terminal Facility Asphalt Paving Project	7*	\$72,536.00	No funding	
Total		\$647,203.00	\$500,000.00		



Federal Grant Programs

- The Kentucky Riverports are active in pursuing federal grant opportunities:
 - 2 Port Infrastructure Development Program Grants 2022
 - 1 PIDP awarded to Paducah for \$3.3M
 - 1 USDOT BUILD grant 2018
- Many of the Kentucky Riverports are financially limited on being able to match funding on federal and state programs.



Kentucky Riverports, Highway & Rail Freight Study

- Published on KYTC Multimodal Freight website on June 22nd https://transportation.ky.gov/MultimodalFreight/Pages/Kentucky-Riverports,-Highway-and-Rail-Freight-Study.aspx.
- This is the most recent study conducted since 2008.
- Key Focus Areas of the Study:
 - Multimodal Freight analysis.
 - State to state riverport funding comparison.
 - Investment needs to Preserve, Modernize and Expand.
 - Recommendations.



Kentucky Riverports

Access to deep-draft ports of New Orleans and Mobile.



Thank You

We appreciate your interest.

Kentuckyriverports.com

