APPENDIX 2


KENTUCKY RIVERPORTS, HIGHWAY
& RAIL FREIGHT STUDY
KENTUCKY
TRANSPORTATION
CABINET

APPENDIX 2

APPENDIX 2.1: Port Forecast Maps A-2.1

APPENDIX 2.2: Commodity and Trading Partner Forecasts for 2045 Trade Conditions
- Appendix 2.2a: Statewide Market 2018-2045 Basis A-2.2a
- Appendix 2.2b: Statewide Internal Trade within Kentucky 2018-2045 A-2.2b
- Appendix 2.2c: Projected Market Change 2018-2045 A-2.2c
- Appendix 2.2d: Statewide Projected Market Growth 2018-2045 A-2.2d
- Appendix 2.2e: 2018 Riverport Markets by Hinterlands A-2.2e
- Appendix 2.2f: Truck-Divertible Growth Markets for Hinterlands 2018-2045 A-2.2f
- Appendix 2.2g: Growing and Declining Commodities for Hinterlands A-2.2g

APPENDIX 2.3 April 2021 Riverport Visits A-2.3

APPENDIX 2.4 Riverport Capital Improvement Needs A-2.4

APPENDIX 2.5 Data Hinterland Definition and data Sources A-2.5

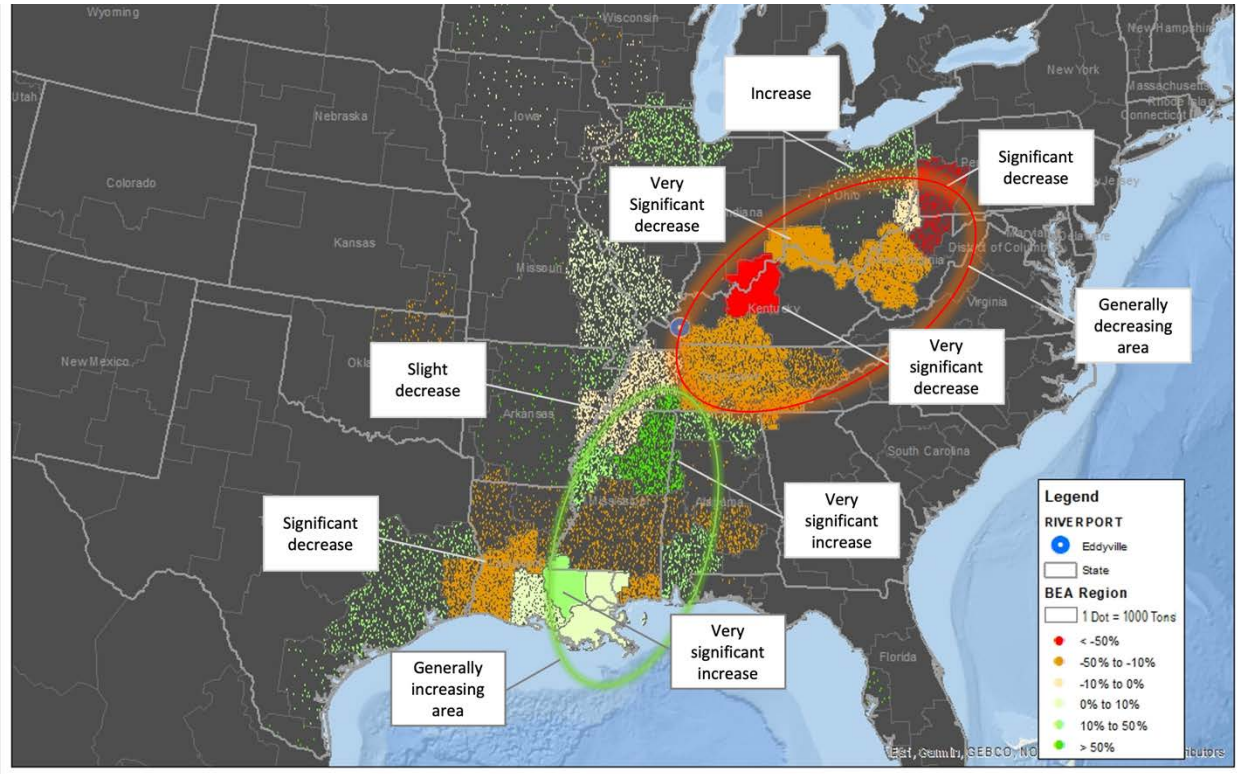
APPENDIX 2.6 Truck Trips Development Methodology A-2.6

KENTUCKY RIVERPORTS, HIGHWAY & RAIL FREIGHT STUDY

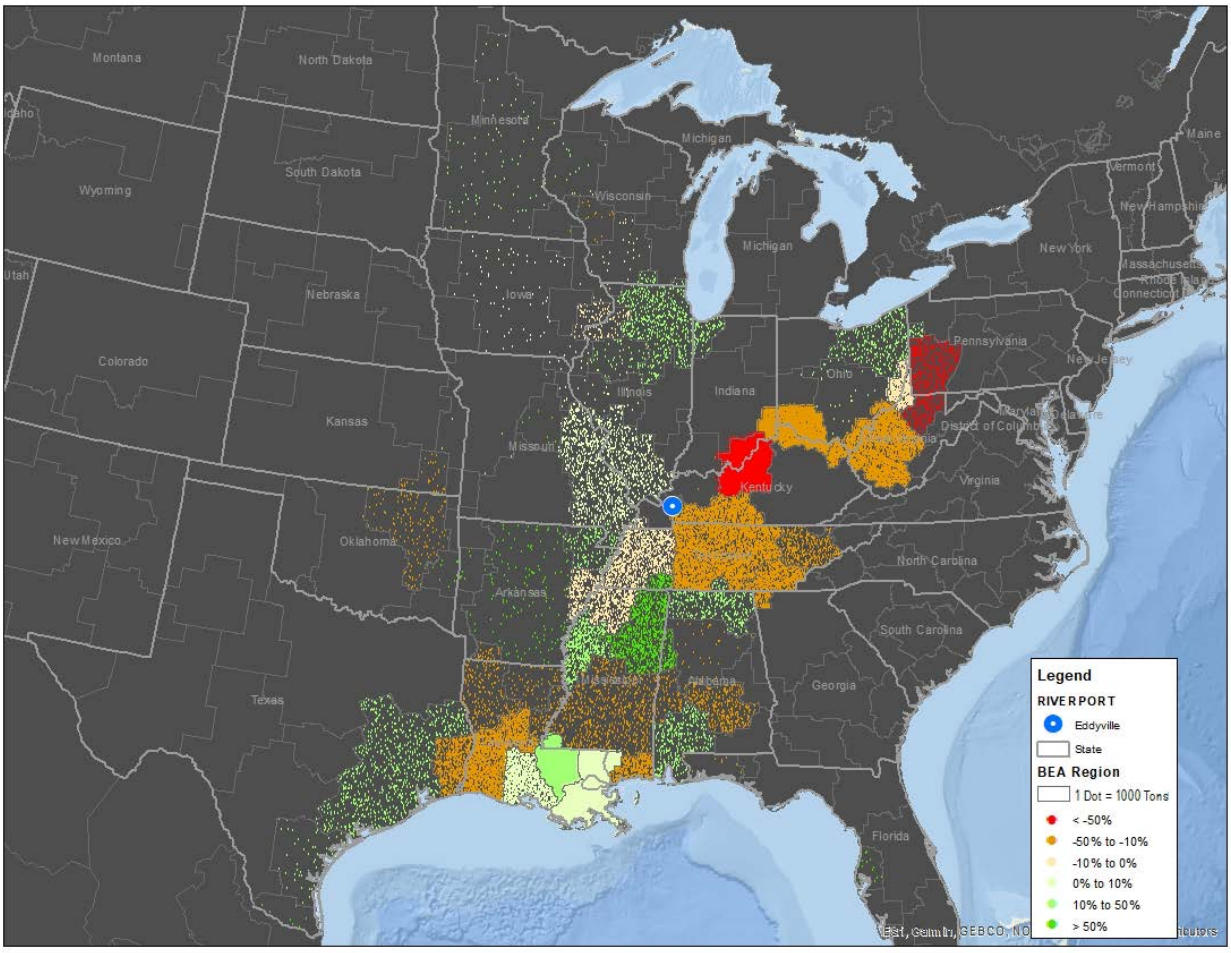
Appendix 2.1: Port Forecast Maps

This appendix includes dot-density maps that show the geographic distribution of waterborne commodity growth markets for each of Kentucky's 11 public riverport hinterlands. Each map illustrates the total inbound and outbound tonnage (in thousands) of waterborne commodities for each riverport by BEA region in 2018 and the projected percentage growth in tonnage between 2018 and 2045. Additionally, the last map shows the waterborne commodity growth markets for the Commonwealth of Kentucky by BEA region. Each dot represents 1,000 tons of waterborne commodities traded with any given Kentucky Riverport, while the colors of the dots indicate the projected percentage of growth in tonnage between 2018 and 2045.

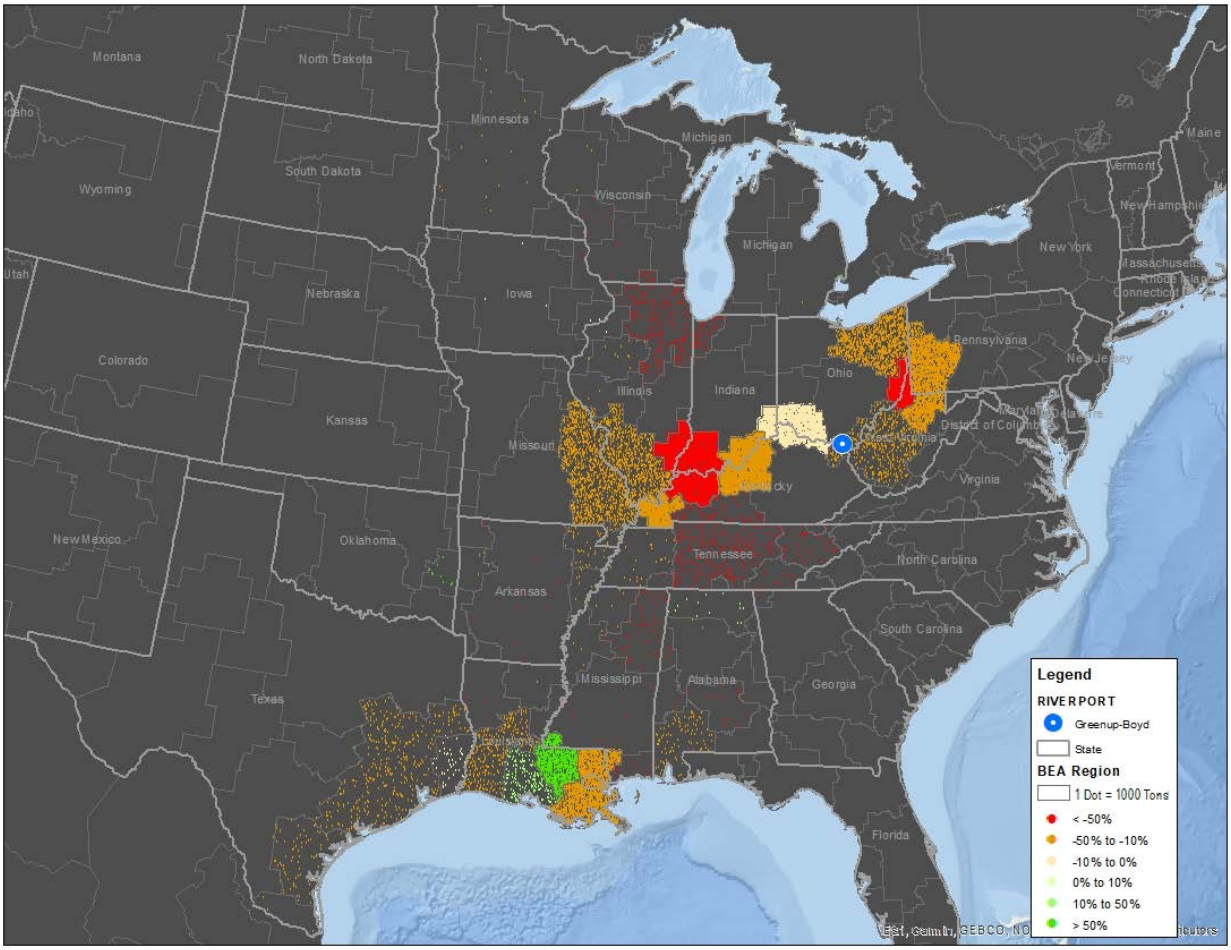
Each map shows inbound and outbound tonnage (tonnage flow) for the port in consideration by BEA region. Each dot represents the numbers of 2018 tons indicated in the map legend. The higher the tonnage flow from a BEA region, the greater number of dots it will have. The color of the dots shows the growth from 2018 to 2045 by BEA region. The loss of tonnage is shown from light orange to red colors, and growth is shown from light green to dark green.



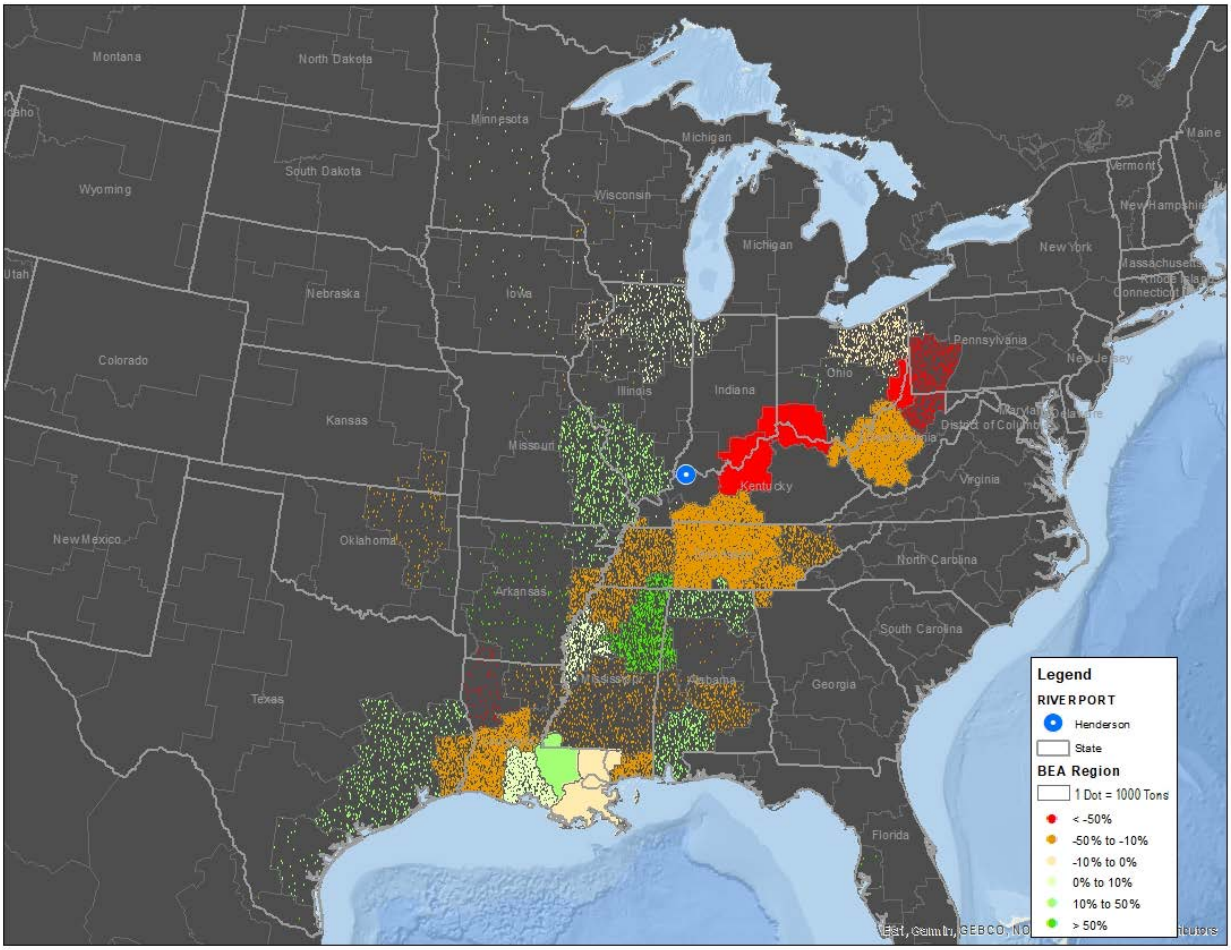
Eddyville Distribution and Change in Waterborne Trade



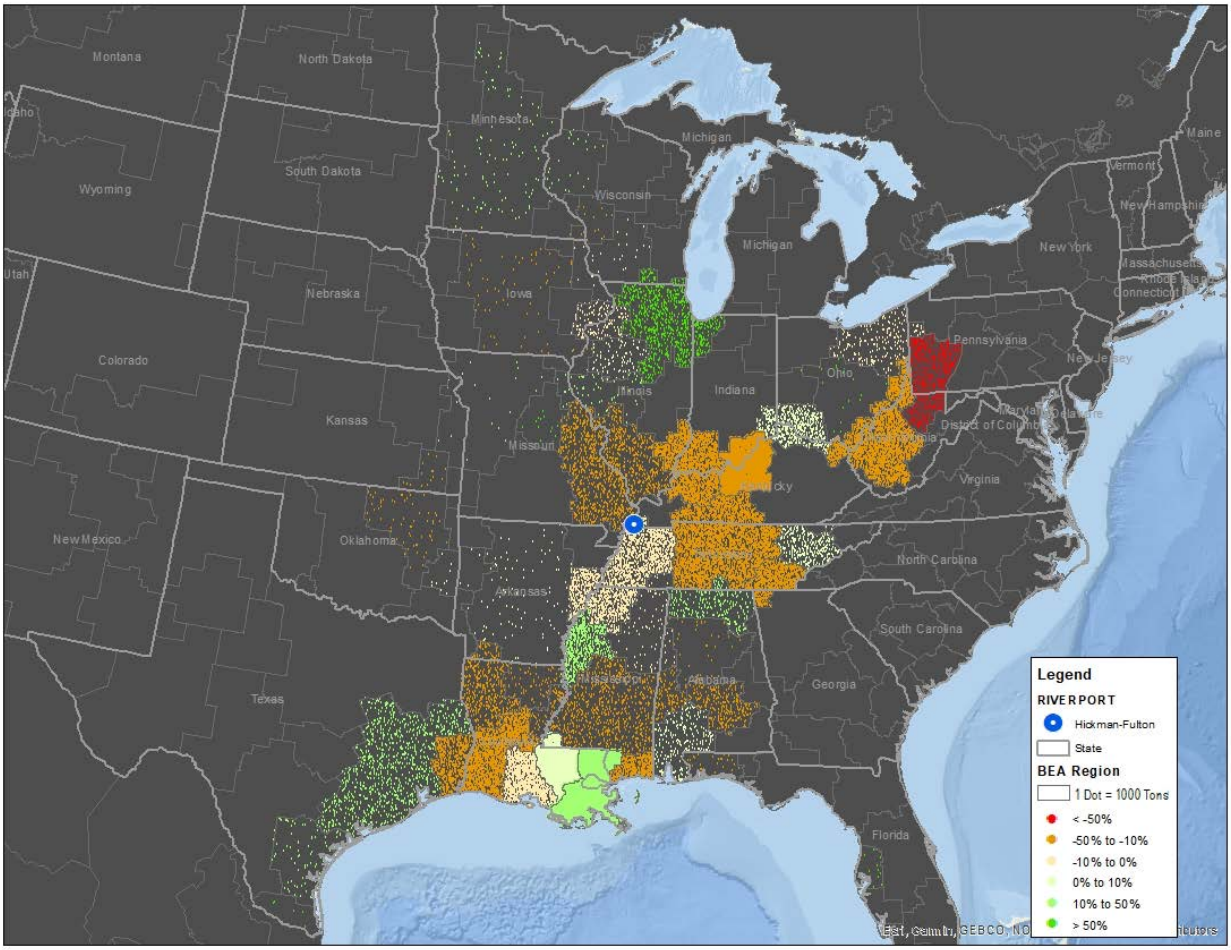
Greenup-Boyd Distribution and Change in Waterborne Trade



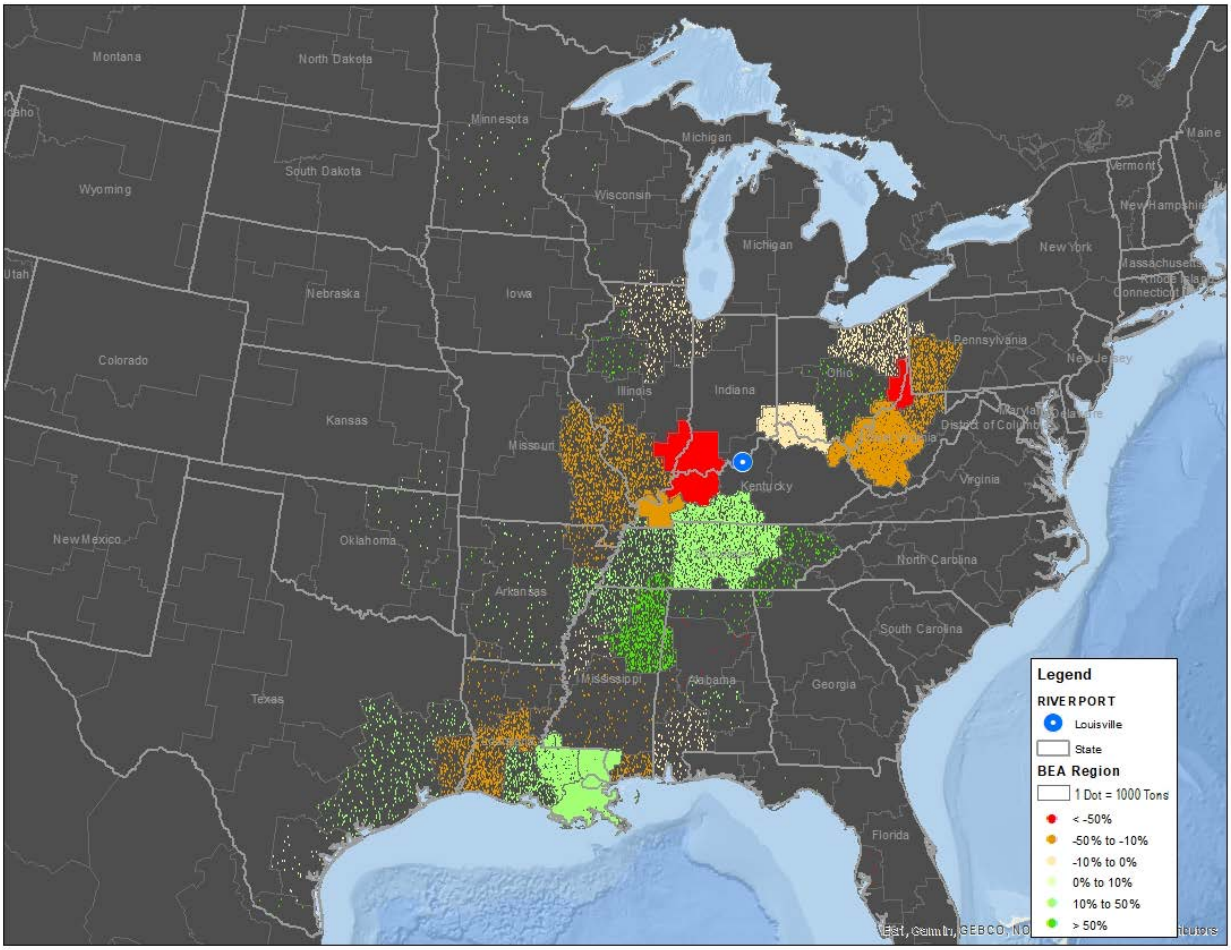
Henderson Distribution and Change in Waterborne Trade



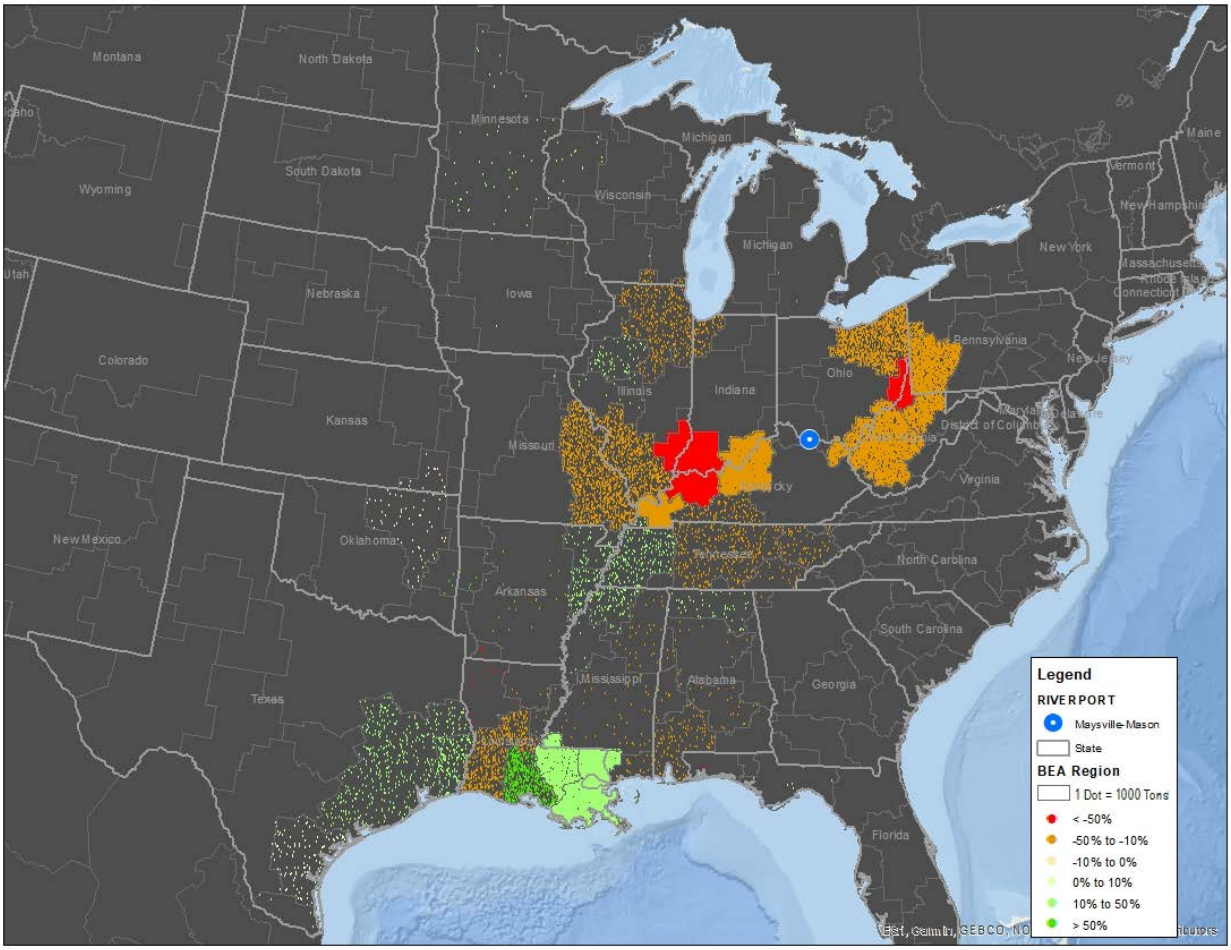
Hickman-Fulton Distribution and Change in Waterborne Trade



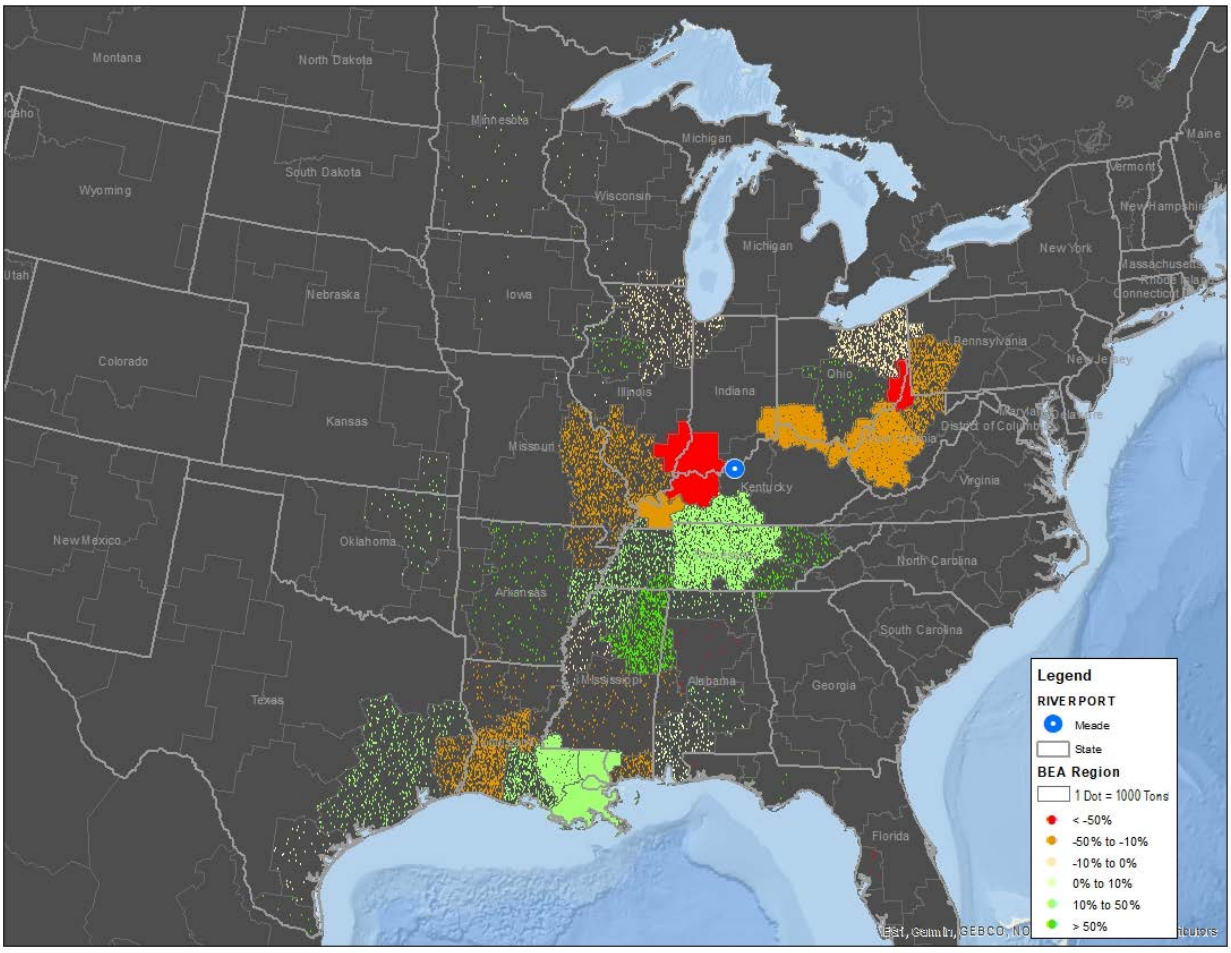
Louisville Distribution and Change in Waterborne Trade



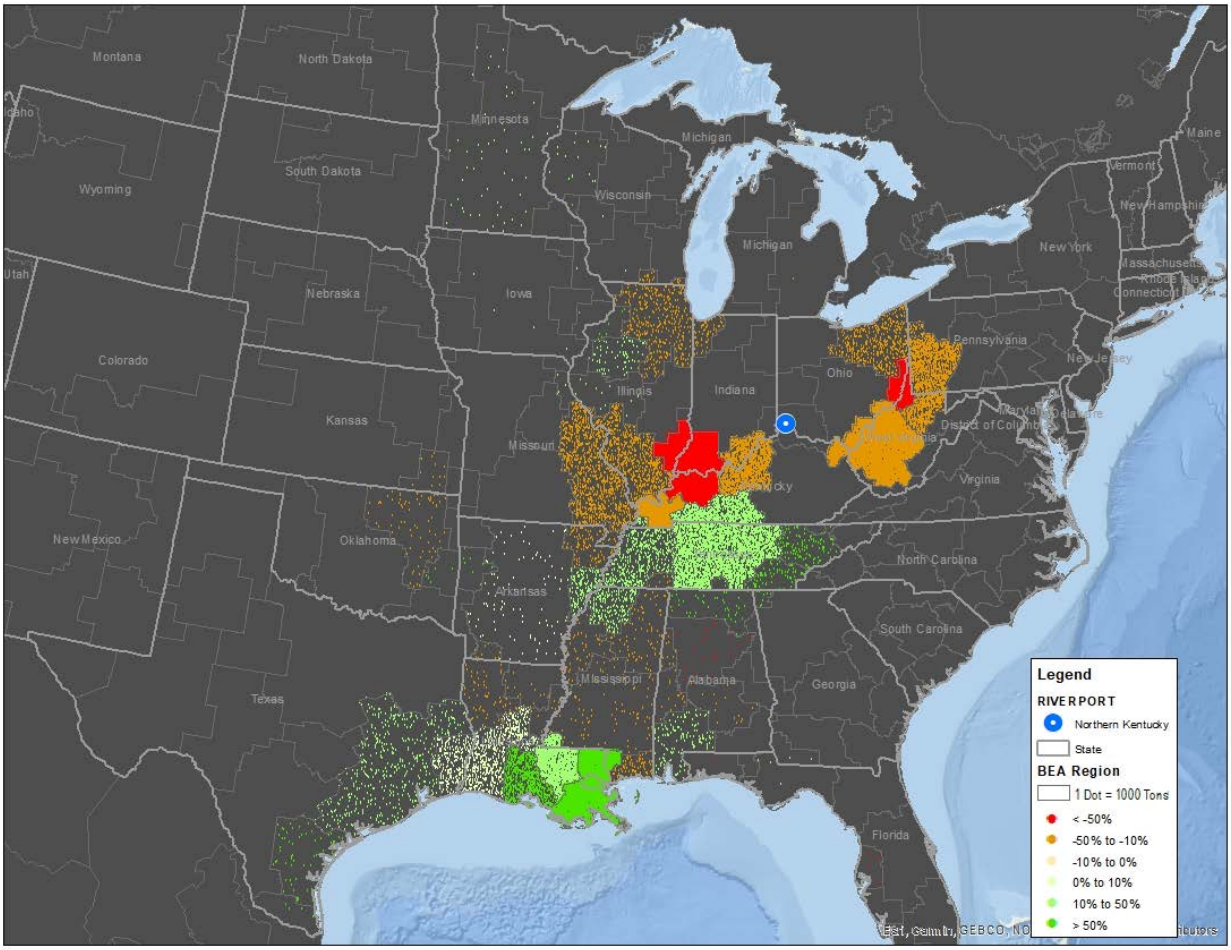
Maysville-Mason Distribution and Change in Waterborne Trade



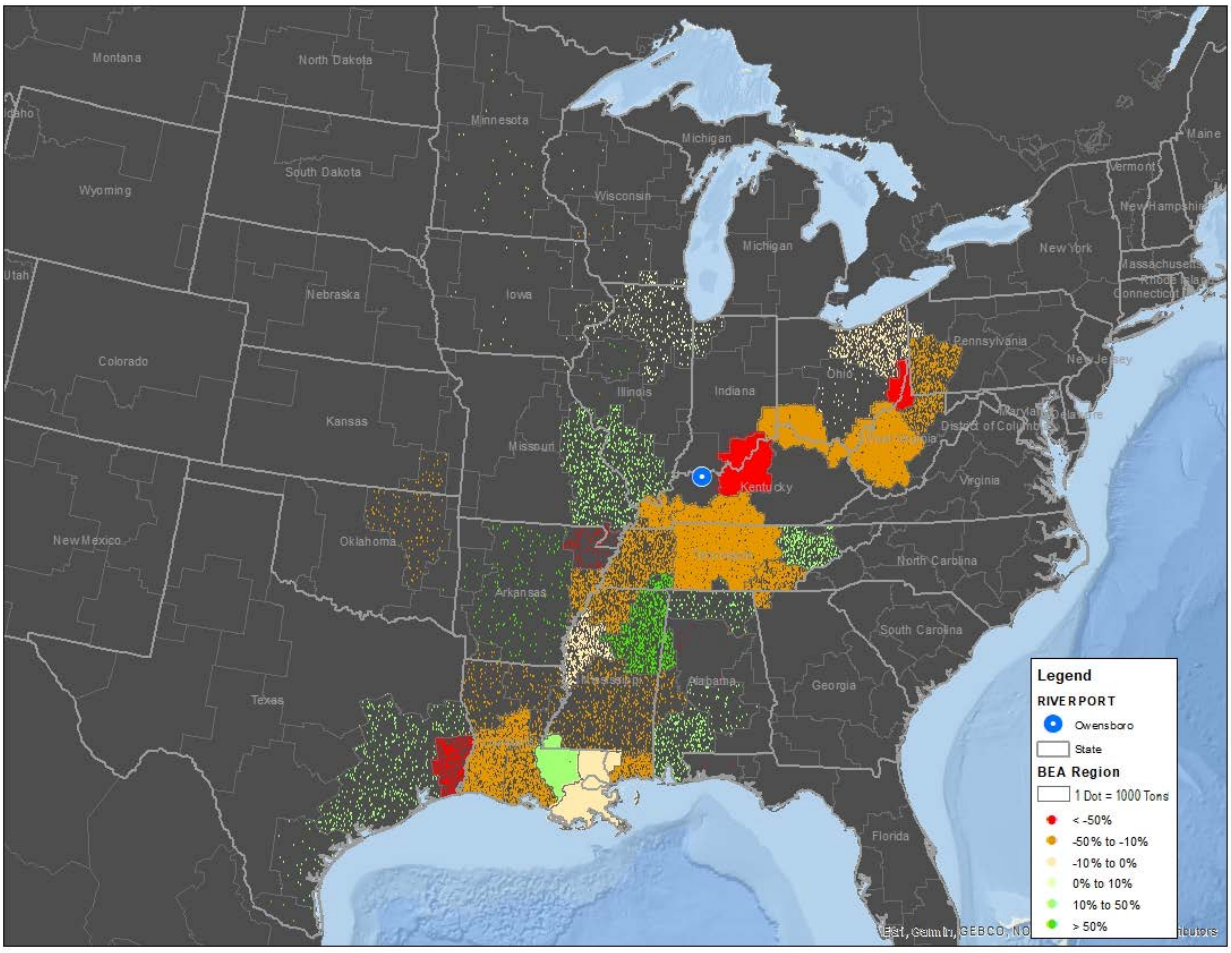
Meade Distribution and Change in Waterborne Trade



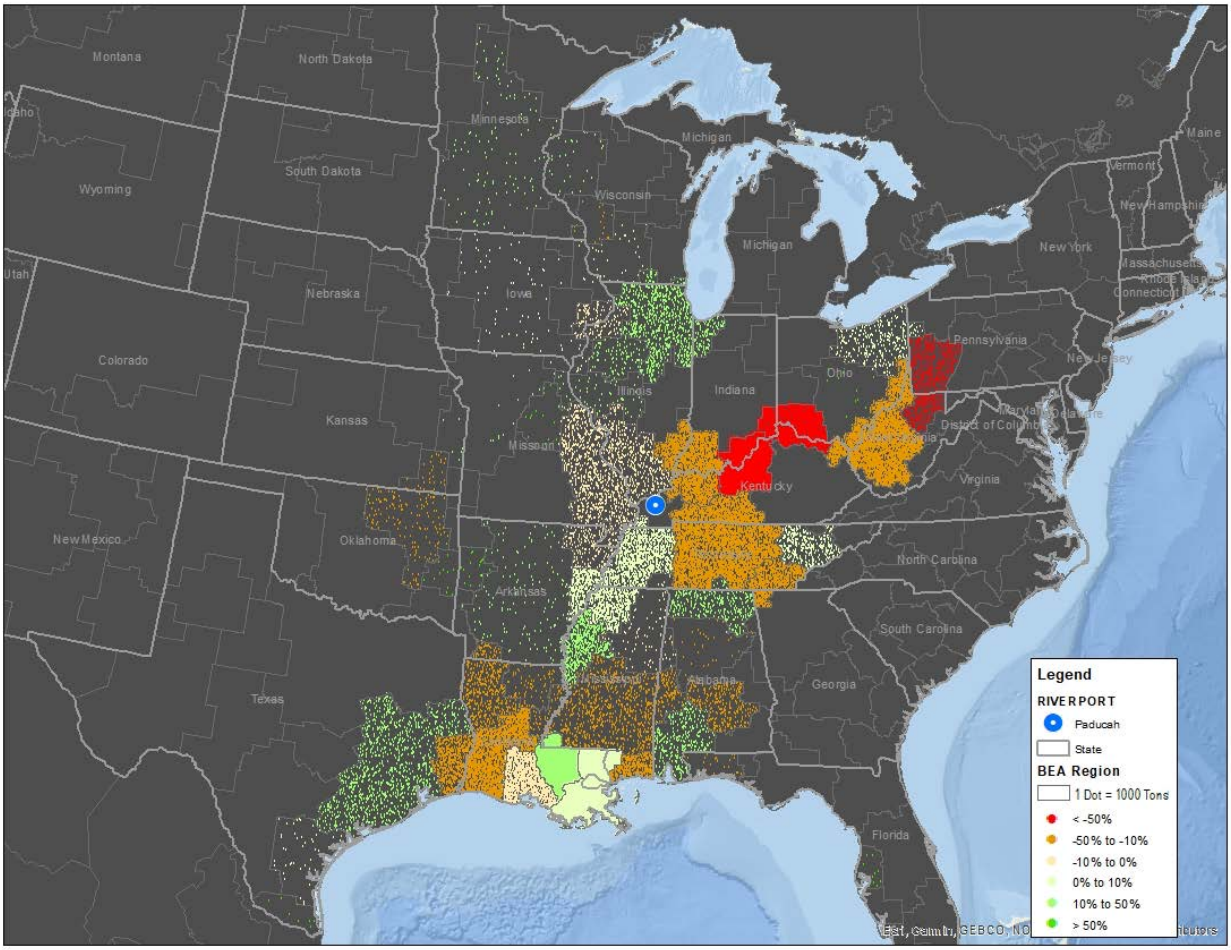
Northern Kentucky Distribution and Change in Waterborne Trade



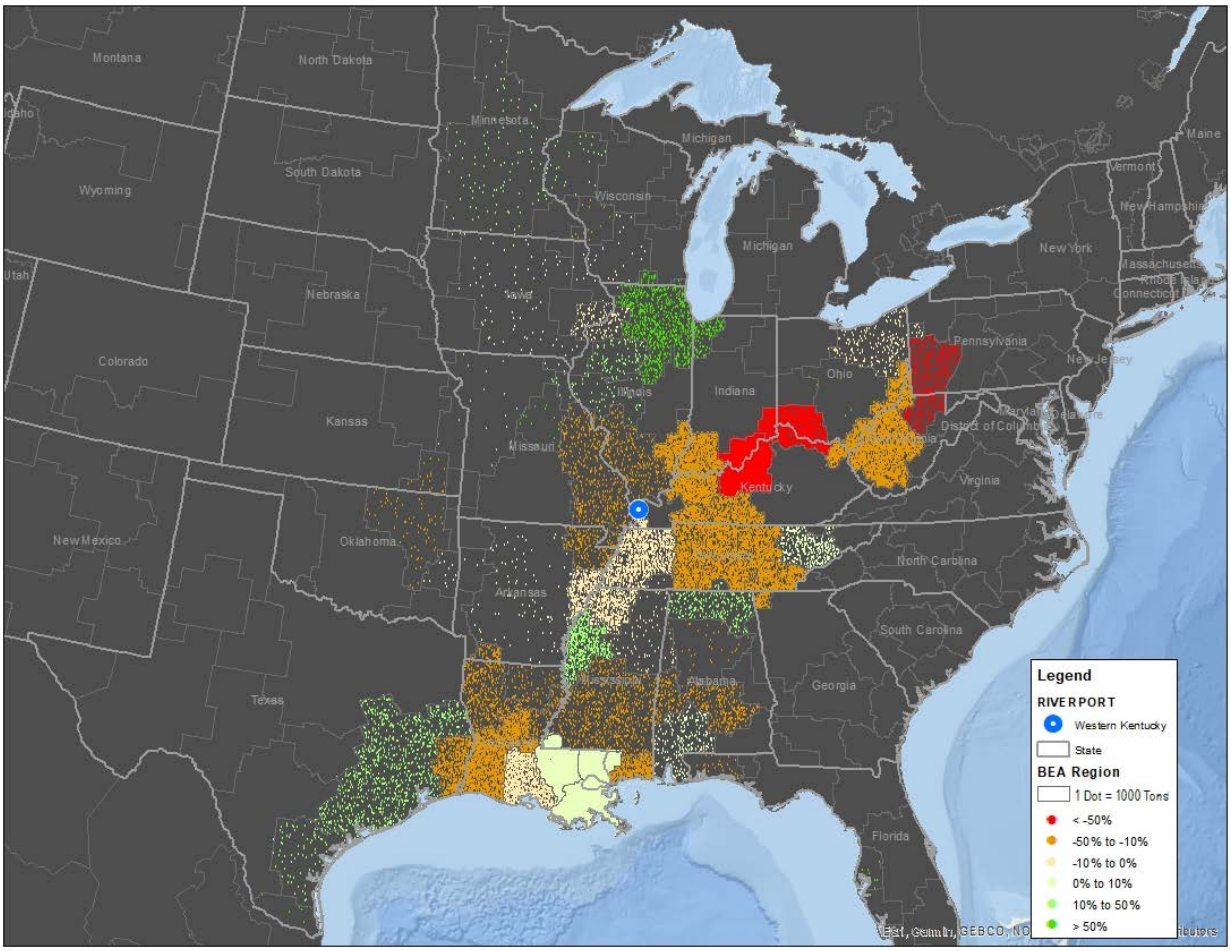
Owensboro Distribution and Change in Waterborne Trade



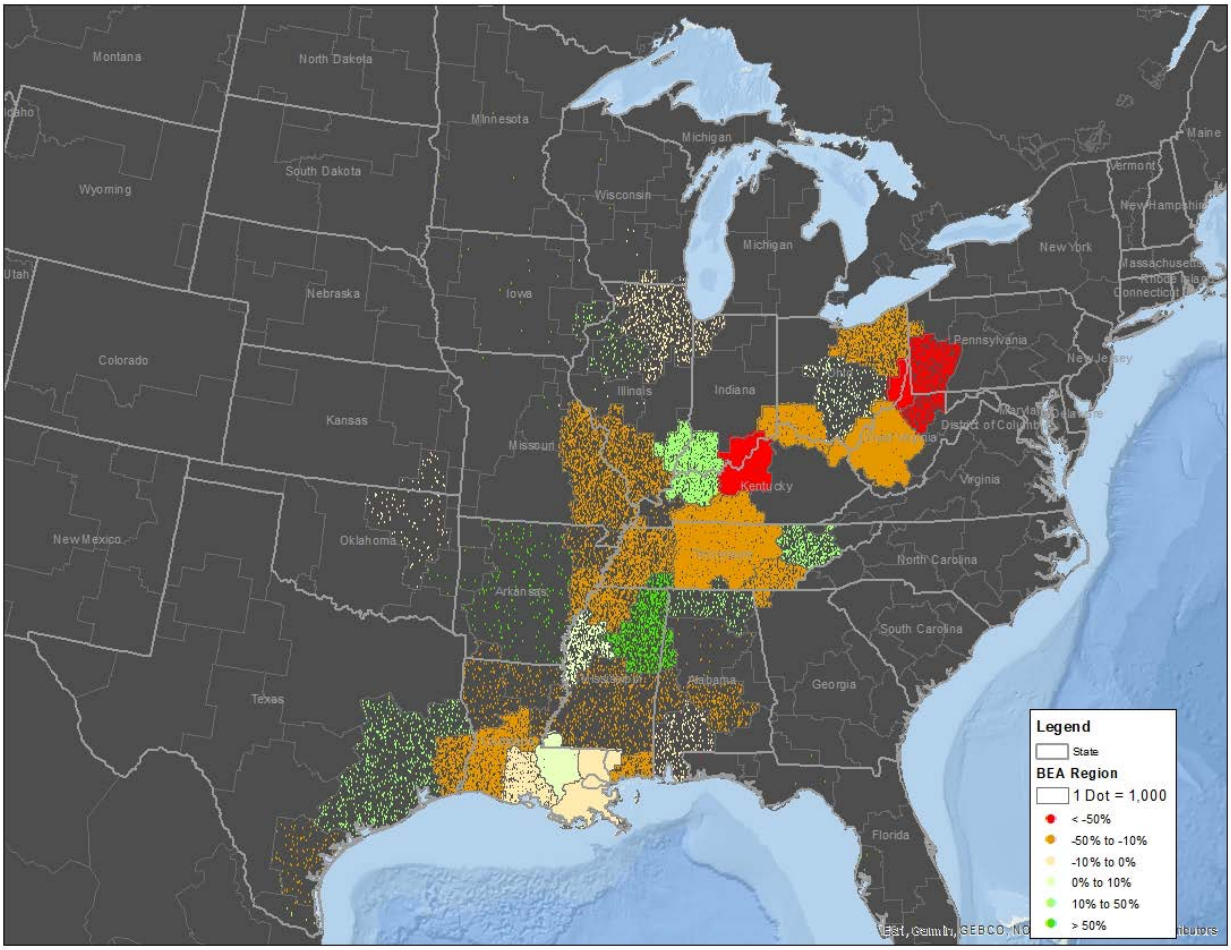
Paducah-McCracken Distribution and Change in Waterborne Trade



Western Kentucky Distribution and Change in Waterborne Trade



Commonwealth of Kentucky Distribution and Change in Waterborne Trade



App 2.2a: Statewide Market 2018-2045 Basis

INBOUND to KY

Top 10 Inbound Commodities to KY by Water										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Petroleum or Coal Products	29	6,136,387	$ 4,108,336,847	5,484,261	$ 3,639,347,553	5,149,678	$ 3,417,487,389	4,739,158	$ 3,145,931,300
2	Chemicals or Allied Products	28	2,743,643	$ 3,363,790,240	3,911,772	$ 5,575,003,975	3,680,466	$ 5,243,993,566	3,307,170	$ 4,687,595,152
3	Nonmetallic Minerals	14	3,286,918	$ 38,522,497	3,414,114	$ 41,277,364	3,203,717	$ 38,744,249	2,921,461	$ 35,342,889
4	Coal	11	5,070,714	$ 157,522,984	2,687,024	$ 83,473,099	2,522,261	$ 78,354,653	2,302,754	$ 71,535,653
5	Lumber or Wood Products	24	920,493	$ 161,152,778	1,998,539	$ 349,888,892	1,889,564	$ 330,810,209	1,706,238	$ 298,714,973
6	Primary Metal Products	33	1,321,725	$ 2,384,757,552	1,893,224	$ 3,314,393,629	1,780,079	$ 3,116,174,096	1,631,868	$ 2,880,044,973
7	Crude Petroleum or Natural Gas	13	1,597,404	$ 703,332,166	1,366,384	$ 601,635,602	1,282,507	$ 564,703,695	1,139,504	$ 501,737,747
8	Metallic Ores	10	957,939	$ 80,638,828	529,814	$ 47,613,806	498,082	$ 44,781,856	456,745	$ 41,085,142
9	Agricultural Production & Livestock	01	238,823	$ 76,864,608	482,193	$ 154,209,306	454,013	$ 145,167,514	417,661	$ 133,564,052
10	Clay, Concrete, Glass or Stone	32	231,525	$ 42,592,246	461,050	$ 89,372,118	431,040	$ 83,545,377	393,455	$ 76,083,864
Others		Other	470,007	$ 261,833,542	550,714	$ 358,007,611	516,808	$ 333,925,345	489,711	$ 313,387,942

OUTBOUND FROM KY

Top 10 Outbound Commodities from KY by Water										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Nonmetallic Minerals	14	20,067,030	$ 195,125,468	14,323,133	$ 130,858,774	13,388,773	$ 122,319,421	12,221,183	$ 111,704,819
2	Agricultural Production & Livestock	01	4,167,434	$ 903,984,959	7,950,894	$ 1,676,972,275	7,522,294	$ 1,586,258,106	6,924,524	$ 1,460,395,536
3	Coal	11	14,341,519	$ 445,522,863	4,298,971	$ 133,548,715	4,130,275	$ 128,308,033	3,916,487	$ 121,666,731
4	Clay, Concrete, Glass or Stone	32	2,575,864	$ 648,138,252	2,362,962	$ 615,046,038	2,209,004	$ 574,725,217	1,996,420	$ 519,718,675
5	Petroleum or Coal Products	29	3,063,277	$ 1,173,317,279	2,340,285	$ 1,058,458,602	2,186,296	$ 989,117,199	2,014,914	$ 917,753,809
6	Food or Kindred Products	20	624,314	$ 114,280,436	1,684,277	$ 309,889,532	1,567,671	$ 288,592,990	1,446,159	$ 266,038,694
7	Primary Metal Products	33	1,058,566	$ 1,325,958,295	1,004,218	$ 1,350,312,829	943,401	$ 1,269,256,445	869,154	$ 1,172,894,054
8	Chemicals or Allied Products	28	1,010,207	$ 565,825,312	1,004,367	$ 623,604,771	940,924	$ 583,636,380	844,329	$ 524,272,530
9	Waste or Scrap Materials	40	144,003	$ 46,801,100	201,116	$ 65,362,981	190,276	$ 61,839,615	182,398	$ 59,279,713
10	Metallic Ores	10	77,399	$ 5,815,276	62,325	$ 4,759,177	58,513	$ 4,468,838	53,680	$ 4,102,082
Others		Other	20,974	$ 22,185,084	17,017	$ 19,921,426	15,901	$ 18,824,390	14,278	$ 17,442,056

INBOUND to KY

Top 10 Inbound Water Divertible Commodities to KY by Truck										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Nonmetallic Minerals	14	19,520,331	$ 239,445,960	27,655,900	$ 339,263,125	25,921,351	$ 318,049,831	23,548,888	$ 289,080,732
2	Agricultural Production & Livestock	01	13,099,467	$ 5,476,447,304	19,127,840	$ 8,442,873,934	18,041,769	$ 7,964,559,041	16,607,490	$ 7,333,019,005
3	Petroleum or Coal Products	29	5,625,340	$ 3,279,228,648	10,223,848	$ 6,385,125,063	9,547,439	$ 5,959,277,834	9,029,999	$ 5,662,893,272
4	Clay, Concrete, Glass or Stone	32	4,593,866	$ 1,104,163,522	6,172,750	$ 1,495,664,294	5,805,930	$ 1,403,065,157	5,300,607	$ 1,279,203,104
5	Chemicals or Allied Products	28	2,886,710	$ 3,601,475,720	4,825,284	$ 6,985,718,464	4,538,949	$ 6,570,582,506	4,083,290	$ 5,921,991,672
6	Primary Metal Products	33	1,259,393	$ 3,054,563,592	1,711,588	$ 4,221,496,072	1,615,014	$ 3,987,053,313	1,513,675	$ 3,734,631,543
7	Rubber or Miscellaneous Plastics	30	682,446	$ 2,619,821,093	919,815	$ 3,571,705,999	861,509	$ 3,345,291,858	791,943	$ 3,077,032,139
8	Lumber or Wood Products	24	759,488	$ 328,803,758	824,227	$ 380,928,987	778,324	$ 359,773,076	723,713	$ 335,700,810
9	Coal	11	441,765	$ 13,757,828	115,004	$ 3,700,022	107,771	$ 3,467,743	98,032	$ 3,155,855
10	Metallic Ores	10	13,059	$ 10,553,416	3,335	$ 5,243,044	3,133	$ 4,923,996	2,882	$ 4,533,897
Others		Other	-	$ -	-	$ -	-	$ -	-	$ -

App 2.2a: Statewide Market 2018-2045 Basis

OUTBOUND FROM KY

Top 10 Outbound Water Divertible Commodities from KY by Truck										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Agricultural Production & Livestock	01	15,226,811	$ 5,334,427,685	20,821,903	$ 9,192,619,195	19,642,915	$ 8,678,501,162	18,029,564	$ 7,967,702,993
2	Clay, Concrete, Glass or Stone	32	10,673,548	$ 1,833,095,701	15,724,769	$ 2,811,512,707	14,745,357	$ 2,633,526,370	13,343,045	$ 2,377,636,154
3	Petroleum or Coal Products	29	7,387,853	$ 3,994,048,641	12,525,979	$ 7,772,096,586	11,694,094	$ 7,253,253,698	11,039,858	$ 6,879,679,261
4	Nonmetallic Minerals	14	20,376,434	$ 221,035,634	12,485,453	$ 135,060,493	11,682,614	$ 126,453,386	10,651,436	$ 115,405,772
5	Primary Metal Products	33	3,738,163	$ 8,649,382,746	6,150,510	$ 13,756,792,211	5,797,944	$ 12,966,612,648	5,409,809	$ 12,102,982,140
6	Chemicals or Allied Products	28	4,060,587	$ 6,565,192,729	6,006,896	$ 13,220,574,752	5,646,006	$ 12,422,597,954	5,021,641	$ 11,061,071,304
7	Rubber or Miscellaneous Plastics	30	1,759,406	$ 6,601,259,872	3,377,023	$ 12,677,190,369	3,166,869	$ 11,887,630,293	2,895,976	$ 10,870,652,979
8	Lumber or Wood Products	24	833,086	$ 336,049,899	1,144,779	$ 434,589,214	1,083,582	$ 411,620,214	1,008,695	$ 385,018,955
9	Coal	11	904,854	$ 28,112,361	182,200	$ 5,670,526	170,309	$ 5,301,125	153,130	$ 4,767,457
10	Crude Petroleum or Natural Gas	13	32	$ 25,876	93	$ 74,534	93	$ 74,534	93	$ 74,534
Others		Other	14	$ 16,043	24	$ 28,476	24	$ 28,476	24	$ 28,476

INBOUND to KY

Top 10 Inbound Water Divertible Commodities to KY by Rail										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Primary Metal Products	33	258190.3853	572274002.2	588868.17	1314868127	554942.4864	1239114809	519252.67	1159404657
2	Chemicals or Allied Products	28	268,099	$ 192,910,727	425,252	$ 309,473,356	400,232	$ 291,247,054	367,505	$ 268,308,116
3	Agricultural Production & Livestock	01	58,289	$ 11,329,892	143,950	$ 27,986,323	143,951	$ 27,986,323	143,950	$ 27,986,323
4	Nonmetallic Minerals	14	18,494	$ 2,225,413	22,966	$ 4,313,818	21,534	$ 4,044,629	19,653	$ 3,692,535
5	Petroleum or Coal Products	29	31,326	$ 17,115,508	16,987	$ 13,725,699	15,914	$ 12,860,682	14,691	$ 11,875,008
6	Clay, Concrete, Glass or Stone	32	4,329	$ 955,245	4,931	$ 2,131,490	4,618	$ 1,999,602	4,236	$ 1,849,698
7	Rubber or Miscellaneous Plastics	30	1,860	$ 4,830,055	3,757	$ 9,758,141	3,522	$ 9,147,177	3,297	$ 8,563,015
8	Lumber or Wood Products	24	250,250	$ 91,569,252	101	$ 476,931	95	$ 445,109	86	$ 409,430
9	#N/A									
10	#N/A									
Others		Other	-	$ -	-	$ -	-	$ -	-	$ -

OUTBOUND FROM KY

Top 10 Outbound Water Divertible Commodities from KY by Rail										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Chemicals or Allied Products	28	129,239	$ 142,344,384	251,191	$ 277,870,283	236,233	$ 261,322,351	204,646	$ 226,381,212
2	Clay, Concrete, Glass or Stone	32	56,099	$ 11,498,395	186,248	$ 36,579,642	173,983	$ 34,171,436	153,500	$ 30,150,862
3	Petroleum or Coal Products	29	19,845	$ 9,267,346	47,239	$ 22,763,119	44,368	$ 21,376,248	39,818	$ 19,111,219
4	Lumber or Wood Products	24	18,022	$ 7,835,172	43,995	$ 18,922,151	42,091	$ 18,111,232	39,958	$ 17,213,855
5	Agricultural Production & Livestock	01	9,909	$ 3,890,707	29,974	$ 11,624,792	29,975	$ 11,624,791	29,974	$ 11,624,792
6	Rubber or Miscellaneous Plastics	30	9,570	$ 42,704,712	15,499	$ 69,174,308	14,520	$ 64,804,361	13,055	$ 58,266,570
7	Primary Metal Products	33	4,551	$ 14,939,356	12,067	$ 42,047,004	11,369	$ 39,614,552	10,671	$ 37,181,561
8	Nonmetallic Minerals	14	1,035	$ 145,184	2,660	$ 399,059	2,650	$ 398,510	2,632	$ 397,550
9	Crude Petroleum or Natural Gas	13	14	$ 11,417	41	$ 32,886	41	$ 32,886	41	$ 32,886
10	#N/A									
Others		Other	0	0	0	0	0	0	0	0

App 2.2a: Statewide Market 2018-2045 Basis

INBOUND to KY

Top 10 Origins of Inbound Commodities to KY by Water										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Origin	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	New Orleans, LA	83	2,971,218	$ 2,811,798,295	3,452,785	$ 3,848,640,702	3,246,055	$ 3,617,674,296	2,966,830	$ 3,332,802,665
2	Charleston, WV	48	4,835,470	$ 2,772,022,538	3,183,630	$ 1,768,678,863	2,995,132	$ 1,665,395,436	2,709,342	$ 1,504,981,800
3	Evansville, IN	69	1,508,692	$ 370,239,854	2,222,426	$ 485,404,061	2,084,193	$ 454,631,460	1,897,684	$ 413,418,371
4	Tupelo, MS	75	893,209	$ 185,895,366	1,860,608	$ 339,686,695	1,759,309	$ 321,363,723	1,589,745	$ 290,763,594
5	Wheeling, WV	52	3,236,795	$ 136,722,830	1,711,104	$ 62,156,682	1,604,851	$ 58,366,303	1,464,054	$ 53,016,663
6	Memphis, TN	73	1,076,529	$ 725,145,426	1,600,498	$ 1,080,271,450	1,502,030	$ 1,013,817,108	1,415,880	$ 956,191,269
7	St. Louis, MO	96	1,566,727	$ 92,015,730	1,410,350	$ 143,371,949	1,326,661	$ 134,809,832	1,210,541	$ 122,425,802
8	Lafayette, LA	85	622,030	$ 2,174,819,868	1,154,758	$ 4,132,122,311	1,085,984	$ 3,886,168,926	968,969	$ 3,465,688,954
9	Cincinnati, OH	49	820,620	$ 289,576,099	1,115,460	$ 459,807,919	1,043,154	$ 429,238,205	946,441	$ 391,229,988
10	Louisville, KY*	70	1,387,650	$ 34,651,415	948,658	$ 96,501,096	888,917	$ 90,162,192	813,567	$ 84,698,989
Others	Others		4,056,638	$ 1,786,456,866	4,118,811	$ 1,837,581,231	3,871,928	$ 1,726,060,467	3,522,672	$ 1,569,805,595

OUTBOUND FROM KY

Top 10 Destinations of Outbound Commodities from KY by Water										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Destination	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	New Orleans, LA	83	10,106,784	$ 1,448,017,704	10,085,306	$ 1,992,383,539	9,513,111	$ 1,877,230,151	8,794,669	$ 1,728,922,059
2	Nashville, TN	71	9,550,256	$ 338,176,363	7,333,482	$ 302,945,583	6,861,305	$ 283,780,990	6,223,393	$ 258,199,287
3	Baton Rouge, LA	84	4,144,993	$ 279,629,492	4,357,514	$ 417,048,919	4,162,996	$ 394,192,445	3,960,044	$ 366,248,269
4	Charleston, WV	48	3,585,815	$ 471,871,187	1,887,595	$ 536,444,668	1,773,903	$ 501,578,144	1,603,665	$ 458,223,015
5	Cincinnati, OH	49	2,284,372	$ 673,051,276	1,687,314	$ 670,576,155	1,578,750	$ 628,155,338	1,440,406	$ 578,406,449
6	Lake Charles, LA	86	1,869,605	$ 44,543,444	942,567	$ 27,954,427	870,968	$ 25,980,542	806,726	$ 24,020,161
7	Evansville, IN	69	912,616	$ 81,200,192	725,357	$ 50,911,421	679,528	$ 47,719,759	625,301	$ 43,541,069
8	Chattanooga, TN	43	921,078	$ 38,586,965	693,360	$ 50,545,405	647,581	$ 47,469,967	585,149	$ 43,033,026
9	Greenville, MS	76	575,015	$ 6,201,340	616,789	$ 6,660,891	584,985	$ 6,317,249	528,828	$ 5,711,187
10	Knoxville, TN	44	416,403	$ 10,721,905	580,262	$ 12,590,119	540,832	$ 11,787,171	488,511	$ 10,655,119
Others			12,783,649	$ 2,054,954,457	6,340,018	$ 1,920,673,993	5,939,368	$ 1,803,134,878	5,426,834	$ 1,658,309,058

INBOUND to KY

Top 10 Origins of Inbound Water Divertible Commodities to KY by Truck										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Origin	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Nashville, TN	71	6,104,508	$ 1,416,339,875	10,000,731	$ 2,603,627,137	9,399,221	$ 2,452,445,497	8,641,647	$ 2,291,813,113
2	Louisville, KY*	70	3,398,307	$ 849,659,030	8,969,584	$ 3,435,777,955	8,390,167	$ 3,210,434,996	7,788,252	$ 3,035,598,957
3	Cincinnati, OH	49	6,573,481	$ 1,265,308,157	7,929,846	$ 1,547,251,997	7,405,809	$ 1,431,566,081	6,800,680	$ 1,351,626,261
4	Indianapolis, IN	67	4,951,100	$ 1,415,387,382	5,888,256	$ 2,054,407,632	5,521,845	$ 1,927,671,981	5,043,075	$ 1,771,478,300
5	St. Louis, MO	96	2,704,514	$ 855,403,357	3,594,990	$ 1,179,776,528	3,383,516	$ 1,111,263,493	3,097,869	$ 1,017,600,178
6	Evansville, IN	69	2,109,777	$ 783,845,650	2,477,853	$ 1,034,826,955	2,326,231	$ 970,925,670	2,140,946	$ 897,431,591
7	Columbus, OH	51	1,681,799	$ 561,267,325	2,411,654	$ 656,447,246	2,260,470	$ 614,989,100	2,065,130	$ 563,733,977
8	Toledo, OH	56	1,270,303	$ 502,112,979	1,638,702	$ 618,683,376	1,538,551	$ 581,382,345	1,407,959	$ 535,992,691
9	Memphis, TN	73	946,479	$ 257,234,399	1,594,125	$ 496,164,649	1,509,029	$ 469,287,040	1,377,177	$ 427,805,922
10	Dayton, OH	50	1,318,352	$ 345,780,455	1,524,964	$ 434,288,872	1,430,066	$ 407,023,347	1,312,808	$ 376,963,173
Others			17,823,246	$ 11,475,922,233	25,548,887	$ 17,770,466,658	24,056,282	$ 16,739,054,806	22,024,975	$ 15,371,197,866

* Out-of-state portion of region

App 2.2a: Statewide Market 2018-2045 Basis

OUTBOUND FROM KY

Top 10 Destinations of Inbound Water Divertible Commodities from KY by Truck										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Commodity	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Nashville, TN	71	7,664,430	$ 1,338,087,266	8,223,848	$ 2,332,902,172	7,701,833	$ 2,190,431,548	6,993,676	$ 2,005,237,803
2	Indianapolis, IN	67	6,328,094	$ 2,214,695,357	7,387,897	$ 4,294,458,592	6,920,869	$ 4,021,561,191	6,445,025	$ 3,756,584,417
3	Cincinnati, OH	49	6,422,301	$ 1,282,670,598	7,184,460	$ 2,438,106,240	6,719,071	$ 2,278,690,418	6,180,386	$ 2,123,053,378
4	St. Louis, MO	96	3,777,933	$ 1,486,417,305	5,228,434	$ 2,843,118,248	4,900,752	$ 2,666,687,095	4,549,549	$ 2,486,124,914
5	Evansville, IN	69	4,296,092	$ 1,471,741,934	4,911,793	$ 2,617,836,444	4,607,395	$ 2,453,677,528	4,284,847	$ 2,289,731,823
6	Memphis, TN	73	2,211,899	$ 705,332,236	3,051,396	$ 1,316,096,168	2,867,634	$ 1,234,583,199	2,643,252	$ 1,146,013,818
7	Columbus, OH	51	2,775,112	$ 718,176,590	2,207,547	$ 1,019,858,868	2,075,153	$ 956,052,536	1,900,420	$ 876,962,642
8	Knoxville, TN	44	1,657,081	$ 351,549,267	2,031,659	$ 584,778,991	1,909,368	$ 549,851,283	1,727,789	$ 499,396,917
9	Atlanta, GA	40	1,577,543	$ 1,002,374,493	2,025,142	$ 1,698,757,024	1,903,331	$ 1,598,360,266	1,740,007	$ 1,461,175,385
10	Louisville, KY*	70	1,638,436	$ 585,381,130	1,916,832	$ 904,198,066	1,793,541	$ 844,912,585	1,672,887	$ 794,108,141
Others			26,611,867	$ 22,406,221,009	34,250,622	$ 39,956,098,248	32,230,860	$ 37,590,792,211	29,415,433	$ 34,326,630,786

INBOUND to KY

Top 10 Origins of Inbound Water Divertible Commodities to KY by Rail										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Origin	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Non-CMA, QC	235	254,300	$ 442,596,362	476,388	$ 997,979,113	448,863	$ 940,412,711	419,106	$ 879,698,064
2	Non-CMA, SK	238	69,952	$ 12,537,068	134,298	$ 25,737,310	130,164	$ 24,884,923	123,881	$ 23,605,754
3	Non-CMA, ON	236	111,266	$ 76,777,565	137,890	$ 106,465,258	129,629	$ 100,098,926	119,199	$ 92,255,159
4	Outside US	0	69,272	$ 74,192,784	125,844	$ 134,715,757	118,506	$ 126,869,095	109,686	$ 117,508,902
5	Montreal, PQ	205	44,078	$ 90,573,705	93,362	$ 203,906,339	87,975	$ 192,160,027	82,189	$ 179,728,729
6	Non-CMA, AB	239	98,600	$ 74,095,678	82,990	$ 97,290,562	78,503	$ 91,668,006	73,231	$ 85,214,324
7	Non-CMA, MB	237	30,689	$ 8,361,686	69,537	$ 16,876,514	69,452	$ 16,732,044	69,360	$ 16,573,413
8	Toronto, ON	216	24,952	$ 17,967,901	33,942	$ 27,130,353	31,919	$ 25,512,532	29,423	$ 23,557,985
9	Non-CMA BC	240	152,639	$ 66,940,340	17,162	$ 33,169,382	16,175	$ 31,261,813	15,128	$ 29,247,117
10	Edmonton, AB	222	8,305	$ 7,843,282	9,102	$ 10,109,080	8,564	$ 9,511,508	7,888	$ 8,771,137
Others			26,783	$ 21,323,725	26,297	$ 29,354,218	25,058	$ 27,733,801	23,581	$ 25,928,198

OUTBOUND FROM KY

Top 10 Destinations of Inbound Water Divertible Commodities from KY by Rail										
			2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Commodity	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Toronto, ON	216	58,554	$ 35,587,642	171,011	$ 78,461,653	161,049	$ 73,956,954	143,810	$ 65,849,422
2	Non-CMA, ON	236	72,704	$ 89,840,381	155,832	$ 173,922,189	146,888	$ 163,684,506	129,590	$ 144,018,715
3	Non-CMA, AB	239	21,963	$ 26,703,030	46,539	$ 50,418,727	43,782	$ 47,392,190	38,413	$ 41,464,487
4	Non-CMA, MB	237	20,051	$ 16,113,132	44,650	$ 33,264,422	42,360	$ 31,436,536	38,622	$ 28,117,178
5	Non-CMA BC	240	21,042	$ 16,787,650	42,750	$ 32,718,506	40,171	$ 30,755,272	34,903	$ 26,770,912
6	Outside US	0	12,465	$ 17,996,011	32,009	$ 48,724,791	30,290	$ 45,915,238	27,603	$ 42,496,937
7	Non-CMA, QC	235	14,781	$ 7,031,195	31,869	$ 15,094,975	30,019	$ 14,186,173	26,917	$ 12,624,960
8	Winnipeg, MB	218	8,285	$ 4,546,207	19,260	$ 10,069,332	18,342	$ 9,561,223	17,035	$ 8,759,953
9	Hamilton, ON	208	3,345	$ 1,937,692	9,486	$ 4,433,143	8,949	$ 4,184,837	7,995	$ 3,700,681
10	Oshawa, ON	211	1,834	$ 292,526	6,247	$ 996,632	5,835	$ 930,972	5,148	$ 821,320
Others			13,262	$ 15,801,206	29,262	$ 31,308,875	27,546	$ 29,452,467	24,257	$ 25,735,942

* Out-of-state portion of region

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

App 2.2b: Statewide Internal Trade within Kentucky 2018-2045

Internal KY waterborne flows

		2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
Agricultural Production & Livestock	01	79,910	$ 22,466,479	212,582	$ 61,968,072	200,882	$ 58,543,651	184,911	$ 53,882,166
Metallic Ores	10	443	$ 33,070	82	$ 6,182	77	$ 5,798	70	$ 5,301
Coal	11	11,665,848	$ 362,402,460	2,277,722	$ 70,758,012	2,139,822	$ 66,474,092	1,950,459	$ 60,591,498
Crude Petroleum or Natural Gas	13	21,429	$ 9,437,324	5,704	$ 2,512,231	5,352	$ 2,356,926	4,759	$ 2,096,034
Nonmetallic Minerals	14	5,295,376	$ 50,372,523	5,369,628	$ 46,836,673	5,034,213	$ 43,911,745	4,580,336	$ 39,956,551
Food or Kindred Products	20	599	$ 160,355	4,127	$ 736,682	3,855	$ 687,405	3,569	$ 637,237
Chemicals or Allied Products	28	71,303	$ 27,672,989	65,741	$ 25,850,979	61,832	$ 24,314,325	55,195	$ 21,718,679
Petroleum or Coal Products	29	270,947	$ 136,123,039	250,516	$ 129,638,043	234,730	$ 121,437,496	215,571	$ 111,887,926
Clay, Concrete, Glass or Stone	32	1,096,866	$ 348,826,011	1,660,093	$ 538,919,870	1,553,200	$ 504,239,994	1,400,739	$ 454,726,620
Primary Metal Products	33	136,156	$ 204,762,061	161,842	$ 251,315,873	152,445	$ 236,845,026	141,771	$ 220,614,962
Fabricated Metal Products	34	39	$ 164,237	40	$ 173,670	38	$ 163,563	35	$ 152,615
Machinery	35	34	$ 338,177	26	$ 251,834	25	$ 242,124	24	$ 230,666
Waste or Scrap Materials	40	336,807	$ 109,462,134	631,436	$ 205,216,752	602,806	$ 195,911,964	581,602	$ 189,020,820
Total		**18,975,758**	**$ 1,272,220,861**	**10,639,539**	**$ 1,334,184,872**	**9,989,277**	**$ 1,255,134,109**	**9,119,042**	**$ 1,155,521,074**

Internal KY divertible truck flows

		2018		2045 Optimistic		2045 Likely		2045 Pessimistic	
Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value	Tonnage	Value
Agricultural Production & Livestock	01	3,207,324	$ 1,295,409,528	5,731,982	$ 2,612,565,211	5,416,181	$ 2,467,633,970	4,986,220	$ 2,271,763,660
Coal	11	3,630,459	$ 112,781,124	655,276	$ 20,356,342	623,617	$ 19,372,808	580,228	$ 18,024,945
Nonmetallic Minerals	14	16,696,302	$ 179,379,489	12,461,972	$ 133,452,863	11,678,770	$ 125,063,767	10,610,904	$ 113,628,443
Lumber or Wood Products	24	51,163	$ 19,044,918	66,150	$ 25,332,091	62,522	$ 23,941,986	58,031	$ 22,310,640
Chemicals or Allied Products	28	244,030	$ 460,765,437	388,866	$ 1,066,232,330	365,795	$ 1,002,909,028	327,223	$ 899,237,700
Petroleum or Coal Products	29	4,973,716	$ 3,257,090,273	9,108,493	$ 6,158,591,814	8,512,212	$ 5,754,953,111	8,078,783	$ 5,467,120,024
Rubber or Miscellaneous Plastics	30	103,348	$ 388,353,500	190,844	$ 719,125,498	178,786	$ 673,659,343	163,964	$ 617,893,693
Clay, Concrete, Glass or Stone	32	4,904,997	$ 610,673,614	7,253,959	$ 885,654,946	6,797,816	$ 829,795,157	6,148,282	$ 750,392,516
Primary Metal Products	33	172,866	$ 407,800,596	240,261	$ 536,805,067	226,334	$ 505,708,872	212,346	$ 474,359,235
Total		**33,984,204**	**$ 6,731,298,478**	**36,097,803**	**$ 12,158,116,162**	**33,862,033**	**$ 11,403,038,041**	**31,165,981**	**$ 10,634,730,856**

App 2.2c: Projected Market Change 2018-2045

Waterborne Commodities to/from KY by Growth

			2018		2045		Difference	
Rank*	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Agricultural Production & Livestock	01	4,406,257	980,849,567	7,976,307	1,731,425,620	3,570,050	1,723,449,313
2	Food or Kindred Products	20	728,371	226,427,303	1,776,258	473,431,342	1,047,887	471,655,085
3	Lumber or Wood Products	24	920,493	161,152,778	1,889,564	330,810,209	969,071	328,920,645
4	Chemicals or Allied Products	28	3,753,850	3,929,615,552	4,621,390	5,827,629,946	867,540	5,823,008,556
5	Primary Metal Products	33	2,380,291	3,710,715,847	2,723,480	4,385,430,541	343,190	4,382,707,061
6	Fabricated Metal Products	34	11,546	44,106,494	17,449	64,586,998	5,902	64,569,549
7	Machinery	35	354	4,070,190	386	4,430,737	32	4,430,351
8	Electrical Equipment	36	0	5,055	1	12,686	1	12,685
9	Miscellaneous Mixed Shipments	46	699	3,581,076	475	2,432,097	(224)	2,431,622
10	Waste or Scrap Materials	40	500,072	158,870,042	482,547	152,325,259	(17,526)	151,842,712
11	Clay, Concrete, Glass or Stone	32	2,807,389	690,730,498	2,640,043	658,270,594	(167,345)	655,630,551
12	Crude Petroleum or Natural Gas	13	1,615,660	711,372,168	1,296,048	570,666,917	(319,612)	569,370,869
13	Metallic Ores	10	1,035,337	86,454,104	556,594	49,250,694	(478,743)	48,694,100
14	Petroleum or Coal Products	29	9,199,664	5,281,654,126	7,335,974	4,406,604,588	(1,863,691)	4,399,268,615
15	Nonmetallic Minerals	14	23,353,947	233,647,966	16,592,490	161,063,670	(6,761,457)	144,471,180
16	Coal	11	19,412,233	603,045,847	6,652,536	206,662,686	(12,759,697)	200,010,150
	Total		**70,126,165**	**16,826,298,612**	**54,561,542**	**19,025,034,584**	**(15,564,623)**	**18,970,473,042**
	Top 10		12,701,934	9,219,393,902	19,487,856	12,972,515,434	6,785,923	12,953,027,578
	Others		57,424,231	7,606,904,709	35,073,685	6,052,519,149	(22,350,545)	6,017,445,464

* Commodities are ranked from largest growth to largest decline.

App 2.2c: Projected Market Change 2018-2045

KY Partners for Waterborne Commodities by Growth

			2018		2045		Difference	
Rank*	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Tupelo, MS	75	945,512	197,495,131	1,807,217	340,463,390	861,705	142,968,259
2	Evansville, IN	69	2,421,308	451,440,046	2,763,721	502,351,219	342,413	50,911,174
3	Baton Rouge, LA	84	4,751,182	579,823,503	4,952,729	807,291,063	201,547	227,467,560
4	Knoxville, TN	44	439,892	18,489,214	561,908	18,671,454	122,016	182,239
5	Houston, TX	131	714,215	339,450,055	818,255	396,731,152	104,040	57,281,097
6	Little Rock, AR	90	188,572	102,437,496	287,832	166,469,685	99,260	64,032,189
7	Huntsville, AL	74	186,036	47,345,357	252,526	77,089,100	66,490	29,743,743
8	Fort Smith, AR	91	11,663	4,280,619	29,600	4,430,262	17,936	149,644
9	Peoria, IL	101	67,140	74,231,556	83,356	96,416,323	16,216	22,184,767
10	Tampa, FL	34	5,718	1,858,195	20,376	6,622,221	14,659	4,764,026
12	Columbus, OH	51	271,223	146,579,602	285,373	99,364,057	14,150	(47,215,544)
12	Greenville, MS	76	577,831	7,127,936	585,695	6,553,167	7,865	(574,769)
13	Davenport, IA	102	51,200	16,826,081	57,886	35,488,704	6,686	18,662,623
14	Columbia, MO	98	2,677	458,611	6,581	1,127,494	3,904	668,883
15	Tallahassee, FL	35	5,380	7,675,431	8,091	11,542,376	2,711	3,866,946
16	McAllen, TX	133	5,649	8,482,582	7,673	12,697,264	2,023	4,214,682
17	Kansas City, MO	99	848	145,491	2,333	400,277	1,485	254,786
18	Springfield, IL	97	10,074	9,277,506	10,124	9,708,321	50	430,815
19	St. Catharines, ON	213	0	5,055	1	12,686	1	7,631
20	Rochester, MN	106	19	688	11	631	(7)	(57)
21	Orlando, FL	30	252	1,291,095	77	392,205	(175)	(898,890)
22	Madison, WI	104	7,328	3,535,212	6,780	5,112,308	(548)	1,577,096
23	Minneapolis, MN	107	5,969	1,313,147	5,069	1,456,353	(899)	143,206
24	Pensacola, FL	81	1,552	16,385	439	4,544	(1,113)	(11,841)
25	Tulsa, OK	124	124,114	59,753,386	122,845	63,502,331	(1,269)	3,748,945
26	La Crosse, WI	105	3,431	1,423,099	2,139	1,996,443	(1,292)	573,345
27	Paducah, KY	72	36,181	4,037,634	30,013	4,397,026	(6,169)	359,392
28	Des Moines, IA	100	15,748	2,900,853	9,566	4,904,940	(6,182)	2,004,086
29	Birmingham, AL	78	23,953	8,545,907	17,434	6,250,466	(6,519)	(2,295,441)
30	Lafayette, LA	85	1,448,400	2,208,829,422	1,438,682	3,911,315,632	(9,718)	1,702,486,210
31	Mobile, AL	80	259,493	24,470,187	234,712	34,715,697	(24,781)	10,245,509
32	Jonesboro, AR	95	152,619	56,130,471	127,509	67,253,557	(25,110)	11,123,085
33	Corpus Christi, TX	132	109,274	32,753,293	78,181	31,734,319	(31,094)	(1,018,974)
34	Monroe, LA	89	72,341	737,947	41,114	418,281	(31,227)	(319,666)
35	Chicago, IL	64	632,835	414,316,962	601,383	445,006,359	(31,452)	30,689,398
36	Shreveport, LA	88	151,492	6,498,011	77,852	7,249,181	(73,640)	751,169
37	Montgomery, AL	79	299,467	110,815,139	202,666	74,041,491	(96,801)	(36,773,648)
38	Biloxi, MS	82	483,456	12,151,079	287,032	7,234,529	(196,424)	(4,916,550)
39	Beaumont, TX	87	644,713	95,678,556	393,645	126,117,388	(251,068)	30,438,832
40	Jackson, MS	77	748,566	62,421,725	485,757	23,233,809	(262,808)	(39,187,916)
41	Memphis, TN	73	2,161,680	762,070,536	1,892,967	1,047,084,750	(268,713)	285,014,214
42	Chattanooga, TN	43	922,464	39,036,582	648,079	47,631,048	(274,385)	8,594,466
43	New Orleans, LA	83	13,078,002	4,259,815,999	12,759,167	5,494,904,447	(318,836)	1,235,088,448
44	Cleveland, OH	55	1,513,370	600,195,621	1,151,648	388,844,883	(361,722)	(211,350,738)
45	St. Louis, MO	96	2,113,571	507,109,628	1,684,346	435,200,546	(429,226)	(71,909,082)
46	Cincinnati, OH	49	3,104,992	962,627,375	2,621,904	1,057,393,543	(483,088)	94,766,169
47	Pittsburgh, PA	53	1,837,754	351,269,485	871,969	274,732,402	(965,785)	(76,537,083)
48	Lake Charles, LA	86	2,181,062	261,867,762	1,097,505	165,294,461	(1,083,557)	(96,573,301)
49	Wheeling, WV	52	4,505,166	200,132,514	1,998,209	90,233,953	(2,506,957)	(109,898,561)
50	Nashville, TN	71	9,603,058	355,401,742	6,941,802	310,236,944	(2,661,256)	(45,164,798)
51	Louisville, KY	70	4,806,438	161,827,979	1,420,729	136,736,322	(3,385,710)	(25,091,657)
52	Charleston, WV	48	8,421,285	3,243,893,725	4,769,035	2,166,973,580	(3,652,249)	(1,076,920,145)
	Total		**70,126,165**	**16,826,298,612**	**54,561,542**	**19,025,034,584**	**(15,564,623)**	**2,198,735,972**
	Top 10		9,731,237	1,816,851,171	11,577,520	2,416,535,869	1,846,283	599,684,698
	Others		60,394,928	15,009,447,440	42,984,022	16,608,498,714	(17,410,906)	1,599,051,274

* KY partners are ranked from largest growth to largest decline.

App 2.2d: Statewide Projected Market Growth 2018-2045

Top 10 Waterborne Commodities to/from KY by growth

			2018		2045		Difference	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Agricultural Production & Livestock	01	4,406,257	$ 980,849,567	7,976,307	$ 1,731,425,620	3,570,050	$ 750,576,053
2	Food or Kindred Products	20	728,371	$ 226,427,303	1,776,258	$ 473,431,342	1,047,887	$ 247,004,039
3	Lumber or Wood Products	24	920,493	$ 161,152,778	1,889,564	$ 330,810,209	969,071	$ 169,657,431
4	Chemicals or Allied Products	28	3,753,850	$ 3,929,615,552	4,621,390	$ 5,827,629,946	867,540	$ 1,898,014,394
5	Primary Metal Products	33	2,380,291	$ 3,710,715,847	2,723,480	$ 4,385,430,541	343,190	$ 674,714,695
6	Fabricated Metal Products	34	11,546	$ 44,106,494	17,449	$ 64,586,998	5,902	$ 20,480,504
7	Machinery	35	354	$ 4,070,190	386	$ 4,430,737	32	$ 360,547
8	Electrical Equipment	36	0	$ 5,055	1	$ 12,686	1	$ 7,631
9	Miscellaneous Mixed Shipments	46	699	$ 3,581,076	475	$ 2,432,097	(224)	$ (1,148,979)
10	Waste or Scrap Materials	40	500,072	$ 158,870,042	482,547	$ 152,325,259	(17,526)	$ (6,544,783)
Others								

Top 10 Truck Divertible Commodities to/from KY by growth

			2018		2045		Difference	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Agricultural Production & Livestock	01	28,326,278	$ 10,810,874,989	37,684,683	$ 16,643,060,203	9,358,405	$ 5,832,185,214
2	Petroleum or Coal Products	29	13,013,192	$ 7,273,277,289	21,241,533	$ 13,212,531,532	8,228,341	$ 5,939,254,243
3	Clay, Concrete, Glass or Stone	32	15,267,414	$ 2,937,259,223	20,551,286	$ 4,036,591,527	5,283,872	$ 1,099,332,305
4	Chemicals or Allied Products	28	6,947,297	$ 10,166,668,449	10,184,954	$ 18,993,180,460	3,237,657	$ 8,826,512,011
5	Primary Metal Products	33	4,997,556	$ 11,703,946,339	7,412,958	$ 16,953,665,961	2,415,402	$ 5,249,719,622
6	Rubber or Miscellaneous Plastics	30	2,441,852	$ 9,221,080,965	4,028,378	$ 15,232,922,151	1,586,526	$ 6,011,841,186
7	Lumber or Wood Products	24	1,592,574	$ 664,853,657	1,861,906	$ 771,393,291	269,332	$ 106,539,634
8	Crude Petroleum or Natural Gas	13	32	$ 25,876	93	$ 74,534	61	$ 48,658
9	Metallic Ores	10	13,073	$ 10,569,459	3,157	$ 4,952,471	(9,916)	$ (5,616,988)
10	Coal	11	1,346,618	$ 41,870,189	278,080	$ 8,768,868	(1,068,538)	$ (33,101,321)
Others								

Top 10 Rail Divertible Commodities to/from KY by growth

			2018		2045		Difference	
Commodity	Name	STCC2	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Primary Metal Products	33	262,742	$ 587,213,358	566,312	$ 1,278,729,361	303,570	$ 691,516,003
2	Chemicals or Allied Products	28	397,339	$ 335,255,111	636,465	$ 552,569,404	239,127	$ 217,314,294
3	Clay, Concrete, Glass or Stone	32	60,428	$ 12,453,640	178,601	$ 36,171,038	118,173	$ 23,717,398
4	Agricultural Production & Livestock	01	68,198	$ 15,220,599	173,925	$ 39,611,114	105,728	$ 24,390,515
5	Petroleum or Coal Products	29	51,171	$ 26,382,854	60,282	$ 34,236,930	9,111	$ 7,854,076
6	Rubber or Miscellaneous Plastics	30	11,429	$ 47,534,767	18,042	$ 73,951,537	6,613	$ 26,416,770
7	Nonmetallic Minerals	14	19,529	$ 2,370,597	24,184	$ 4,443,139	4,655	$ 2,072,542
8	Crude Petroleum or Natural Gas	13	14	$ 11,417	41	$ 32,886	27	$ 21,469
9	Lumber or Wood Products	24	268,272	$ 99,404,424	42,186	$ 18,556,341	(226,086)	$ (80,848,082)
10							-	$ -
Others								

App 2.2d Statewide Projected Market Growth 2018-2045

Top 10 KY partners for Waterborne commodities by growth

			2018		2045		Difference	
Origin	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Tupelo, MS	75	945,512	$ 197,495,131	1,807,217	$ 340,463,390	861,705	142,968,259
2	Evansville, IN	69	2,421,308	$ 451,440,046	2,763,721	$ 502,351,219	342,413	50,911,174
3	Baton Rouge, LA	84	4,751,182	$ 579,823,503	4,952,729	$ 807,291,063	201,547	227,467,560
4	Knoxville, TN	44	439,892	$ 18,489,214	561,908	$ 18,671,454	122,016	182,239
5	Houston, TX	131	714,215	$ 339,450,055	818,255	$ 396,731,152	104,040	57,281,097
6	Little Rock, AR	90	188,572	$ 102,437,496	287,832	$ 166,469,685	99,260	64,032,189
7	Huntsville, AL	74	186,036	$ 47,345,357	252,526	$ 77,089,100	66,490	29,743,743
8	Fort Smith, AR	91	11,663	$ 4,280,619	29,600	$ 4,430,262	17,936	149,644
9	Peoria, IL	101	67,140	$ 74,231,556	83,356	$ 96,416,323	16,216	22,184,767
10	Tampa, FL	34	5,718	$ 1,858,195	20,376	$ 6,622,221	14,659	4,764,026
Others								

Top 10 KY partners for Truck divertible commodities by growth

			2018		2045		Difference	
Origin	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Louisville, KY	70	5,036,743	$ 1,435,040,160	10,183,708	$ 4,055,347,581	5,146,965	2,620,307,421
2	Nashville, TN	71	13,768,938	$ 2,754,427,141	17,101,054	$ 4,642,877,045	3,332,117	1,888,449,904
3	St. Louis, MO	96	6,482,446	$ 2,341,820,662	8,284,267	$ 3,777,950,588	1,801,821	1,436,129,926
4	Memphis, TN	73	3,158,377	$ 962,566,635	4,376,664	$ 1,703,870,239	1,218,287	741,303,604
5	Indianapolis, IN	67	11,279,194	$ 3,630,082,739	12,442,714	$ 5,949,233,172	1,163,520	2,319,150,433
6	Cincinnati, OH	49	12,995,782	$ 2,547,978,756	14,124,879	$ 3,710,256,499	1,129,098	1,162,277,743
7	Outside US	0	551,331	$ 693,272,220	1,273,766	$ 1,545,837,112	722,435	852,564,893
8	Huntsville, AL	74	1,022,755	$ 944,487,038	1,647,047	$ 1,625,944,503	624,292	681,457,465
9	Evansville, IN	69	6,405,869	$ 2,255,587,585	6,933,627	$ 3,424,603,198	527,758	1,169,015,613
10	Jonesboro, AR	95	891,928	$ 375,458,579	1,396,739	$ 653,960,391	504,811	278,501,812
Others								

Top 10 KY partners for Rail divertible commodities by growth

			2018		2045		Difference	
Origin	Name	BEA	Tonnage	Value	Tonnage	Value	Tonnage	Value
1	Non-CMA, QC	235	269,081	$ 449,627,557	478,882	$ 954,598,883	209,801	504,971,326
2	Toronto, ON	216	83,506	$ 53,555,543	192,969	$ 99,469,486	109,462	45,913,943
3	Non-CMA, ON	236	183,970	$ 166,617,946	276,517	$ 263,783,432	92,547	97,165,486
4	Outside US	0	81,738	$ 92,188,795	148,795	$ 172,784,333	67,057	80,595,538
5	Non-CMA, MB	237	50,739	$ 24,474,817	111,812	$ 48,168,580	61,073	23,693,762
6	Non-CMA, SK	238	70,304	$ 12,721,668	130,959	$ 25,284,746	60,655	12,563,078
7	Montreal, PQ	205	44,322	$ 90,776,762	88,619	$ 192,647,761	44,297	101,870,999
8	Winnipeg, MB	218	10,688	$ 5,356,165	22,810	$ 10,824,951	12,122	5,468,786
9	Hamilton, ON	208	7,079	$ 4,234,211	14,962	$ 7,767,948	7,883	3,533,736
10	Oshawa, ON	211	1,834	$ 292,526	5,835	$ 930,972	4,002	638,445
Others								

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

App 2.2e: 2018 Riverport Markets by Hinterlands

Tonnage of Inbound Waterborne Commodities to Hinterlands in 2018

		Eddyville	Henderson	Hickman-Fulton	Hickman-Fulton	Louisville	Maysville-Mason	Meade	Northern Kentucky	Owensboro	Paducah-McCracken	Western Kentucky
STCC2	NAME	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS
1	Agricultural Production & Livestock	247,276	192,234	128,163	98,940	209,695	18,563	199,027	40,656	160,827	140,120	127,845
10	Metallic Ores	754,655	727,472	93,223	694,956	848,617	253,197	874,996	268,507	891,989	507,684	90,466
11	Coal	753,295	278,151	954,415	31,300,480	18,859,048	34,300,568	17,049,236	27,985,092	748,552	701,878	507,852
13	Crude Petroleum or Natural Gas	20,105	20,105	-	526,699	64,394	1,176,085	84,121	51,334	38,439	19,604	5
14	Nonmetallic Minerals	5,003,607	2,727,875	1,062,974	3,533,218	2,379,060	2,745,403	2,272,777	4,138,054	2,516,222	3,245,616	912,386
20	Food or Kindred Products	59,421	51,043	62,310	45,071	70,823	31,223	83,740	31,440	46,330	35,951	61,908
24	Lumber or Wood Products	908,327	920,493	28,752	603,801	913,804	7,367	913,804	8,531	913,804	28,752	29,777
28	Chemicals or Allied Products	3,007,558	2,829,974	2,632,138	1,854,163	1,108,131	2,530,325	1,432,423	2,820,082	1,923,597	3,571,590	2,704,439
29	Petroleum or Coal Products	1,512,969	1,455,093	1,443,318	4,248,298	3,843,967	1,045,668	4,018,908	6,039,645	3,632,641	1,718,750	1,426,014
30	Rubber or Miscellaneous Plastics	2,026	2,026	2,025	(672)	3	2	3	2	1	2,025	2,025
32	Clay, Concrete, Glass or Stone	380,155	354,581	211,550	857,052	953,093	911,907	748,387	406,313	217,776	431,071	214,582
33	Primary Metal Products	689,819	521,265	467,496	1,936,982	1,184,657	1,874,905	1,343,027	2,046,371	590,887	584,790	455,010
34	Fabricated Metal Products	8,671	7,626	1,561	17,936	8,277	13,635	14,039	19,489	10,798	6,856	1,561
35	Machinery	1,889	1,884	1,679	1,612	817	2,385	817	2,385	209	1,688	1,678
36	Electrical Equipment	-	-	-	0	0	-	0	0	0	-	-
40	Waste or Scrap Materials	284,454	265,199	166,015	787,220	764,819	593,998	815,374	562,904	289,446	201,523	110,068
46	Miscellaneous Mixed Shipments	13,757	9,910	3,846	5,509	10,109	475	10,109	475	9,910	3,846	3,846

App 2.2e 2018 Riverport Markets by Hinterlands

Inbound Waterborne Tonnage by Partner

BEA	NAME	Eddyville TONS	Henderson TONS	Hickman TONS	Hickman TONS	Louisville TONS	Maysville TONS	Meade TONS	Northern Kentucky TONS	Owensboro TONS	Paducah TONS	West KY TONS
30	Orlando, FL	-	-	-	-	-	-	-	-	-	-	-
34	Tampa, FL	-	-	-	-	-	-	-	-	-	-	-
35	Tallahassee, FL	-	-	-	-	-	-	-	-	-	-	-
43	Chattanooga, TN	11,054	7,002	20,989	(5,781)	1,578	1,755	1,578	1,945	1,679	23,425	20,989
44	Knoxville, TN	1,196	873	14,782	32,636	28,346	32,571	28,346	36,368	241	13,582	14,783
48	Charleston, WV	1,376,113	1,124,940	885,387	4,037,725	3,086,456	1,757,092	3,143,686	5,322,029	2,961,814	1,031,216	862,447
49	Cincinnati, OH	386,168	359,390	230,787	597,878	1,348,166	-	1,220,562	-	515,523	342,332	220,965
51	Columbus, OH	24,241	23,575	15,420	37,753	76,723	-	76,414	-	32,742	4,683	3,980
52	Wheeling, WV	322,313	296,116	156,890	7,988,942	1,838,456	12,080,620	1,252,026	7,265,591	313,269	225,367	157,027
53	Pittsburgh, PA	88,778	60,903	58,898	1,054,852	443,764	1,420,217	394,134	892,517	92,910	70,798	58,899
55	Cleveland, OH	73,926	72,233	8,754	493,898	116,534	1,000,001	112,467	77,947	101,665	16,556	8,776
57	Detroit, MI	-	-	-	-	-	-	-	-	-	-	-
59	Green Bay, WI	68	-	94	(38)	-	-	-	-	-	94	94
64	Chicago, IL	213,782	171,140	156,158	217,392	176,308	231,729	185,625	232,780	159,583	230,935	173,201
69	Evansville, IN	-	-	506,208	15,894,305	10,904,733	15,295,583	9,651,213	15,252,436	-	190,732	242,154
70	Louisville, KY*	3,643,834	1,659,900	500,168	1,189,465	-	1,716,335	-	1,723,077	942,945	2,254,780	430,961
71	Nashville, TN	65,198	1,704	84,465	48,806	60,538	67,669	60,542	74,825	433	83,292	68,858
72	Paducah, KY*	-	1,702	-	7,057,393	6,671,488	5,025,434	6,849,554	5,446,093	620,754	-	-
73	Memphis, TN	307,935	302,915	471,870	515,184	491,426	319,776	507,765	766,575	516,062	488,454	471,870
74	Huntsville, AL	43,940	30,968	13,497	7,968	3,830	3,440	30,513	1,414	30,832	40,189	13,503
75	Tupelo, MS	877,113	863,227	33,286	578,684	859,581	22,387	862,606	29,448	856,039	36,310	33,286
76	Greenville, MS	3,860	1,602	3,026	738	1,455	737	1,955	1,532	2,355	3,801	3,064
77	Jackson, MS	9,138	3,957	6,933	6,658	6,340	6,404	7,549	8,321	5,776	8,833	7,022
78	Birmingham, AL	15,648	7,416	15,324	(131)	1,386	6,343	1,707	6,700	332	15,644	15,324
79	Montgomery, AL	55,345	45,791	15,978	32,269	42,052	8,458	49,363	19,258	45,567	36,342	15,978
80	Mobile, AL	34,245	26,472	24,643	13,243	12,246	15,477	20,246	19,684	14,102	33,478	24,808
81	Pensacola, FL	-	-	-	-	-	-	-	-	-	-	-
82	Biloxi, MS	0	0	1,086	(434)	0	1	0	0	0	1,085	1,086
83	New Orleans, LA	2,666,147	2,367,891	1,451,949	3,366,420	2,454,092	2,978,229	2,755,865	3,437,566	2,482,388	2,617,072	1,502,310
84	Baton Rouge, LA	536,328	485,283	428,186	711,330	445,123	725,548	508,813	849,228	563,163	662,727	450,369
85	Lafayette, LA	667,970	649,884	602,266	217,553	89,213	450,380	135,275	501,064	172,651	690,583	602,397
86	Lake Charles, LA	508,217	484,949	179,198	467,410	452,025	280,917	508,534	372,186	514,647	377,646	233,995
87	Beaumont, TX	139,094	116,219	97,524	165,443	138,570	139,805	173,899	189,306	63,051	134,375	97,529
88	Shreveport, LA	876	793	945	815	524	1,001	681	1,165	589	968	954
89	Monroe, LA	384	8	677	(264)	5	3	7	5	10	680	677
90	Little Rock, AR	23,816	20,132	20,668	16,508	18,752	9,029	19,391	25,661	18,909	22,647	20,669
91	Fort Smith, AR	11,461	6,441	1,763	13,256	10,042	8,889	11,725	12,917	8,894	9,840	1,763
95	Jonesboro, AR	10,696	4,939	-	15,380	8,052	15,710	8,945	18,049	5,625	8,765	10,137
96	St. Louis, MO	862,841	566,747	745,467	1,351,099	1,113,850	1,440,481	883,320	1,318,874	568,594	858,782	342,442
97	Springfield, IL	5,011	2,997	4,012	11,340	4,505	13,586	4,744	14,764	2,926	5,148	4,582
98	Columbia, MO	2,677	2,677	2,677	(892)	-	-	-	-	-	2,677	2,677
99	Kansas City, MO	836	836	839	(280)	-	-	-	-	-	839	839
100	Des Moines, IA	16,301	15,857	8,108	(2,471)	3	5	4	4	8,195	16,300	14,381
101	Peoria, IL	13,177	9,733	10,257	15,688	8,126	19,125	8,388	21,806	7,988	14,230	13,418
102	Davenport, IA	25,331	22,066	26,889	(9,841)	6	0	6	0	8,412	35,294	35,294
103	Cedar Rapids, IA	-	-	-	-	-	-	-	-	-	-	-
104	Madison, WI	2,282	1,947	1,412	(492)	1	1	1	2	868	2,284	2,279
105	La Crosse, WI	2	-	2	(0)	-	1	-	1	-	3	2
106	Rochester, MN	69	12	299	(112)	6	2	9	5	8	307	299
107	Minneapolis, MN	25,645	14,170	16,106	33,883	17,451	37,281	17,458	49,888	8,473	26,725	21,563
124	Tulsa, OK	129,418	110,330	46,551	61,450	24,376	64,796	34,938	74,672	111,333	130,635	52,708
131	Houston, TX	401,334	383,094	314,367	213,724	226,435	191,285	288,993	293,891	198,537	392,236	314,425
132	Corpus Christi, TX	40,535	32,461	73,443	63,230	35,307	116,835	38,675	60,620	28,979	36,082	73,460
133	McAllen, TX	3,640	3,639	1,219	1,683	1,443	771	3,269	1,067	2,565	2,973	1,219

* Out-of-state portion of region

App 2.2e 2018 Riverport Markets by Hinterlands

Outbound Waterborne Tonnage by Commodity

		Eddyville	Greenup-Boyd	Henderson	Hickman-Fulton	Louisville	Maysville-Mason	Meade	Northern Kentucky	Owensboro	Paducah-McCracken	Western Kentucky
STCC2	NAME	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS
1	Agricultural Production & Livestock	13,288,861	-	7,103,640	8,831,898	2,389,933	2,256,548	4,276,504	2,351,379	5,901,876	13,461,800	9,926,072
10	Metallic Ores	73,410	1,647	37,149	75,263	18,974	55,722	20,077	54,299	6,927	71,799	92,450
11	Coal	30,884,178	5,210,984	33,109,126	10,045,519	2,665,032	4,350,922	3,053,187	1,981,652	26,370,221	28,883,157	22,884,264
13	Crude Petroleum or Natural Gas	11,446	9,863	11,446	11,568	-	117,736	-	493,619	-	11,446	11,568
14	Nonmetallic Minerals	13,538,564	645,773	15,650,771	16,874,638	13,121,963	2,464,977	12,254,682	9,921,447	21,755,961	17,172,905	17,352,575
20	Food or Kindred Products	2,505,503	-	1,718,827	961,748	676,535	489,102	735,915	489,101	1,698,507	2,301,188	962,785
24	Lumber or Wood Products	65,645	35,890	-	175,086	-	34,491	-	25,567	-	175,086	175,072
28	Chemicals or Allied Products	1,437,376	238,164	1,445,886	714,668	254,756	228,004	271,157	139,620	819,559	1,278,302	665,184
29	Petroleum or Coal Products	3,539,752	7,564,501	3,529,260	1,555,461	279,481	6,484,275	452,701	560,561	2,058,338	3,593,387	1,555,462
30	Rubber or Miscellaneous Plastics	-	-	-	-	-	-	-	-	-	-	-
32	Clay, Concrete, Glass or Stone	1,173,126	1,117,266	517,478	1,835,914	1,274,495	829,145	1,465,176	1,695,028	1,352,586	1,996,782	1,950,199
33	Primary Metal Products	279,555	64,908	264,667	102,829	818,369	880,895	949,993	853,940	191,801	208,893	91,747
34	Fabricated Metal Products	2,173	-	2,173	2,191	-	-	-	-	-	2,182	2,191
35	Machinery	455	-	487	422	-	-	-	-	-	452	1,033
36	Electrical Equipment	-	-	-	-	-	-	-	-	-	-	-
40	Waste or Scrap Materials	182,378	46,124	139,182	130,396	274,113	35,865	274,113	283,935	148,977	180,311	137,484
46	Miscellaneous Mixed Shipments	252	-	252	252	-	-	-	-	-	252	252

App 2.2e 2018 Riverport Markets by Hinterlands

Outbound Waterborne Tonnage by Partner

		Eddyville	Greenup	Henderson	Hickman	Louisville	Maysville	Meade	Northern Kentucky	Owensboro	Paducah	West KY
BEA	NAME	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS	TONS
30	Orlando, FL	252	-	252	252	-	-	-	-	-	252	252
34	Tampa, FL	13,081	-	5,389	12,892	8,470	43	8,470	8,309	475	12,892	12,892
35	Tallahassee, FL	-	-	-	-	6,993	5,880	6,993	7,641	4	-	-
43	Chattanooga, TN	890,625	13,537	875,829	861,709	95,162	29,455	109,067	91,144	857,977	891,943	864,019
44	Knoxville, TN	373,814	42,597	369,948	354,997	87,387	49,742	91,909	83,620	366,339	371,393	360,627
48	Charleston, WV	2,816,891	259,059	3,514,252	1,817,508	2,306,396	2,667,465	2,379,797	3,590,700	4,148,239	2,965,242	2,509,239
49	Cincinnati, OH	3,821,839	2,733,057	4,113,076	442,705	1,977,012	-	2,517,851	-	4,570,839	2,994,977	2,155,961
51	Columbus, OH	4,531	-	9,307	4,787	10,220	-	10,450	-	9,532	6,159	5,360
52	Wheeling, WV	310,721	1,113,212	1,228,627	457,985	1,995,708	910,058	2,025,036	1,056,585	1,821,964	495,150	458,762
53	Pittsburgh, PA	603,179	1,470,958	586,549	651,871	458,674	1,547,669	477,677	864,377	819,807	698,516	661,357
55	Cleveland, OH	270,606	249,296	465,790	214,758	607,944	422,925	641,010	422,175	536,740	307,168	216,271
57	Detroit, MI	-	2,311	79	-	89	2,555	89	2,556	79	-	-
59	Green Bay, WI	84	-	84	-	84	-	84	-	84	-	-
64	Chicago, IL	445,143	194,285	268,657	703,918	209,128	270,195	230,543	251,881	127,830	754,813	703,980
69	Evansville, IN	7,056	671,687	-	1,774,559	1,643,393	1,012,508	360,088	1,719,199	-	2,191,500	2,253,103
70	Louisville, KY*	17,209,307	2,785,289	18,493,854	5,326,722	-	2,979,671	-	299	11,635,352	15,697,777	14,065,093
71	Nashville, TN	4,877,569	328,276	7,149,324	3,723,504	4,364,439	402,576	4,380,290	4,256,248	10,314,025	5,060,766	3,902,573
72	Paducah, KY*	-	577,053	899	-	311,818	676,207	325,925	295,861	378,553	-	-
73	Memphis, TN	1,547,888	31,448	1,141,336	1,683,846	188,759	74,208	180,263	154,780	1,176,222	1,940,878	1,713,553
74	Huntsville, AL	314,990	10,320	241,617	232,192	35,024	47,932	41,715	47,371	94,051	305,743	252,972
75	Tupelo, MS	51,810	51,908	41,550	60,292	70,113	18,913	70,157	78,455	28,035	60,346	60,292
76	Greenville, MS	562,612	3,700	531,239	662,801	74,170	9,721	74,238	50,219	563,202	665,315	663,176
77	Jackson, MS	805,684	12,459	667,884	920,377	132,915	57,305	140,347	108,220	709,791	962,060	920,414
78	Birmingham, AL	19,222	3,513	19,100	18,131	11,826	4,719	11,826	15,142	8,265	18,153	18,131
79	Montgomery, AL	275,229	15,054	275,229	263,399	252	15,941	252	886	11,830	275,229	263,399
80	Mobile, AL	338,525	84,656	335,467	227,304	161,375	102,865	180,615	128,443	295,539	304,843	230,986
81	Pensacola, FL	12,822	33	1,524	28,803	1,441	1,162	1,701	1,353	1,702	29,066	28,803
82	Biloxi, MS	422,441	14,351	410,775	463,749	132,988	25,583	134,167	91,664	464,467	466,262	463,749
83	New Orleans, LA	19,979,772	2,069,643	14,040,499	10,662,465	4,072,572	4,344,115	5,679,562	3,117,463	12,388,527	19,388,023	12,962,762
84	Baton Rouge, LA	6,209,039	993,061	4,965,024	4,240,736	1,161,730	1,344,230	1,799,200	875,382	4,861,813	6,519,453	4,563,171
85	Lafayette, LA	673,734	24,123	634,163	764,896	201,024	83,773	198,413	198,659	750,328	766,170	764,896
86	Lake Charles, LA	1,747,250	220,453	1,642,873	1,815,875	379,238	253,134	388,064	281,562	1,684,621	1,945,581	1,834,590
87	Beaumont, TX	468,300	16,233	466,731	497,938	82,099	30,008	82,246	63,740	494,973	498,943	497,938
88	Shreveport, LA	244,125	1,658	76,421	465,098	74,283	25,634	72,528	76,564	128,512	466,241	465,228
89	Monroe, LA	71,266	605	62,290	82,921	20,029	5,040	19,613	14,008	70,534	82,930	82,921
90	Little Rock, AR	122,972	9,098	100,598	69,711	96,468	13,720	144,692	71,542	154,986	128,025	69,752
91	Fort Smith, AR	7,913	46	3,047	15,968	1,927	2,496	3,063	2,525	2,123	17,313	15,972
95	Jonesboro, AR	144,923	38,711	65,431	-	102,885	39,523	104,028	113,523	113,174	211,052	191,693
96	St. Louis, MO	422,568	689,869	296,887	587,475	393,950	380,370	481,676	383,561	254,487	475,717	368,193
97	Springfield, IL	20,623	785	7,013	58,211	610	2,094	1,044	1,762	1,236	58,752	58,231
98	Columbia, MO	4,986	-	-	10,912	-	-	-	-	-	10,912	10,912
99	Kansas City, MO	4,751	-	-	18,120	-	-	-	-	-	18,120	18,120
100	Des Moines, IA	61,508	2,797	17,029	65,797	3,174	2,818	5,575	4,045	15,774	68,204	65,797
101	Peoria, IL	41,717	7,839	19,350	79,870	37,656	51,340	39,407	49,477	4,373	82,280	79,908
102	Davenport, IA	123,864	3,540	64,161	115,390	15,763	4,846	29,983	10,450	46,896	129,791	115,439
103	Cedar Rapids, IA	-	-	-	-	-	-	-	-	-	-	-
104	Madison, WI	30,518	3,060	15,524	28,376	3,354	3,030	8,953	3,244	8,646	34,028	28,413
105	La Crosse, WI	17,827	8,244	11,096	16,028	2,113	458	7,394	688	8,561	21,356	16,028
106	Rochester, MN	20	723	65	20	54	763	54	763	63	20	20
107	Minneapolis, MN	83,578	16,427	29,914	133,518	32,417	33,114	33,100	28,960	29,341	134,249	133,518
124	Tulsa, OK	62,663	1	47,278	39,583	19,602	15,623	32,522	15,647	41,832	57,977	39,982
131	Houston, TX	431,224	149,010	210,466	627,644	176,724	240,768	217,388	201,662	295,919	729,475	627,644
132	Corpus Christi, TX	8,299	7,768	5,553	7,057	1,094	9,979	1,197	4,138	5,665	11,436	7,057
133	McAllen, TX	3,312	3,366	1,288	5,186	3,104	5,505	3,244	3,656	1,426	5,451	5,186

* Out-of-state portion of region

APP 2.2f: Truck-Divertible Growth Markets for Hinterlands 2018-2045

Truck-Divertible Growth Market

Port **Eddyville**

	Partner #1 Nashville, TN	Tons Diff	Partner #2 Huntsville, AL	Tons Diff	Partner #3 Greenville, MS	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	1,480,761	Nonmetallic Minerals	533,640	Agricultural Production & Livestock	313,068	Petroleum or Coal Products	205,467
Commodity #2	Clay, Concrete, Glass or Stone	637,020	Agricultural Production & Livestock	154,166	Nonmetallic Minerals	531	Agricultural Production & Livestock	177,455
Commodity #3	Agricultural Production & Livestock	81,819	Clay, Concrete, Glass or Stone	11,434	Clay, Concrete, Glass or Stone	305	Clay, Concrete, Glass or Stone	155,691
Others		56,854		19,270		175		313,989
Total		2,256,454		718,510		314,079		852,602

Port **Greenup-Boyd**

	Partner #1 Charleston, WV	Tons Diff	Partner #2 Detroit, MI	Tons Diff	Partner #3 Knoxville, TN	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	61,999	Agricultural Production & Livestock	51,399	Agricultural Production & Livestock	38,283	Agricultural Production & Livestock	34,671
Commodity #2	Clay, Concrete, Glass or Stone	35,946	Clay, Concrete, Glass or Stone	39,676	Nonmetallic Minerals	32,294	Lumber or Wood Products	23,293
Commodity #3	Lumber or Wood Products	23,605	Nonmetallic Minerals	29,998	Clay, Concrete, Glass or Stone	8,839	Clay, Concrete, Glass or Stone	13,713
Others		15,326		(26,175)		(1,296)		(61,754)
Total		136,877		94,898		78,120		9,922

Port **Henderson**

	Partner #1 Nashville, TN	Tons Diff	Partner #2 Huntsville, AL	Tons Diff	Partner #3 Chicago, IL	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	1,134,929	Nonmetallic Minerals	233,151	Agricultural Production & Livestock	142,660	Clay, Concrete, Glass or Stone	154,764
Commodity #2	Clay, Concrete, Glass or Stone	601,723	Agricultural Production & Livestock	128,505	Clay, Concrete, Glass or Stone	79,963	Agricultural Production & Livestock	139,517
Commodity #3	Agricultural Production & Livestock	67,065	Clay, Concrete, Glass or Stone	10,819	Nonmetallic Minerals	69,429	Agricultural Production & Livestock	110,335
Others		(128,056)		14,589		(16,946)		397,058
Total		1,675,661		387,064		275,106		801,674

Port **Hickman-Fulton**

	Partner #1 Nashville, TN	Tons Diff	Partner #2 Huntsville, AL	Tons Diff	Partner #3 Greenville, MS	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	606,579	Nonmetallic Minerals	534,419	Agricultural Production & Livestock	405,441	Petroleum or Coal Products	536,450
Commodity #2	Clay, Concrete, Glass or Stone	438,877	Agricultural Production & Livestock	72,362	Nonmetallic Minerals	991	Clay, Concrete, Glass or Stone	262,353
Commodity #3	Agricultural Production & Livestock	51,416	Petroleum or Coal Products	11,351	Lumber or Wood Products	42	Agricultural Production & Livestock	137,379
Others		(152,151)		16,491		(688)		(312,392)
Total		944,721		634,623		405,786		623,790

Port **Louisville**

	Partner #1 Nashville, TN	Tons Diff	Partner #2 Knoxville, TN	Tons Diff	Partner #3 Detroit, MI	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	570,712	Nonmetallic Minerals	243,004	Primary Metal Products	189,921	Nonmetallic Minerals	146,816
Commodity #2	Clay, Concrete, Glass or Stone	136,394	Agricultural Production & Livestock	110,092	Clay, Concrete, Glass or Stone	75,832	Nonmetallic Minerals	115,944
Commodity #3	Agricultural Production & Livestock	45,263	Clay, Concrete, Glass or Stone	40,501	Chemicals or Allied Products	47,712	Agricultural Production & Livestock	96,465
Others		(18,130)		7,977		20,117		871,890
Total		734,239		401,574		333,583		1,231,115

App 2.2f: Truck-Divertible Growth Markets for Hinterlands 2018-2045

Port **Maysville-Mason**

	Partner #1 Detroit, MI	Tons Diff	Partner #2 Knoxville, TN	Tons Diff	Partner #3 Charleston, WV	Tons Diff	Other Partners	Tons Diff
Commodity #1	Primary Metal Products	140,674	Nonmetallic Minerals	189,053	Clay, Concrete, Glass or Stone	76,184	Nonmetallic Minerals	86,964
Commodity #2	Clay, Concrete, Glass or Stone	129,872	Agricultural Production & Livestock	62,024	Lumber or Wood Products	37,189	Clay, Concrete, Glass or Stone	57,262
Commodity #3	Chemicals or Allied Products	94,381	Clay, Concrete, Glass or Stone	36,099	Petroleum or Coal Products	32,514	Clay, Concrete, Glass or Stone	47,547
Others		(22,448)		(68,445)		20,004		235,786
Total		342,479		218,731		165,891		427,559

Port **Meade**

	Partner #1 Nashville, TN	Tons Diff	Partner #2 Detroit, MI	Tons Diff	Partner #3 Chicago, IL	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	1,000,381	Primary Metal Products	179,710	Agricultural Production & Livestock	126,096	Nonmetallic Minerals	122,422
Commodity #2	Clay, Concrete, Glass or Stone	199,722	Clay, Concrete, Glass or Stone	54,418	Clay, Concrete, Glass or Stone	69,288	Agricultural Production & Livestock	120,599
Commodity #3	Agricultural Production & Livestock	58,193	Chemicals or Allied Products	29,349	Rubber or Miscellaneous Plastics	34,877	Nonmetallic Minerals	105,094
Others		(93,225)		11,219		36,238		869,183
Total		1,165,072		274,696		266,498		1,217,297

Port **Northern Kentucky**

	Partner #1 Detroit, MI	Tons Diff	Partner #2 Knoxville, TN	Tons Diff	Partner #3 Chicago, IL	Tons Diff	Other Partners	Tons Diff
Commodity #1	Primary Metal Products	165,901	Nonmetallic Minerals	234,074	Nonmetallic Minerals	91,183	Nonmetallic Minerals	99,907
Commodity #2	Clay, Concrete, Glass or Stone	117,229	Agricultural Production & Livestock	47,564	Agricultural Production & Livestock	53,188	Clay, Concrete, Glass or Stone	61,137
Commodity #3	Chemicals or Allied Products	96,946	Clay, Concrete, Glass or Stone	44,784	Clay, Concrete, Glass or Stone	45,946	Clay, Concrete, Glass or Stone	57,842
Others		(8,121)		35,246		70,590		424,079
Total		371,954		361,668		260,907		642,965

Port **Owensboro**

	Partner #1 Nashville, TN	Tons Diff	Partner #2 Huntsville, AL	Tons Diff	Partner #3 Chicago, IL	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	1,152,878	Nonmetallic Minerals	173,922	Agricultural Production & Livestock	161,821	Agricultural Production & Livestock	144,659
Commodity #2	Clay, Concrete, Glass or Stone	594,679	Agricultural Production & Livestock	129,169	Clay, Concrete, Glass or Stone	86,669	Agricultural Production & Livestock	132,152
Commodity #3	Agricultural Production & Livestock	71,161	Clay, Concrete, Glass or Stone	10,125	Rubber or Miscellaneous Plastics	28,471	Agricultural Production & Livestock	114,978
Others		(202,871)		20,334		(17,184)		549,693
Total		1,615,847		333,550		259,778		941,481

Port **Paducah-McCracken**

	Partner #1 Nashville, TN	Tons Diff	Partner #2 Huntsville, AL	Tons Diff	Partner #3 Greenville, MS	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	1,256,097	Nonmetallic Minerals	530,352	Agricultural Production & Livestock	404,026	Petroleum or Coal Products	534,294
Commodity #2	Clay, Concrete, Glass or Stone	630,065	Agricultural Production & Livestock	131,070	Nonmetallic Minerals	1,622	Clay, Concrete, Glass or Stone	179,209
Commodity #3	Agricultural Production & Livestock	66,342	Clay, Concrete, Glass or Stone	10,660	Primary Metal Products	220	Agricultural Production & Livestock	152,701
Others		33,487		19,891		(263)		79,276
Total		1,985,990		691,972		405,605		945,479

Port **Western Kentucky**

	Partner #1 Nashville, TN	Tons Diff	Partner #2 Huntsville, AL	Tons Diff	Partner #3 Greenville, MS	Tons Diff	Other Partners	Tons Diff
Commodity #1	Petroleum or Coal Products	597,349	Nonmetallic Minerals	443,749	Agricultural Production & Livestock	413,312	Petroleum or Coal Products	552,104
Commodity #2	Clay, Concrete, Glass or Stone	471,000	Agricultural Production & Livestock	96,745	Nonmetallic Minerals	1,583	Clay, Concrete, Glass or Stone	157,637
Commodity #3	Agricultural Production & Livestock	51,797	Petroleum or Coal Products	9,110	Primary Metal Products	220	Agricultural Production & Livestock	138,377
Others		(177,552)		17,434		(580)		(333,122)
Total		942,594		567,039		414,535		514,997

App 2.2g: Growing and Declining Commodities for Hinterlands

Eddyville Hinterland Top Waterborne Growth Commodities				
COMMODITY	Growth Rate in Tons 2018-2045	Growth in Tonnage 2018-2045	Commodity share of Tonnage Growth	Cumulative % of Tonnage Growth
Grain	40%	3,019,672	27%	27%
Oil Kernels, Nuts Or Seeds	24%	1,424,361	13%	40%
Petroleum Refining Products	31%	1,026,312	9%	49%
Primary Forest Materials	100%	969,283	9%	57%
Cottonseed Oil Or By-Prod	65%	741,775	7%	64%
Misc Industrial Organic Chemicals	56%	678,780	6%	70%
Concrete Products	87%	637,499	6%	76%
Distilled Or Blended Liquors	100%	501,774	4%	80%
Chemical Preparations, Nec	64%	451,946	4%	84%
Metal Scrap Or Tailings	206%	392,413	3%	88%
Prepared Or Canned Feed	92%	250,960	2%	90%
Soybean Oil Or By-Products	48%	231,880	2%	92%
Other Growth Commodities		**919,155**	**8%**	**100%**
Total Commodity Growth		**11,245,811**	**100%**	**100%**

Eddyville Hinterland Top Waterborne Decline Commodities				
COMMODITY	Decline Rate in Tons 2018-2045	Decline in Tonnage 2018-2045	Commodity share of Tonnage Decline	Cumulative % of Tonnage Decline
Bituminous Coal	-59%	-18,690,904	75%	75%
Broken Stone Or Riprap	-45%	-4,924,746	20%	95%
Misc Coal Or Petroleum Products	-47%	-765,092	3%	98%
Bauxite Or Other Alum Ores	-70%	-425,140	2%	100%
Gravel Or Sand	-1%	-60,952	0%	100%
Manganese Ores	-28%	-18,966	0%	100%
Crude Petroleum	-49%	-15,435	0%	100%
Misc Waste Or Scrap	-6%	-8,023	0%	100%
Asphalt Paving Blocks Or Mix	-13%	-7,796	0%	100%
Blast Furnace Or Coke	-1%	-3,992	0%	100%
Nut Or Veg Oils Or By-Products	-3%	-3,639	0%	100%
Clay Ceramic Or Refrac Minerals	-7%	-3,273	0%	100%
Other Commodities		**-8,603**	**0%**	**100%**
Total Commodity Decline		**-24,936,559**	**100%**	**100%**

App 2.2g Growing and Declining Commodities for Hinterlands

Greenup-Boyd Hinterland Top Waterborne Growth Commodities				
COMMODITY	Growth Rate in Tons 2018-2045	Growth in Tonnage 2018-2045	Commodity share of Tonnage Growth	Cumulative % of Tonnage Growth
Gypsum Products	188%	554,439	69%	69%
Chemical Preparations, Nec	57%	99,600	12%	81%
Concrete Products	52%	52,544	7%	88%
Misc Industrial Organic Chemicals	6%	39,127	5%	92%
Primary Iron Or Steel Products	54%	22,443	3%	95%
Metal Scrap Or Tailings	46%	22,398	3%	98%
Portland Cement	10%	8,933	1%	99%
Clay Ceramic Or Refrac Minerals	24%	1,841	0%	99%
Chem Or Fertilizer Mineri Crude	76%	1,734	0%	99%
Fertilizers	52%	1,553	0%	100%
Misc Metal Ores	90%	731	0%	100%
Tungsten Ores	165%	618	0%	100%
Other Growth Commodities		**1,495**	**0%**	**100%**
Total Commodity Growth		**807,455**	**100%**	**100%**

Greenup-Boyd Hinterland Top Waterborne Decline Commodities				
COMMODITY	Decline Rate in Tons 2018-2045	Decline in Tonnage 2018-2045	Commodity share of Tonnage Decline	Cumulative % of Tonnage Decline
Bituminous Coal	-61%	-12,148,566	68%	68%
Petroleum Refining Products	-34%	-2,514,600	14%	82%
Broken Stone Or Riprap	-63%	-2,036,292	11%	94%
Gravel Or Sand	-23%	-330,839	2%	95%
Crude Petroleum	-19%	-299,808	2%	97%
Lime Or Lime Plaster	-14%	-158,130	1%	98%
Asphalt Paving Blocks Or Mix	-26%	-133,342	1%	99%
Misc Coal Or Petroleum Products	-50%	-69,867	0%	99%
Blast Furnace Or Coke	-48%	-43,806	0%	99%
Iron Ores	-39%	-41,462	0%	100%
Bauxite Or Other Alum Ores	-36%	-33,230	0%	100%
Crude Prod Of Coal,Gas,Petroleum	-43%	-27,307	0%	100%
Other Commodities		**-47,447**	**0%**	**100%**
Total Commodity Decline		**-17,884,697**	**100%**	**100%**

App 2.2g Growing and Declining Commodities for Hinterlands

Henderson Hinterland Top Waterborne Growth Commodities				
COMMODITY	Growth Rate in Tons 2018-2045	Growth in Tonnage 2018-2045	Commodity share of Tonnage Growth	Cumulative % of Tonnage Growth
Grain	39%	1,688,533	20%	20%
Petroleum Refining Products	31%	1,024,387	12%	32%
Primary Forest Materials	105%	969,071	12%	44%
Cottonseed Oil Or By-Prod	74%	734,248	9%	53%
Misc Industrial Organic Chemicals	57%	682,515	8%	61%
Oil Kernels, Nuts Or Seeds	21%	612,225	7%	68%
Concrete Products	185%	484,894	6%	74%
Distilled Or Blended Liquors	99%	461,723	6%	80%
Chemical Preparations, Nec	64%	447,302	5%	85%
Metal Scrap Or Tailings	232%	333,936	4%	89%
Soybean Oil Or By-Products	163%	150,083	2%	91%
Gypsum Products	35%	149,136	2%	93%
Other Growth Commodities		**614,620**	**7%**	**100%**
Total Commodity Growth		**919,155**	**8%**	**100%**

Henderson Hinterland Top Waterborne Decline Commodities				
COMMODITY	Decline Rate in Tons 2018-2045	Decline in Tonnage 2018-2045	Commodity share of Tonnage Decline	Cumulative % of Tonnage Decline
Bituminous Coal	-59%	-19,630,102	69%	69%
Broken Stone Or Riprap	-51%	-7,064,465	25%	93%
Misc Coal Or Petroleum Products	-46%	-740,357	3%	96%
Gravel Or Sand	-17%	-703,712	2%	98%
Bauxite Or Other Alum Ores	-71%	-424,395	1%	100%
Fertilizers	-3%	-41,717	0%	100%
Manganese Ores	-27%	-17,420	0%	100%
Crude Petroleum	-49%	-15,435	0%	100%
Asphalt Paving Blocks Or Mix	-13%	-7,796	0%	100%
Asphalt Coatings Or Felt	-98%	-2,286	0%	100%
Misc Indus Inorganic Chemicals	-1%	-2,187	0%	100%
Misc Nonmetallic Minerals, Nec	-10%	-1,494	0%	100%
Other Commodities		**-1,062**	**0%**	**100%**
Total Commodity Decline		**-28,652,430**	**100%**	**100%**

App 2.2g Growing and Declining Commodities for Hinterlands

Hickman-Fulton Hinterland Top Waterborne Growth Commodities				
COMMODITY	Growth Rate in Tons 2018-2045	Growth in Tonnage 2018-2045	Commodity share of Tonnage Growth	Cumulative % of Tonnage Growth
Grain	29%	1,213,845	19%	19%
Oil Kernels, Nuts Or Seeds	18%	852,807	13%	32%
Fertilizers	43%	747,908	12%	44%
Portland Cement	74%	669,153	10%	54%
Petroleum Refining Products	40%	584,991	9%	63%
Concrete Products	55%	349,954	5%	68%
Chemical Preparations, Nec	63%	348,545	5%	74%
Metal Scrap Or Tailings	134%	326,532	5%	79%
Lime Or Lime Plaster	71%	274,911	4%	83%
Primary Forest Materials	109%	221,807	3%	86%
Soybean Oil Or By-Products	43%	219,361	3%	90%
Prepared Or Canned Feed	94%	209,137	3%	93%
Other Growth Commodities		**445,395**	**7%**	**100%**
Total Commodity Growth		**6,464,345**	**100%**	**100%**

Hickman-Fulton Hinterland Top Waterborne Decline Commodities				
COMMODITY	Decline Rate in Tons 2018-2045	Decline in Tonnage 2018-2045	Commodity share of Tonnage Decline	Cumulative % of Tonnage Decline
Bituminous Coal	-54%	-5,973,279	47%	47%
Broken Stone Or Riprap	-51%	-4,615,432	36%	82%
Gravel Or Sand	-16%	-1,412,289	11%	93%
Misc Coal Or Petroleum Products	-52%	-732,327	6%	99%
Blast Furnace Or Coke	-22%	-66,586	1%	100%
Misc Waste Or Scrap	-46%	-24,053	0%	100%
Manganese Ores	-29%	-9,202	0%	100%
Crude Petroleum	-52%	-6,062	0%	100%
Nut Or Veg Oils Or By-Products	-7%	-2,748	0%	100%
Clay Ceramic Or Refrac Minerals	-27%	-2,570	0%	100%
Asphalt Coatings Or Felt	-99%	-839	0%	100%
Tires Or Inner Tubes	-45%	-187	0%	100%
Other Commodities		**-780**	**0%**	**100%**
Total Commodity Decline		**-12,846,352**	**100%**	**100%**

App 2.2g Growing and Declining Commodities for Hinterlands

Louisville Hinterland Top Waterborne Growth Commodities				
COMMODITY	Growth Rate in Tons 2018-2045	Growth in Tonnage 2018-2045	Commodity share of Tonnage Growth	Cumulative % of Tonnage Growth
Primary Forest Materials	106%	964,924	14%	14%
Gravel Or Sand	9%	735,247	11%	25%
Concrete Products	119%	712,104	11%	36%
Cottonseed Oil Or By-Prod	197%	672,347	10%	46%
Gypsum Products	52%	612,080	9%	55%
Soybean Oil Or By-Products	294%	554,797	8%	64%
Grain	32%	514,074	8%	71%
Distilled Or Blended Liquors	333%	398,909	6%	77%
Primary Iron Or Steel Products	37%	303,036	5%	82%
Oil Kernels, Nuts Or Seeds	29%	288,479	4%	86%
Misc Industrial Organic Chemicals	43%	236,727	4%	90%
Chemical Preparations, Nec	119%	128,105	2%	91%
Other Growth Commodities		**572,830**	**9%**	**100%**
Total Commodity Growth		**6,693,659**	**100%**	**100%**

Louisville Hinterland Top Waterborne Decline Commodities				
COMMODITY	Decline Rate in Tons 2018-2045	Decline in Tonnage 2018-2045	Commodity share of Tonnage Decline	Cumulative % of Tonnage Decline
Bituminous Coal	-68%	-14,710,399	75%	75%
Broken Stone Or Riprap	-54%	-3,784,685	19%	94%
Petroleum Refining Products	-16%	-618,563	3%	97%
Bauxite Or Other Alum Ores	-58%	-423,534	2%	99%
Fertilizers	-5%	-30,451	0%	100%
Portland Cement	-6%	-23,990	0%	100%
Misc Coal Or Petroleum Products	-8%	-23,446	0%	100%
Asphalt Paving Blocks Or Mix	-26%	-15,792	0%	100%
Crude Petroleum	-19%	-11,963	0%	100%
Misc Indus Inorganic Chemicals	-15%	-3,768	0%	100%
Misc Waste Or Scrap	-6%	-576	0%	100%
Architectural Metal Work	-7%	-12	0%	100%
Other Commodities		**-9**	**0%**	**100%**
Total Commodity Decline		**-19,647,187**	**100%**	**100%**

App 2.2g Growing and Declining Commodities for Hinterlands

Meade Hinterland Top Waterborne Growth Commodities				
COMMODITY	Growth Rate in Tons 2018-2045	Growth in Tonnage 2018-2045	Commodity share of Tonnage Growth	Cumulative % of Tonnage Growth
Grain	46%	1,117,504	17%	17%
Primary Forest Materials	106%	964,924	15%	32%
Concrete Products	116%	665,922	10%	42%
Cottonseed Oil Or By-Prod	102%	628,525	10%	52%
Gravel Or Sand	8%	621,994	10%	61%
Oil Kernels, Nuts Or Seeds	29%	600,935	9%	70%
Gypsum Products	45%	516,418	8%	78%
Primary Iron Or Steel Products	37%	332,866	5%	83%
Misc Industrial Organic Chemicals	43%	240,469	4%	87%
Chemical Preparations, Nec	105%	183,231	3%	90%
Soybean Oil Or By-Products	233%	129,934	2%	92%
Blast Furnace Or Coke	10%	103,382	2%	94%
Other Growth Commodities		**421,738**	**6%**	**100%**
Total Commodity Growth		**6,527,840**	**100%**	**100%**

Meade Hinterland Top Waterborne Decline Commodities				
COMMODITY	Decline Rate in Tons 2018-2045	Decline in Tonnage 2018-2045	Commodity share of Tonnage Decline	Cumulative % of Tonnage Decline
Bituminous Coal	-69%	-13,853,353	75%	75%
Broken Stone Or Riprap	-57%	-3,523,268	19%	94%
Petroleum Refining Products	-13%	-535,338	3%	97%
Bauxite Or Other Alum Ores	-58%	-428,705	2%	99%
Portland Cement	-13%	-49,054	0%	99%
Misc Coal Or Petroleum Products	-12%	-43,745	0%	100%
Crude Petroleum	-25%	-21,262	0%	100%
Asphalt Paving Blocks Or Mix	-25%	-18,833	0%	100%
Liquefied Gases, Coal Or Petroleum	-54%	-13,281	0%	100%
Distilled Or Blended Liquors	-14%	-5,543	0%	100%
Asphalt Coatings Or Felt	-98%	-1,448	0%	100%
Clay Ceramic Or Refrac Minerals	-1%	-678	0%	100%
Other Commodities		**-700**	**0%**	**100%**
Total Commodity Decline		**-18,495,209**	**100%**	**100%**

App 2.2g Growing and Declining Commodities for Hinterlands

Owensboro Hinterland Top Waterborne Growth Commodities				
COMMODITY	Growth Rate in Tons 2018-2045	Growth in Tonnage 2018-2045	Commodity share of Tonnage Growth	Cumulative % of Tonnage Growth
Grain	53%	1,978,515	25%	25%
Primary Forest Materials	106%	964,924	12%	38%
Oil Kernels, Nuts Or Seeds	36%	841,774	11%	49%
Cottonseed Oil Or By-Prod	75%	753,140	10%	58%
Misc Industrial Organic Chemicals	62%	647,022	8%	67%
Concrete Products	111%	584,787	8%	74%
Distilled Or Blended Liquors	99%	461,736	6%	80%
Gravel Or Sand	4%	358,648	5%	85%
Gypsum Products	45%	266,443	3%	88%
Chemical Preparations, Nec	72%	162,448	2%	90%
Soybean Oil Or By-Products	164%	148,068	2%	92%
Petroleum Refining Products	2%	123,528	2%	94%
Other Growth Commodities		**499,281**	**6%**	**100%**
Total Commodity Growth		**7,790,313**	**100%**	**100%**

Owensboro Hinterland Top Waterborne Decline Commodities				
COMMODITY	Decline Rate in Tons 2018-2045	Decline in Tonnage 2018-2045	Commodity share of Tonnage Decline	Cumulative % of Tonnage Decline
Bituminous Coal	-61%	-16,553,271	66%	66%
Broken Stone Or Riprap	-55%	-7,915,058	31%	97%
Bauxite Or Other Alum Ores	-58%	-426,661	2%	99%
Metal Scrap Or Tailings	-51%	-79,713	0%	99%
Portland Cement	-20%	-71,704	0%	99%
Misc Coal Or Petroleum Products	-13%	-55,622	0%	100%
Asphalt Paving Blocks Or Mix	-23%	-22,927	0%	100%
Fertilizers	-1%	-14,274	0%	100%
Crude Petroleum	-35%	-13,536	0%	100%
Misc Indus Inorganic Chemicals	-7%	-12,291	0%	100%
Blast Furnace Or Coke	-2%	-5,245	0%	100%
Liquefied Gases, Coal Or Petroleum	-44%	-3,905	0%	100%
Other Commodities		**-4,076**	**0%**	**100%**
Total Commodity Decline		**-25,178,283**	**100%**	**100%**

App 2.2g Growing and Declining Commodities for Hinterlands

Paducah-McCracken Hinterland Top Waterborne Growth Commodities				
COMMODITY	Growth Rate in Tons 2018-2045	Growth in Tonnage 2018-2045	Commodity share of Tonnage Growth	Cumulative % of Tonnage Growth
Grain	39%	2,694,460	25%	25%
Oil Kernels, Nuts Or Seeds	23%	1,552,023	15%	40%
Petroleum Refining Products	31%	1,106,885	10%	50%
Fertilizers	32%	722,289	7%	57%
Portland Cement	73%	669,684	6%	64%
Misc Industrial Organic Chemicals	56%	587,352	6%	69%
Distilled Or Blended Liquors	99%	511,580	5%	74%
Chemical Preparations, Nec	59%	401,113	4%	78%
Concrete Products	50%	395,067	4%	81%
Metal Scrap Or Tailings	211%	389,375	4%	85%
Prepared Or Canned Feed	103%	284,582	3%	88%
Lime Or Lime Plaster	61%	274,420	3%	90%
Other Growth Commodities		**1,022,250**	**10%**	**100%**
Total Commodity Growth		**10,611,082**	**100%**	**100%**

Paducah-McCracken Hinterland Top Waterborne Decline Commodities				
COMMODITY	Decline Rate in Tons 2018-2045	Decline in Tonnage 2018-2045	Commodity share of Tonnage Decline	Cumulative % of Tonnage Decline
Bituminous Coal	-61%	-17,964,963	72%	72%
Broken Stone Or Riprap	-46%	-4,795,819	19%	91%
Gravel Or Sand	-11%	-1,057,544	4%	95%
Misc Coal Or Petroleum Products	-49%	-775,849	3%	98%
Bauxite Or Other Alum Ores	-69%	-276,055	1%	100%
Blast Furnace Or Coke	-15%	-62,786	0%	100%
Crude Petroleum	-49%	-15,327	0%	100%
Manganese Ores	-27%	-8,895	0%	100%
Misc Waste Or Scrap	-6%	-8,023	0%	100%
Clay Ceramic Or Refrac Minerals	-16%	-7,139	0%	100%
Tungsten Ores	-34%	-2,996	0%	100%
Asphalt Paving Blocks Or Mix	-2%	-2,720	0%	100%
Other Commodities		**-4,300**	**0%**	**100%**
Total Commodity Decline		**-24,982,416**	**100%**	**100%**

KENTUCKY RIVERPORTS, HIGHWAY & RAIL FREIGHT STUDY

Appendix 2.3: April 2021 Riverport Visits

April 26-30, 2021

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

Table 1: Kentucky Riverports Director In-Person Interview Schedule

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

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

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

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

RIVERPORT DISCUSSION GUIDE

Demographics:

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

Agenda:

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

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

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

Port Investment and Economic Development Strategies:

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

Key Infrastructure Discussion: Existing and Future:

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

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

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

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

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

EDDYVILLE

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

a. Glen Kinder

Discussion

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

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

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

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

Additional Information:

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

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

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

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

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

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

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

GREENUP

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

Discussion

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

HENDERSON

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

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

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

Port Investment and Economic Development Strategies:

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

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

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

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

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

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

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

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

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

Additional Information:

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

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

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

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

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

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

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

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

HICKMAN

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

Discussion

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

Additional Information:

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

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

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

LOUISVILLE

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

Discussion

1. Like to call it a multi-modal port, not just intermodal
2. 13 miles of track (not the 13,000 feet I have been saying)
3. While large metro area, embarrassingly small port with 200k tons on average over thirty years, believes can turn into 20 to 30 million annually with $30 million
   a. $15 million dock
4. Antiquated port, and river access terrible, and want same dock design as Owensboro, hope to make it happen in next two years
5. Has many capital projects
6. Concerned with USDOT funding not adequate and directionally wrong
7. Have a tenuous relationship with lease holder, the lease operator and have been doing it for eleven years
8. Funding needs
   a. Waterway access
   b. Highway access – have a 250-mile radius, a daily delivery model
9. Most metal companies moving to larger coils, and would need 92-ton crane to accommodate those
10. Conveyor system be converted to bi way conveyor (a 2,500-foot system)
11. KRS 65550
12. See their filings with STB
13. The “park” around the port was originally developed by the port but much of it is owned by others now
14. 7,000 jobs, 3,000 acres
15. Can issue bonds

Additional Information:

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

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

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

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

MAYSVILLE-MASON

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

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

MEADE

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

Discussion

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

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

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

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

NORTHERN KENTUCKY

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

Discussion

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

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

OWENSBORO

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

Discussion

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

PADUCAH

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

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

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

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

General Cargo

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

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

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

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

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

Bulk Commodity Yard

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

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

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

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

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

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

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

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

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

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

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

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

Port Investment and Economic Development Strategies

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Yes.

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

Yes.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Key Infrastructure Discussion: Existing and Future:

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

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

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

Aerial from General Cargo Facility towards Bulk Commodity Facility

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

2021 Revitalization and Expansion Project

Item #1 - Replacement of Three Fixed Radial Stackers

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

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

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

Item #5 - Bulk Commodity Storage Expansion

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

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

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

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

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

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

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

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

Paducah McCracken County Riverport Authority - FY 2021 - 2031

Maintenance and Capital Improvement ANTICIPTED/NEEDED in next 10 years

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

WEST KENTUCKY

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

Demographics:

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

Agenda:

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

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

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

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

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

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

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

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

Port Investment and Economic Development Strategies:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

State funded Training and Apprentice programs.

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

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

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

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

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

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

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

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

Key Infrastructure Discussion: Existing and Future:

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

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

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

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

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

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

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

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

App 2.4: Riverport Capital Improvement Needs

Riverport	Cargo Type	Project Components	IHS Forecast Scenarios - Top Commodities	IHS Forecast Growth Opp	Category	Fiscal Year	Amount
Greenup-Boyd County Riverport Authority	Dry Bulk	4 Mooring Dolphins	Coal, mixed consumer warehouse products, borken stone, industrial chemicals, waste/scrap, field crops, liquors	Several manufactured and resource commodity categories	Optimize Port Eff.	2022/2023	$ 400,000.00
Eddyville Riverport	Dry Bulk	Frontage Road	Grain, general cargo (warehouse), broken stone/riprap, soybeans in oil, kernel nuts and seed, waste and scrap and declining coal		Optimize Port Eff.	2021/2022	$ 5,000,000.00
Eddyville Riverport	Dry Bulk	Open storage (laydown area)	Grain, general cargo (warehouse), broken stone/riprap, soybeans in oil, kernel nuts and seed, waste and scrap and declining coal		Pres./New Mkt Pos.	2022/2023	$ 500,000.00
Eddyville Riverport	Dry Bulk	Improved rail access for Cargill	Grain, general cargo (warehouse), broken stone/riprap, soybeans in oil, kernel nuts and seed, waste and scrap and declining coal		Pres./New Mkt Pos.	2023/2024	$ 7,500,000.00
Eddyville Riverport	Dry Bulk	Land acquisition - near Cumberland	Grain, general cargo (warehouse), broken stone/riprap, soybeans in oil, kernel nuts and seed, waste and scrap and declining coal		Pres./New Mkt Pos.	2024/2025	$ 2,000,000.00
Eddyville Riverport	Dry Bulk	Crane	Grain, general cargo (warehouse), broken stone/riprap, soybeans in oil, kernel nuts and seed, waste and scrap and declining coal		Pres./New Mkt Pos.	2022/2023	$ 400,000.00
Eddyville Riverport	Dry Bulk	Silo - grain storage	Grain, general cargo (warehouse), broken stone/riprap, soybeans in oil, kernel nuts and seed, waste and scrap and declining coal		Pres./New Mkt Pos.	2022/2023	$ 80,000.00
Greenup-Boyd County Riverport Authority	Dry Bulk	Warehousing (20,000 plus square feet) - Qty 2	Coal, mixed consumer warehouse products, borken stone, industrial chemicals, waste/scrap, field crops, liquors	Several manufactured and resource commodity categories	Pres./New Mkt Pos.	2022/2023	$ 800,000.00
Greenup-Boyd County Riverport Authority	Dry Bulk	Tractor and Bushhog	Coal, mixed consumer warehouse products, borken stone, industrial chemicals, waste/scrap, field crops, liquors	Several manufactured and resource commodity categories	Bus. as Usual	2021/2022	$ 20,000.00
Greenup-Boyd County Riverport Authority	Dry Bulk	2-4 mooring piers	Coal, mixed consumer warehouse products, borken stone, industrial chemicals, waste/scrap, field crops, liquors	Several manufactured and resource commodity categories	Pres./New Mkt Pos.	2022/2023	$ 200,000.00
Greenup-Boyd County Riverport Authority	Dry Bulk	In port roads - resurfacing	Coal, mixed consumer warehouse products, borken stone, industrial chemicals, waste/scrap, field crops, liquors	Several manufactured and resource commodity categories	Bus. as Usual	2022/2023	$ 100,000.00
Greenup-Boyd County Riverport Authority	Dry Bulk	New rail spur	Coal, mixed consumer warehouse products, borken stone, industrial chemicals, waste/scrap, field crops, liquors	Several manufactured and resource commodity categories	Pres./New Mkt Pos.	2024/2025	$ 6,000.00
Henderson County Riverport Authority	General Cargo	Expand Marine Dock	Grain, soybean products, mixd consumer products, iron and steel, industrial chemicals (coal in decline)	Agriculture and manufacturing	Pres./New Mkt Pos.	2025/2026	$ 12,000,000.00
Henderson County Riverport Authority	General Cargo	Recondition Rail Loop	Grain, soybean products, mixd consumer products, iron and steel, industrial chemicals (coal in decline)	Agriculture and manufacturing	Optimize Port Eff.	2025/2026	$ 3,000,000.00
Henderson County Riverport Authority	General Cargo	Replace Roof on Main Warehouse	Grain, soybean products, mixd consumer products, iron and steel, industrial chemicals (coal in decline)	Agriculture and manufacturing	Bus. as Usual	2023/2024	$ 500,000.00
Henderson County Riverport Authority	General Cargo	Purchase Mobile Crane	Grain, soybean products, mixd consumer products, iron and steel, industrial chemicals (coal in decline)	Agriculture and manufacturing	Pres./New Mkt Pos.	2024/2025	$ 3,000,000.00
Henderson County Riverport Authority	General Cargo	Replace 4 Forklifts	Grain, soybean products, mixd consumer products, iron and steel, industrial chemicals (coal in decline)	Agriculture and manufacturing	Bus. as Usual	2022/2023	$ 750,000.00
Henderson County Riverport Authority	General Cargo	Build additional Warehouse	Grain, soybean products, mixd consumer products, iron and steel, industrial chemicals (coal in decline)	Agriculture and manufacturing	Pres./New Mkt Pos.	2023/2024	$ 1,000,000.00
Henderson County Riverport Authority	General Cargo	Pave Two Roads and Restore Paved Open Laydown Storage	Grain, soybean products, mixd consumer products, iron and steel, industrial chemicals (coal in decline)	Agriculture and manufacturing	Bus. as Usual	2021/2022	$ 600,000.00
Henderson County Riverport Authority	General Cargo	Build second elevated Rail dock (Est. $300,000)	Grain, soybean products, mixd consumer products, iron and steel, industrial chemicals (coal in decline)	Agriculture and manufacturing	Pres./New Mkt Pos.	2025/2026	$ 300,000.00
Hickman County Riverport Authority	Dry Bulk	Upgrade 1,200 ft Port Owned Conveyor (Cargill current user)	Grain, mixed consumer goods, soybean products, waste and scrape, plastics and synthetic	N-S Opps, as well as based on TennKen Short line railroad	Optimize Port Eff.	2021/2022	$ 2,500,000.00
Hickman County Riverport Authority	Dry Bulk	Industrial Zoned Land Option - 10.5 acres	Grain, mixed consumer goods, soybean products, waste and scrape, plastics and synthetic	N-S Opps, as well as based on TennKen Short line railroad	Pres./New Mkt Pos.	2023/2024	$ 2,100,000.00
Hickman County Riverport Authority	Dry Bulk	Replace/upgrade other conveyor - Port-Owned	Grain, mixed consumer goods, soybean products, waste and scrape, plastics and synthetic	N-S Opps, as well as based on TennKen Short line railroad	Optimize Port Eff.	2022/2023	$ 2,000,000.00
Hickman County Riverport Authority	Dry Bulk	New mooring piers/dolphins	Grain, mixed consumer goods, soybean products, waste and scrape, plastics and synthetic	N-S Opps, as well as based on TennKen Short line railroad	Pres./New Mkt Pos.	2022/2023	$ 200,000.00
Hickman County Riverport Authority	Dry Bulk	Improve truck access to port facilities	Grain, mixed consumer goods, soybean products, waste and scrape, plastics and synthetic	N-S Opps, as well as based on TennKen Short line railroad	Pres./New Mkt Pos.	2022/2023	$ 1,300,000.00
Hickman County Riverport Authority	Dry Bulk	New rail terminal in Fulton	Grain, mixed consumer goods, soybean products, waste and scrape, plastics and synthetic	N-S Opps, as well as based on TennKen Short line railroad	Pres./New Mkt Pos.	2025/2026	$ 10,000,000.00
Louisville Riverport Authority	Dry Bulk	New dock/marine terminal	Broken stone/riprap, consumer warehouse products, petroleum products, grain, iron and steel, car parts, and coal (from second to	Mix of products	Pres./New Mkt Pos.	2022/2023	$ 9,000,000.00
Louisville Riverport Authority	Dry Bulk	New Crane for Marine Terminal	Broken stone/riprap, consumer warehouse products, petroleum products, grain, iron and steel, car parts, and coal (from second to	Mix of products	Pres./New Mkt Pos.	2022/2023	$ 2,000,000.00
Louisville Riverport Authority	Dry Bulk	Rail Improvements/Added infrastructure	Broken stone/riprap, consumer warehouse products, petroleum products, grain, iron and steel, car parts, and coal (from second to	Mix of products	Pres./New Mkt Pos.	2021/2022	$ 500,000.00
Louisville Riverport Authority	Dry Bulk	Rail Improvements/Added infrastructure	Broken stone/riprap, consumer warehouse products, petroleum products, grain, iron and steel, car parts, and coal (from second to	Mix of products	Pres./New Mkt Pos.	2022/2023	$ 500,000.00
Louisville Riverport Authority	Dry Bulk	Warehouse/Covered Storage/Improved Laydown Yard	Broken stone/riprap, consumer warehouse products, petroleum products, grain, iron and steel, car parts, and coal (from second to	Mix of products	Pres./New Mkt Pos.	2023/2024	$ 12,000,000.00
Maysville Mason Riverport	Dry Bulk	1000 acres near Dover	Broken stone/riprap, consumer warehouse products, grain, iron and steel, industrial chemicals, waste/scrap, and coal	Opps simply based on location	Pres./New Mkt Pos.	2025/2026	$ 4,000,000.00
Maysville Mason Riverport	General Cargo	350 acres for International Paper Plant	Broken stone/riprap, consumer warehouse products, grain, iron and steel, industrial chemicals, waste/scrap, and coal	Opps simply based on location	Pres./New Mkt Pos.	2025/2026	$ 1,000,000.00
Meade County Riverport Authority	Dry Bulk	Property	Broken stone/riprap, consumer warehouse products, petroleum products, grain, iron and steel, car parts, and coal (from second to	Ag, resource commodity growth, and iron and steel growth with Nucor	Pres./New Mkt Pos.		Included in Port Priority 3
Meade County Riverport Authority	Dry Bulk	Access Road Improvement			Bus. as Usual		Included in Port Priority 3
Meade County Riverport Authority	Dry Bulk	Grain Elevator	Broken stone/riprap, consumer warehouse products, petroleum products, grain, iron and steel, car parts, and coal (from second to	Ag, resource commodity growth, and iron and steel growth with Nucor	Pres./New Mkt Pos.	2022/2023	$ 12,000,000.00
Meade County Riverport Authority	Dry Bulk	Dolphin, Bulkhead and Dock Improvements	Broken stone/riprap, consumer warehouse products, petroleum products, grain, iron and steel, car parts, and coal (from second to	Ag, resource commodity growth, and iron and steel growth with Nucor	Optimize Port Eff.		Included in Port Priority 3
Owensboro Riverport Authority	Dry Bulk	Fertilizer Dome	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 2,500,000.00
Owensboro Riverport Authority	Dry Bulk	2- Replacement Linkbelt Crane/Material Handler	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 2,053,178.00
Owensboro Riverport Authority	Dry Bulk	Spud Barge (addition to fleet)	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 1,162,395.00
Owensboro Riverport Authority	Dry Bulk	Rail Loop Retaining Wall	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 125,000.00
Owensboro Riverport Authority	Dry Bulk	Rail Loop Lighting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 30,000.00
Owensboro Riverport Authority	Dry Bulk	129- Replacement Dump Truck	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 135,000.00
Owensboro Riverport Authority	Dry Bulk	Crane Mats for Spud Barge(s)	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 15,000.00

App 2.4: Riverport Capital Improvement Needs

Riverport	Cargo Type	Project Components	IHS Forecast Scenarios - Top Commodities	IHS Forecast Growth Opp	Category	Fiscal Year	Amount
Owensboro Riverport Authority	Dry Bulk	Barge Lid Mover (Terminal)	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 40,000.00
Owensboro Riverport Authority	Dry Bulk	Crane Mats for Unit 1 Spud Barge(s)	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 35,000.00
Owensboro Riverport Authority	Dry Bulk	Crane Shed Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 20,000.00
Owensboro Riverport Authority	Dry Bulk	Painting of UAN and Thiosul Tanks	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 80,000.00
Owensboro Riverport Authority	Dry Bulk	100 WHS 4 Lighting fixtures	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 30,000.00
Owensboro Riverport Authority	Dry Bulk	130- Replacement Dump Truck	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 135,000.00
Owensboro Riverport Authority	Dry Bulk	Storage Yard Inner Loop	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2023/2024	$ 400,000.00
Owensboro Riverport Authority	Dry Bulk	Utilities at the Loop	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2023/2024	$ 500,000.00
Owensboro Riverport Authority	Dry Bulk	Aluminum handling attachment for Sennebogen (placeholder)	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2023/2024	$ 250,000.00
Owensboro Riverport Authority	Dry Bulk	Crane test weights	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2023/2024	$ 10,000.00
Owensboro Riverport Authority	Dry Bulk	150- Replacement Rail Car Mover	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Pres./New Mkt Pos.	2024/2025	$ 300,000.00
Owensboro Riverport Authority	Dry Bulk	Elevate Loop	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2024/2025	$ 500,000.00
Owensboro Riverport Authority	Dry Bulk	108- Replacement Light Plant	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 7,250.00
Owensboro Riverport Authority	Dry Bulk	116- Replacement JD Mini Exavator	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 18,600.00
Owensboro Riverport Authority	Dry Bulk	120- Replacement Kubota RTV	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 12,050.00
Owensboro Riverport Authority	Dry Bulk	134- Replacement Material Handler	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 1,795,000.00
Owensboro Riverport Authority	Dry Bulk	Rail Upgrades 1	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Pres./New Mkt Pos.	2022/2023	$ 40,000.00
Owensboro Riverport Authority	Dry Bulk	Rail Upgrades 2	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Pres./New Mkt Pos.	2022/2023	$ 40,000.00
Owensboro Riverport Authority	Dry Bulk	Rail Upgrades 3	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Pres./New Mkt Pos.	2023/2024	$ 40,000.00
Owensboro Riverport Authority	Dry Bulk	Rail Upgrades 4	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Pres./New Mkt Pos.	2024/2025	$ 40,000.00
Owensboro Riverport Authority	Dry Bulk	Rail Upgrades 5	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Pres./New Mkt Pos.	2025/2026	$ 40,000.00
Owensboro Riverport Authority	General Cargo	ForkLift-Terminal 25K # (Addition to Fleet)	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Pres./New Mkt Pos.	2021/2022	$ 250,000.00
Owensboro Riverport Authority	General Cargo	WH 1 Roof Total Replacement- Metal	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 200,000.00
Owensboro Riverport Authority	General Cargo	Terminal Storage Yard Improvements	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 100,000.00
Owensboro Riverport Authority	General Cargo	New Lift Terminal 8K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 59,456.00
Owensboro Riverport Authority	General Cargo	43- Replacement Lift Warehouse	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 50,000.00
Owensboro Riverport Authority	General Cargo	74- Replacement Lift Terminal 6K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 50,000.00
Owensboro Riverport Authority	General Cargo	Server/IT Upgrades	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 30,000.00
Owensboro Riverport Authority	General Cargo	100 WHS 4 Lighting fixtures	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 30,000.00
Owensboro Riverport Authority	General Cargo	147- Replacement Skid Steer	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 75,000.00
Owensboro Riverport Authority	General Cargo	106- Replacement Lift Terminal 6K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 40,000.00
Owensboro Riverport Authority	General Cargo	144- Replacement CAT Loader	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 280,000.00
Owensboro Riverport Authority	General Cargo	2-6 acre development (Terminal)	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 500,000.00
Owensboro Riverport Authority	General Cargo	396- Replacement Lift Warehouse	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 40,000.00
Owensboro Riverport Authority	General Cargo	62- Replacement ForkLift-Terminal 25K # +	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 250,000.00
Owensboro Riverport Authority	General Cargo	Rinaldo Road	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Pres./New Mkt Pos.	2022/2023	$ 1,497,500.00
Owensboro Riverport Authority	General Cargo	Terminal Storage Yard Improvements	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 80,000.00
Owensboro Riverport Authority	General Cargo	WH 3 Roof	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 200,000.00
Owensboro Riverport Authority	General Cargo	WH8 Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 20,000.00
Owensboro Riverport Authority	General Cargo	104- Replacement Lift Terminal 6K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 40,000.00
Owensboro Riverport Authority	General Cargo	107- Replacement Lift Terminal 6K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 40,000.00
Owensboro Riverport Authority	General Cargo	171- Replacement Terminal Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 10,000.00
Owensboro Riverport Authority	General Cargo	291- Replacement Lift Warehouse	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 40,000.00
Owensboro Riverport Authority	General Cargo	60- Replacement ForkLift-Terminal 25K # +	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 125,250.00
Owensboro Riverport Authority	General Cargo	80- Replacement Lift Terminal 6K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 40,000.00

App 2.4: Riverport Capital Improvement Needs

Riverport	Cargo Type	Project Components	IHS Forecast Scenarios - Top Commodities	IHS Forecast Growth Opp	Category	Fiscal Year	Amount
Owensboro Riverport Authority	General Cargo	Milling Equipment Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 20,000.00
Owensboro Riverport Authority	General Cargo	Terminal Storage Yard Improvements	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2023/2024	$ 80,000.00
Owensboro Riverport Authority	General Cargo	WH 2 Roof	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 200,000.00
Owensboro Riverport Authority	General Cargo	WH 4 Roof and gutters	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 1,500,000.00
Owensboro Riverport Authority	General Cargo	WH4 Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2023/2024	$ 200,000.00
Owensboro Riverport Authority	General Cargo	100 WHS 4 Lighting fixtures	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2023/2024	$ 30,000.00
Owensboro Riverport Authority	General Cargo	110- Replacement ForkLift-Terminal 25K #+	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 133,500.00
Owensboro Riverport Authority	General Cargo	117- Replacement Shop Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 9,700.00
Owensboro Riverport Authority	General Cargo	136- Replacement Warehouse Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 15,800.00
Owensboro Riverport Authority	General Cargo	186- Replacement Terminal Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 15,000.00
Owensboro Riverport Authority	General Cargo	187- Replacement Terminal Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 15,000.00
Owensboro Riverport Authority	General Cargo	327- Replacement Lift Warehouse	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 40,000.00
Owensboro Riverport Authority	General Cargo	5- Relacement Warehouse Sweeper	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 38,000.00
Owensboro Riverport Authority	General Cargo	75- Replacement Lift Terminal 6K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 40,000.00
Owensboro Riverport Authority	General Cargo	78- Replacement Lift Terminal 6K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 40,000.00
Owensboro Riverport Authority	General Cargo	Mooring Cells 1-6?	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2024/2025	$ 1,000,000.00
Owensboro Riverport Authority	General Cargo	WH1 Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 10,000.00
Owensboro Riverport Authority	General Cargo	WH2 Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 20,000.00
Owensboro Riverport Authority	General Cargo	WH3 Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 20,000.00
Owensboro Riverport Authority	General Cargo	112- Replacement Grove Crane	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 130,000.00
Owensboro Riverport Authority	General Cargo	121- Replacement ForkLift-Terminal 25K #+	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 145,500.00
Owensboro Riverport Authority	General Cargo	132- Replacement Warehouse Spotter Tractor	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 100,000.00
Owensboro Riverport Authority	General Cargo	139- Replacement Lift Terminal 6K	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 40,000.00
Owensboro Riverport Authority	General Cargo	140- Replacement Lift Warehouse	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 40,000.00
Owensboro Riverport Authority	General Cargo	143- Replacement Air Compressor	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 13,500.00
Owensboro Riverport Authority	General Cargo	15- Replacement water tank and trailer	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 11,000.00
Owensboro Riverport Authority	General Cargo	154- Replacement Lift Warehouse	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 40,000.00
Owensboro Riverport Authority	General Cargo	163- Replacement Shop Golf Cart	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 5,300.00
Owensboro Riverport Authority	General Cargo	164- Replacement Boom Lift	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 55,000.00
Owensboro Riverport Authority	General Cargo	18- Replacement Welder	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 7,000.00
Owensboro Riverport Authority	General Cargo	21- Replacement Welding Trailer	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 11,500.00
Owensboro Riverport Authority	General Cargo	2242- Replacement Shop Bucket Truck	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 20,000.00
Owensboro Riverport Authority	General Cargo	2257- Replacement President Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 60,000.00
Owensboro Riverport Authority	General Cargo	25- Replacement Turnafork	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 10,000.00
Owensboro Riverport Authority	General Cargo	3- Replacement Excavator	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 189,000.00
Owensboro Riverport Authority	General Cargo	96- Replacement Water Truck	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 14,400.00
Owensboro Riverport Authority	N/A	Retaining Wall/ Lower Road Dock	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 2,500,000.00
Owensboro Riverport Authority	N/A	Property Acquisition	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2021/2022	$ 1,000,000.00
Owensboro Riverport Authority	N/A	WH 5 Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 24,000.00
Owensboro Riverport Authority	N/A	WH6 Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 20,000.00
Owensboro Riverport Authority	N/A	WH7 Painting	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 20,000.00
Owensboro Riverport Authority	N/A	172- Replacement Terminal Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2021/2022	$ 20,000.00
Owensboro Riverport Authority	N/A	113- Replacement Terminal CS Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 32,000.00
Owensboro Riverport Authority	N/A	114- Replacement Terminal Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 30,000.00
Owensboro Riverport Authority	N/A	142- Replacement G&A Vehicle	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 42,175.00

App 2.4: Riverport Capital Improvement Needs

Riverport	Cargo Type	Project Components	IHS Forecast Scenarios - Top Commodities	IHS Forecast Growth Opp	Category	Fiscal Year	Amount
Owensboro Riverport Authority	N/A	23A- Replacement Terminal Trailer	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 14,000.00
Owensboro Riverport Authority	N/A	27A- Replacement Terminal Trailer	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 10,000.00
Owensboro Riverport Authority	N/A	30- Replacement Warehouse Golfcart	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2022/2023	$ 3,500.00
Owensboro Riverport Authority	N/A	Purchase of Dyno Facility	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2022/2023	$ 1,000,000.00
Owensboro Riverport Authority	N/A	Admin Offices Update	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2024/2025	$ 500,000.00
Owensboro Riverport Authority	N/A	Wetlands Land Improvement	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Optimize Port Eff.	2024/2025	$ 1,000,000.00
Owensboro Riverport Authority	N/A	11- Replacement D7 Dozer	Motor vehicles, motor vehicle parts, mixed freight, iron and steel, mixed consumer products, plastics & synthetics	Aluminum (already handled by port); rail access provides potential diversion.	Bus. as Usual	2025/2026	$ 50,000.00
Paducah McCracken County Riverport Authority	Dry Bulk	Replace Inbound River belt Triple Pant Leg Chute - Conveyor	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Optimize Port Eff.	2021/2022	$ 37,000.00
Paducah McCracken County Riverport Authority	Dry Bulk	Bulk Yard Revitalization, replace major yard conveyance equipment	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Optimize Port Eff.	2021/2022	$ 1,500,000.00
Paducah McCracken County Riverport Authority	Dry Bulk	New Roofing System for Dome A Storage Facility		Intermodal Opps	Optimize Port Eff.	2021/2022	$ 245,000.00
Paducah McCracken County Riverport Authority	Dry Bulk	New Roofing System for Dome B Storage Facility		Intermodal Opps	Optimize Port Eff.	2021/2022	$ 276,000.00
Paducah McCracken County Riverport Authority	Dry Bulk	Bulk Yard Storage and Commodity Expansion Project	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Pres./New Mkt Pos.	2021/2022	$ 550,000.00
Paducah McCracken County Riverport Authority	Dry Bulk	Bulk Yard River Berth Dredging and Cell Stabilization Project	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Optimize Port Eff.	2022/2023	$ 400,000.00
Paducah McCracken County Riverport Authority	Dry Bulk	Riverport West Development (Land Acquisition and Facility Dev)	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Pres./New Mkt Pos.	2023/2024	$ 50,000,000.00
Paducah McCracken County Riverport Authority	Dry Bulk	Replace Bulk Material Handler	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Optimize Port Eff.	2025/2026	$ 12,000,000.00
Paducah McCracken County Riverport Authority	General Cargo	ADmin and Bulk Yard Office Revitalization and Maint. Project		Intermodal Opps	Bus. as Usual	2021/2022	$ 25,000.00
Paducah McCracken County Riverport Authority	General Cargo	Pave Open Laydown Storage Area	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Optimize Port Eff.	2021/2022	$ 150,000.00
Paducah McCracken County Riverport Authority	General Cargo	Bulk Handling Equipment - Bucket	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Optimize Port Eff.	2021/2022	$ 60,000.00
Paducah McCracken County Riverport Authority	General Cargo	Replace Front Loader Fleet (3 units)	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Optimize Port Eff.	2023/2024	$ 1,000,000.00
Paducah McCracken County Riverport Authority	General Cargo	New General Bulk Cargo Intermodal Harbor Crane	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Optimize Port Eff.	2025/2026	$ 5,000,000.00
Paducah McCracken County Riverport Authority	General Cargo	New General Bulk Cargo Intermodal Harbor Crane	Grain, mixed consumer goods, soybean products, waste and scrape, broken stone/rip rap (coal declining)	Intermodal Opps	Pres./New Mkt Pos.	2021/2022	$ 10,400,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Feasibility Study			Bus. as Usual	2021/2022	$ 50,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Archeological Study / Environmental Phase 1			Bus. as Usual	2021/2022	$ 84,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Professional Services			Bus. as Usual	2021/2022	$ 100,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Professional Services			Bus. as Usual	2022/2023	$ 166,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Waterfront Improvements	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Pres./New Mkt Pos.	2022/2023	$ 1,411,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Land Development	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Pres./New Mkt Pos.	2022/2023	$ 985,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Equipment	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Optimize Port Eff.	2022/2023	$ 2,900,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Equipment	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Optimize Port Eff.	2023/2024	$ 1,700,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Highway Improvements	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Pres./New Mkt Pos.	2022/2023	$ 162,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Rail Access	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Pres./New Mkt Pos.	2023/2024	$ 250,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Rail Access	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Pres./New Mkt Pos.	2024/2025	$ 250,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Rail Access	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Pres./New Mkt Pos.	2025/2026	$ 250,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Security and Technology	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Optimize Port Eff.	2022/2023	$ 430,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Security and Technology	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Optimize Port Eff.	2024/2025	$ 100,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Security and Technology	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Optimize Port Eff.	2025/2026	$ 100,000.00
West Kentucky Regional Riverport Authority	Dry Bulk	Warehousing (P3 Expansion Program)	Grain, mixed consumer warehouse products, soybean products, waste/scrap, plastics & synthetics	Ag, resource and manufactured growth opps	Pres./New Mkt Pos.	2022/2023	$ 9,300,000.00
							$ 222,122,554.00

KENTUCKY RIVERPORTS, HIGHWAY & RAIL FREIGHT STUDY

APPENDIX 2.5: DATA HINTERLAND DEFINITION AND DATA SOURCES

In this *Kentucky Riverports, Highway and Rail Freight Study,* the TRANSEARCH forecast from IHS Markit serves as the principal source of market projections. The TRANSEARCH forecast provides a detailed estimate of every commodity moving by every mode of freight transportation (truck, rail, air, and water) between any county in Kentucky and external counties or multi-county regions in the United States. These forecasts are reported and used at different junctures in the study to describe different aspects of Kentucky's marine transportation market.

Reporting of Modes and Standard Transportation Commodity Code (STCC) Categories

The Standard Transportation Commodity Code (STCC) is a classification system by which freight commodities are defined at different levels of detail, denoted by the number of digits in the STCC code. For example, at the 2-digit STCC level, all Agricultural Production and Livestock freight is classified in a single category. However, at the 4-digit STCC level these commodities are broken down into 28 sub-categories such as Field Crops, Grain, Cotton, Fresh Vegetables, and others. Depending on which STCC level is shown, there may be some locations where "Agricultural Production and Livestock" is forecast to increase, but a specific waterborne commodity such as "Field Crops" are forecast to decline.

The TRANSEARCH data also provide detailed forecasts for truck, rail, air, and water. Consequently, while the overall trade in a commodity may be increasing with a Kentucky county, the waterborne share of the commodity may be projected to decline. This is why some documents associated with the *Kentucky Riverports, Highway and Rail Freight Study* may point to trends that appear inconsistent. Where there is an apparent inconsistency, the reason is because one report may offer a different level of commodity detail or a different modal perspective than another. In each report, the mode and specific commodity descriptions are given to clarify exactly which trend is observed.

In the early phases of the study, when market forecasts were first introduced, the technical memoranda, summit presentations, and market profiles sought to pinpoint some very specific changes in markets that would be of interest for summit discussions. For this reason, the early reports looked at the 4-digit STCC detail, and generally combined all modes together. (For example, *Technical Memorandum 2* reports the overall trade and forecast for an entire hinterland area irrespective of transportation mode for selected 4-digit commodities showing the most change). Through the dialogue of the summits and port visits, stakeholders indicated a strong desire to be able to review tables summarizing all of the commodity flows (and forecasts) relevant to the study. Because 4-digit commodity forecasts involve 762 commodity groups many of which are too detailed to be meaningful for any given port, the final report gives its analysis at the 2-digit level. For this reason, the final report generally provides statewide commodity follow analysis at the 2-digit level (thereby showing different trends than some of the seemingly corresponding 4-digit sub-sectors of earlier memoranda). The only exception to this standard is in **Section 2.2** of the final report where the specific products handled by individual ports are considered; these forecasts are described in terms of 4-digit STCC forecasts for specific observations made on site visits (and shown in **Appendix 2.2g**).

Hinterland Definitions

At the outset of the study, the "hinterland" or trade area surrounding a riverport was understood and discussed in terms of a 90-minue drive time. This standard allowed for discussions of port access under present conditions in relation to current year (2018) delivery markets.

However, through the dialogue occurring in the summits and port visits and through conducting economic impact analysis of port access costs to the year 2045, issues such as future congestion, seasonal variation in travel times affecting certain commodities, and peak versus off-peak conditions complicate the "90-minute" assumption for the final report. For this reason, in the final report the hinterland definitions were changed from "90 minutes" to "90 miles" which provides a consistent standard for 2018 and 2045 regardless of individual commodity travel conditions or other factors. Because economic forecasts are always reported at the county level, and distance is always understood in terms of a minimum driving distance, a 90-mile hinterland includes all counties that can be reached in a 90 mile drive of the center of a riverport property. As a consequence, the trade totals and forecast in the final report are somewhat different than in the initial technical memoranda and summit presentations. **Figure A2.3-1** below demonstrates the difference between the 90-minute hinterlands considered in the initial documents and the 90-mile hinterlands addressed in the final report.

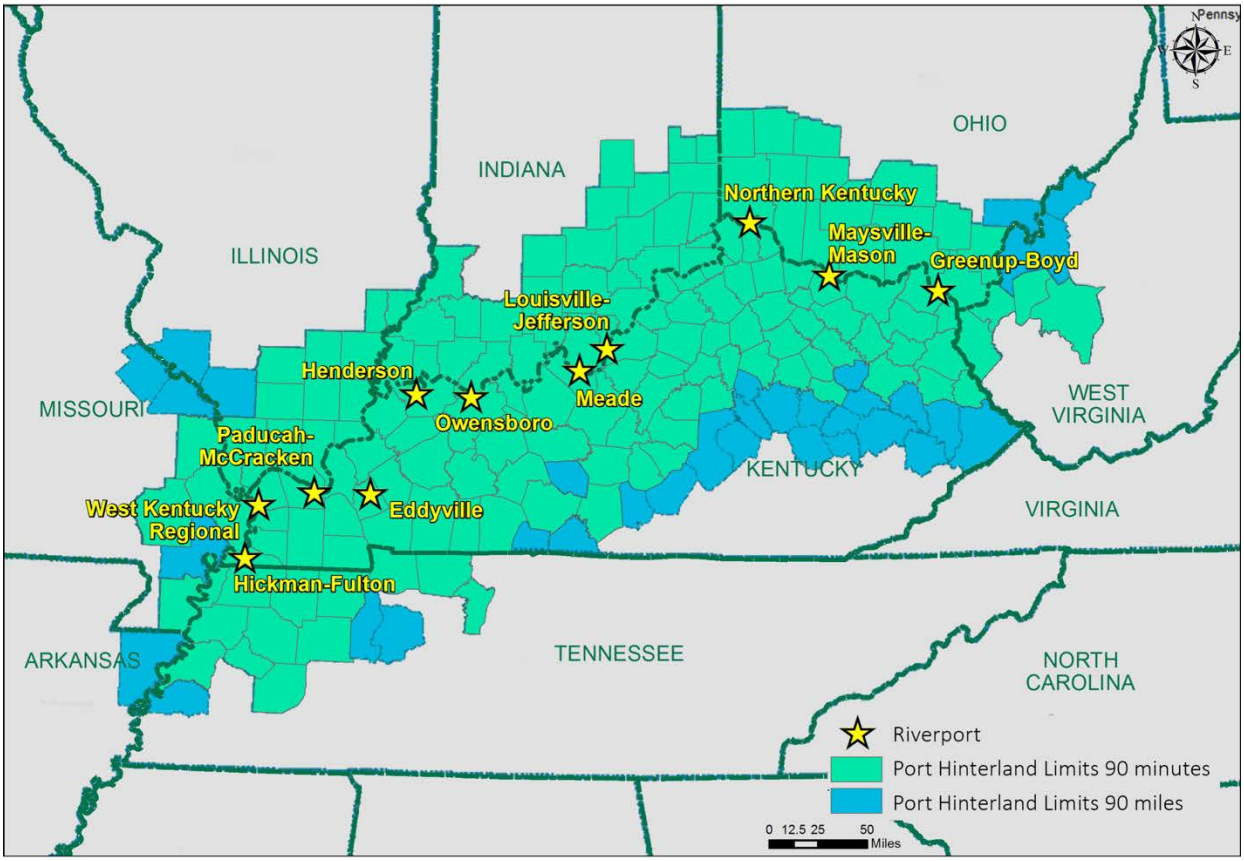


Figure 0-1: 90-Minute vs. 90-Mile Hinterland Definition

Comparing Documents and Analyses

Table A2.3-1 below provides a quick reference for readers to understand how markets are presented differently in the reports. **Table A2.3-1** below indicates the levels of aggregation, modal and commodity detail in each report of the study to help readers understand relationships between market descriptions and forecasts in the project deliverables.

Table 0-1 Hinterland Definition

Deliverable	Hinterland Definition & Detail
Technical Memoranda 1-4	• 4-digit commodities • All modes combined • 90-minute hinterlands
Port Profiles	
Summit Presentations	
Final Report	• 2-Digit Commodities *(except when specific port products are addressed in **Section 2.2** or **Appendix 2g**)* • Water only (where referenced as such) • 90-mile hinterlands

APPENDIX 2.6: KYTC Truck Trips Development Methodology

1 Introduction

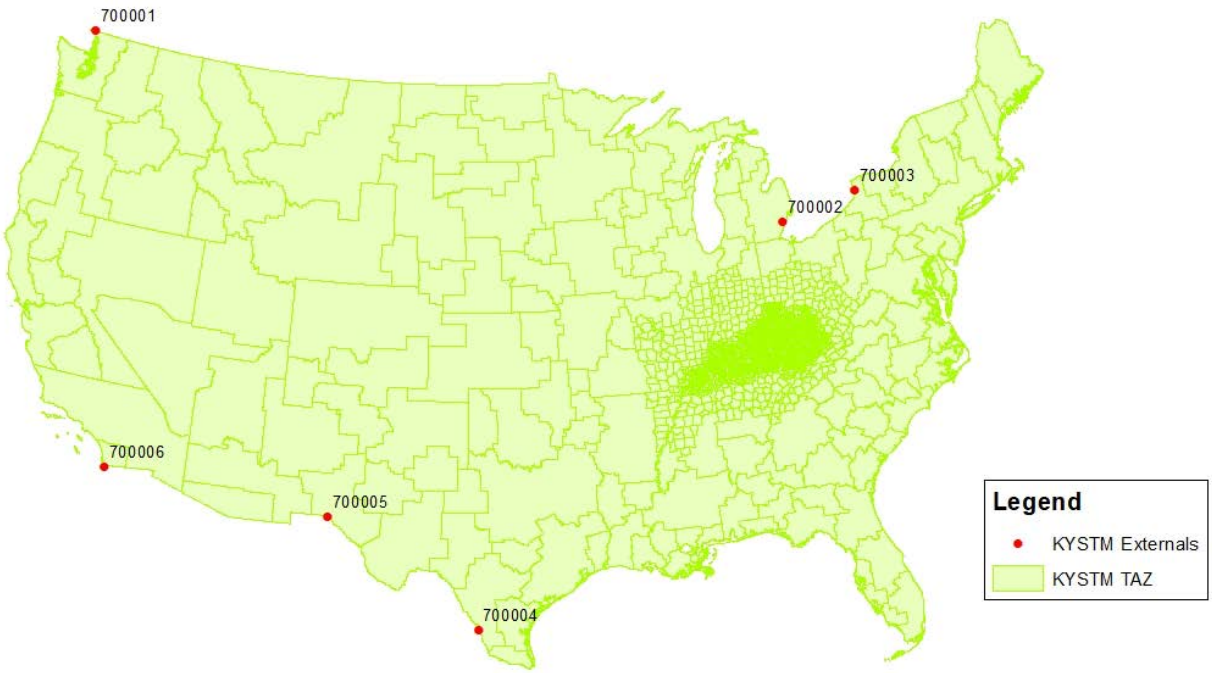
The Kentucky Statewide Travel Demand Model (KYSTM) uses static truck trip tables as inputs to the model. The truck trips are divided into single unit and combination truck classes. As discussed with the KYTC modeling team, the existing single unit trucks performed reasonably and were under-represented for the freight data available in the Transearch database. For this reason, analysis and development were focused on improving the operation of combination trucks of the KYSTM. This report discusses the methodology applied in developing the combination truck trips.

The KYSTM uses two input trip tables, one for the model base year of 2015 and another for the future year of 2045. Analysis years between 2015 and 2045 are interpolated within the KYSTM during a model run. Therefore, the results of this development were an update to these 2015 and 2045 input trip tables.

2 Methodology

At the time of the study, the KYSTM modeling region had 5,972 Traffic Analysis Zones (TAZs) that cover the entire United States of America (USA). The TAZ structure also includes six external stations, numbered 700001 through 700006. The stations 700001, 700002, and 700003 are at the border of USA and Canada, and stations 700004, 700005, and 700006 are at the border of USA and Mexico. The KYTSM internal and external TAZs are shown in Figure 1.

Figure 1: KYSTM TAZs and External Stations



The primary database used in developing the truck trip tables is the Transearch database. Transearch provides current and future freight flows by origin, destination, commodity, and transport mode. The goal was to convert the commodity flows into equivalent truck trips and allocating them from Transearch origins and destinations to KYTC TAZ origins and destinations. This section describes the steps to allocate the Transearch trips to the KYSTM TAZs.

2.1 Processing of Transearch Database

The Transearch database was processed to develop the equivalent truck trips from the commodities. It includes data for years 2018 and 2045, and both an optimistic and a pessimistic scenario of 2045. The database is in Access format and includes data in the form of multiple tables, some of which are shown in Table 1.

Table 1: Transearch Database Content

TABLE	DESCRIPTION
County to Region	Counties defined regions used in database
Equipment	Equipment type descriptions
Highway Network	Highway details
Highway Routes	Links in highway routes for freight flows
Modes	Transport mode descriptions
Regions	Region names used in database
Stcc4 Names	Names of Standard Transportation Commodity Codes
Trade Type	Identifies segments of trade
Transearch 2018, Transearch 2045 (including scenarios)	Freight flows

Each record in the Freight Flow table (Transearch 2018, Transearch 2045, etc.) includes information about the commodity flow between origin and destination regions. A typical record includes the following attributes:

Year, Origin Region, Destination Region, STCC, Equipment, Trade Type, Mode, Tons, Units, Value, Average Miles, First Node, Last Node, From FIPS, To FIPS, Entry Road, and Exit Road

The freight flows included multiple transportation modes including rail, truck, air, water, pipeline, mail, and others. The Standard Transportation Commodity Code (STCC) includes the type of commodity by a 4-digit code. Units represent the number of trucks in the case of truck mode. The freight flow records were filtered to select only truck mode and then aggregated to estimate the total trucks by origin and destination regions. The process was repeated for all four scenarios: 2018 Base, 2045, and the two 2045 scenarios, optimistic and pessimistic. The sample output of the Transearch processing is shown in

Table 2.

Table 2: Sample Output of Freight Flow Processing

OREG	DREG	MODE	TONS_SUM	UNITS_SUM
1	24	1	16.8	0.7
1	32	1	8.4	0.3
1	34	1	768.1	42.2
1	60	1	19.1	0.9

2.2 Allocation of Trucks to KYSTM TAZ

The next step is to allocate the truck trips from Transearch origins and destinations to the KYSTM TAZ origins and destinations. The process is similar for any scenario, base or the future. Therefore, it is described only for the base scenario and noted on if it is different for another scenario.

The geography of Transearch regions (called Region) is different than the KYSTM TAZ in two ways. First, the coverage of KYSTM TAZ is entirely within the USA, while the Transearch Region covers areas outside of US and includes Canada and Mexico. Second, individual TAZ boundaries do not nest within the Transearch Region boundaries (or vice versa) for most cases. Therefore, establishing a relationship between the Transearch Region and KYSTM TAZ was necessary to allocate the trips to the KYSTM TAZs in the most accurate manner. The next two sections describe the process of creating a relationship between the two boundaries and allocating them to TAZs developed in the initial truck trip tables.

2.2.1 Creating Transearch Region-to-TAZ Shares

The coverage of Transearch Region and KYSTM TAZ boundaries is shown in Figure 2. The Transearch region is either a county or an aggregation of multiple counties. The KYSTM TAZ includes areas within USA, while Transearch Region includes areas within the US as well as outside areas that exchange trade with USA. The trips that have origins or destinations within USA were allocated to the internal KYTC TAZs, while the trips that have origins or destinations outside of USA were allocated to the most suitable external station or international gateway (discussed later).

Figure 2: Coverage of Transearch Regional and KYSTM TAZ

2.2.1.1 Relationship between Transearch Region and KYSTM internal TAZs

In order to develop a relationship (called Equivalency) between the Transearch Region polygons and KYSTM TAZs within USA (internal TAZs), the polygon sizes of the two data sets were compared. It was found appropriate to categorize the TAZs into three distinct areas as shown in Figure 2.

- Area 1: Includes all TAZs in Kentucky state. These TAZs are smaller than or equal to county sizes. There are 4,752 TAZs in Area 1.
- Area 2: Includes TAZs in the region adjacent to Kentucky, called the Buffer region. These TAZs are smaller than or equal to county sizes. There are 1,060 TAZs in Area 2.
- Area 3: Includes remaining TAZs that are beyond the Buffer region. These TAZs are larger than county TAZs. There are 1,060 TAZs in Area 3.

Equivalency for Area 1 and Area 2

In Area 1 and Area 2, the TAZs are smaller than the county sizes or equal to them. The Transearch Region polygons are same sized or larger than counties. Therefore, any Transearch Region polygon includes one or more TAZs within it. To allocate the trips from a Transearch Region to the TAZs within it, the share of trips for each TAZ was required. The shares were obtained from the existing KYTC combination truck trip tables. The process used was:

- Calculate average of total origin truck trips and total destination trucks trips for each TAZ.
- Calculate the trips for each Transearch Region by summing up the trips of all TAZs within it.
- Calculate the share of each TAZ by dividing the trips in it with the total trips in the corresponding Transearch Region.

For the base scenario, 2015 KYTC truck trips were used to calculate the TAZ share. For the three future scenarios, 2045 truck trips tables were used.

Equivalency for Area 3

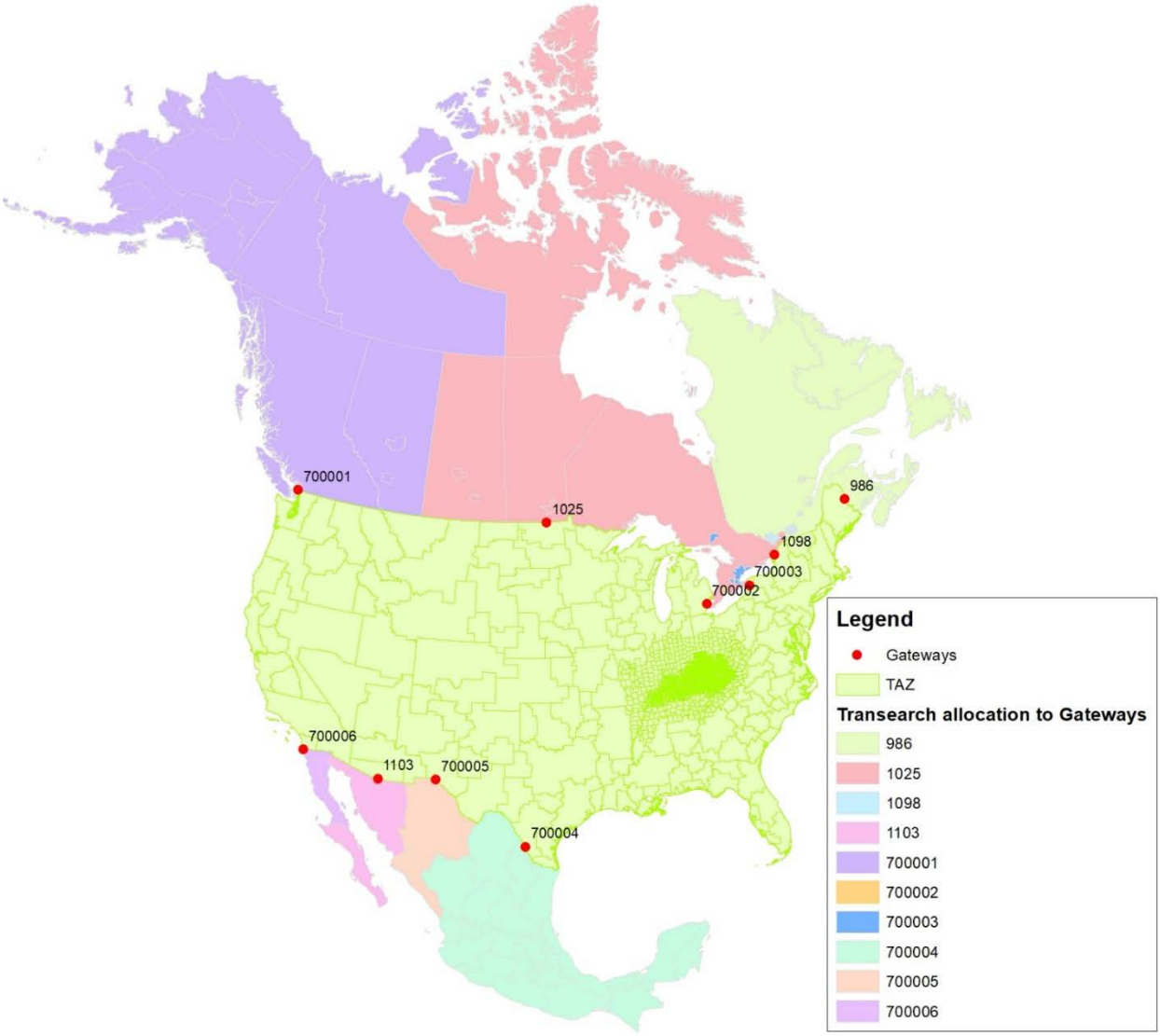
In Area 3, the TAZs are larger than the Transearch Region polygons and, therefore, each TAZ contains one or more Transearch Region. As such, for any origin or destination Transearch Region, all the trips will be allocated to the TAZ which contains that Transearch Region, and the Region-to-TAZ share would be 100%.

2.2.1.2 Relationship between Transearch Region outside USA and KYSTM TAZs

The trips that originate in the US and end outside the US or vice versa would enter through international gateways. Therefore, the trips in Transearch Region outside USA were allocated to the international gateways. The KYTC model includes six external TAZs, numbered 700001-700006, that represent international gateways. Four additional gateways were identified, three of which are at the border of Canada and USA and one at the border of Mexico and USA. In the absence of any external TAZ in those locations, internal TAZs were used to capture trips from outside of USA. The additional four gateways and their corresponding TAZs are mentioned below. All ten gateways, and the TranSearch Region associate with each of the ten gateways, are shown in Figure 3.

1. Eastern Canada through I-95 at Houlton, Maine (TAZ 986)
2. Quebec, Canada through I-91 at Alexandria Bay, New York (TAZ 1098)
3. Western Canada through I-29 Pembina, North Dakota (TAZ 1025)
4. Sonora, Mexico through I-19 at Nogales, Arizona (TAZ 1103)

Figure 3: International Gateway Locations



The allocation of the trips from the Transearch Region to the international gateways was based on shortest distance between the two.

2.2.2 Allocation of Truck Trips

The equivalencies developed for Areas 1, 2, and 3, and for the international gateways were combined to create a single Equivalency file. The truck trips between origin and destination regions were allocated to respective origin and destination TAZs in the proportions defined in the Equivalency.

3 KYSTM Truck Model Update

As a result of the processing outlined above, the Transearch data provided origin-destination tonnage-based truck flows between the 5,972 TAZs of the KYSTM. However, the Transearch data provides a sample of all truck movement within the state, thus data expansion was performed to provide a more representative daily input to the model. One of the most prevalent and researched methods to achieve this data expansion is through Origin-Destination Matrix Estimation (ODME). The TransCAD software, in which the KYSTM is built upon, provides documented procedures and routines to facilitate this operation.

3.1 Processing

The most recent version of the KYSTM, Version 19 (KYSTMv19), provided data and the existing truck model to serve as a baseline. The model includes roadway AADT count estimates by vehicle class – notably combination trucks for this study – and are collected and maintained by KYTC. Vehicle count data is a primary resource in the validation of both regional and statewide travel demand models and provide the metrics to gauge the results of data expansion. Although many configurations were tested with varying trip distributions and iterations, the project team developed deliverables based on the results of two ODME iterations of the model-distributed Transearch flows. As outlined in the previous section, the model-distributed (abbreviated MD) processing of the Transearch data is informed by underlying socioeconomic zonal attributes present in the KYSTM.

A TransCAD compatible script and corresponding data package were developed to provide a reliable and repeatable ODME process, which also features built-in reporting. The steps performed to accomplish this update are as follows:

1. Exclude multi-unit/heavy truck counts of under 100 vehicles.
    - Of 6,116 heavy truck counts, 1,882 (30.7%) were under 50 vehicles and 2,796 (45.7%) counts were under 100 vehicles. Since all counts are weighted equally in the ODME process, these counts were found to significantly reduce truck flows and provided no improvement to model validation.
2. Define minimum and maximum growth factors for the ODME process. Factors of 0.5 and 10 were used and provided ODME bounds for each origin-destination (OD) pair.
3. Perform an iteration of ODME assignment. This process adjusts cells in the OD matrix to better fit network counts.
4. Write heavy-truck and total vehicle volumes to the network. Total vehicle volumes were calculated by adding fixed auto and light-truck volumes generated by a default 2018 KYSTMv19 model run.
5. Produce validation report. This generates statistics by functional class and volume groups of assigned volumes against traffic count data.
6. Reiterate steps 3-5 for a user-defined set of iterations, default of 3.
7. Review results of each iteration and select preferred iteration.

8. Generate year 2045 model inputs by applying cell-level growth factors to Transearch 2045 forecast.
9. Verify KYSTMv19 operation with new model inputs.

3.2 Validation

Data was summarized and presented along two major dimensions: county-wide totals and model volume-to-count error. The sections below provide a before and after comparison of the KYSTMv19 ("Model") and the improved model-distributed ("MD") data resulting from the efforts of this study.

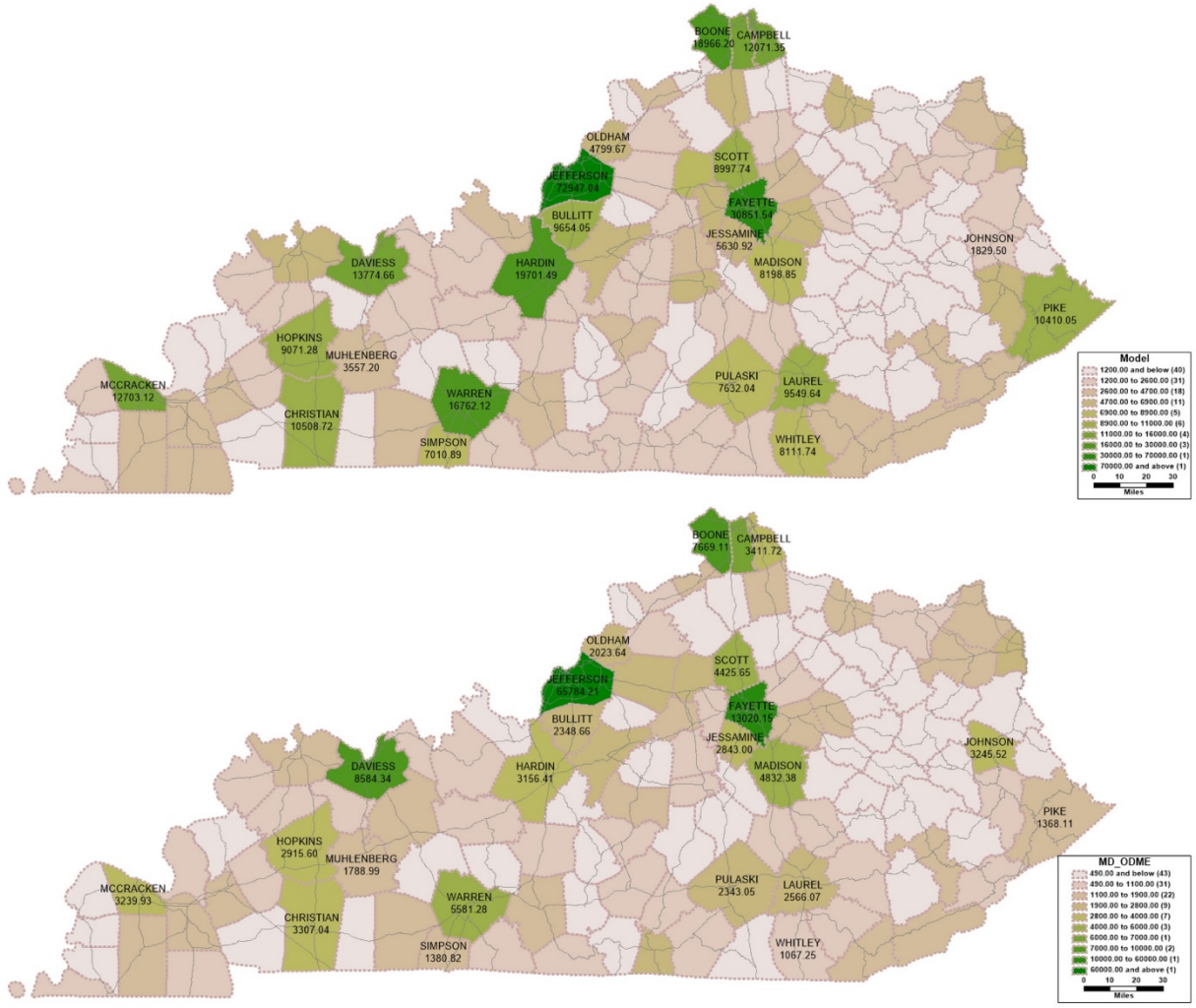
3.2.1 County Trip Origin Validation

Table 3 provides a comparison of the largest county trip origins between the KYSTMv19 and the model-distributed (MD) ODME of Transearch data. The origins of the KYSTMv19 trip tables were unknown to the project team, although documentation states a 2003 KYSTM truck matrix was split into single-unit and multi-unit trucks using fixed-factors in a 2010 update. This county-level comparison helped to gauge reasonableness of the ODME process and Transearch data. Although there is a difference in magnitude, the ranked order of heavy truck trips is generally in agreement. The project team recommends a further review of truck counts specifically in Johnson County, which saw the biggest disparity with the existing model. Since additional data could not be obtained or collected, truck counts in Johnson County were left unaltered from the KYSTMv19. Figure 4 provides a visualization of Table 3 and the agreement of truck trip origins totals between the KYSTMv19 and the updated model-distributed data.

Table 3: Top County Heavy-Truck Trip Origins

ID	FIPS	County	KYSTM	Model Rank	MD	MD Rank
1	21111	Jefferson	72,947	1	65,784	1
2	21067	Fayette	30,852	2	13,020	2
3	21059	Daviess	13,775	6	8,584	3
4	21015	Boone	18,966	4	7,669	4
5	21117	Kenton	11,704	9	6,693	5
6	21227	Warren	16,762	5	5,581	6
7	21151	Madison	8,199	16	4,832	7
8	21209	Scott	8,998	15	4,426	8
9	21037	Campbell	12,071	8	3,412	9
10	21047	Christian	10,509	10	3,307	10
11	21115	Johnson	1,829	61	3,246	11
12	21145	McCracken	12,703	7	3,240	12
13	21093	Hardin	19,701	3	3,156	13
14	21107	Hopkins	9,071	14	2,916	14

Figure 4: County Origin Totals Thematic Map – KYSTM (top) vs MD ODME (bottom)



3.2.2 Traffic Volume Model Validation

FHWA, in its *Travel Model Validation and Reasonableness Checking Manual*[1] (VRC), provides guidance on traffic volume validation within a travel model application. Of these traffic volume related checks, the project team evaluated root mean squared error (RMSE) and error scatterplots to assess validation improvement from the KYSTMv19. RMSE measures the average error between observed and modeled traffic volumes, providing an evaluation of accuracy in traffic assignments. RMSE and percent RMSE (%RMSE) for a set of network links are calculated as:

[1] Cambridge Systematics, Inc. *The Travel Model Improvement Program: Travel Model Validatioan and Reasonabless Checking Manual Second Edition.* Washington, DC: U.S. Department of Transportation Federal Highway Administration, 2010. https://www.fhwa.dot.gov/planning/tmip/publications/other_reports/validation_and_reasonableness_2010/fhwahep10042.pdf

$$RMSE = \sqrt{\frac{\sum_{i=1}^{N}[(Count_i - Model_i)^2]}{N}}$$

and

$$\%RMSE = \frac{RMSE}{(\frac{\sum_{i=1}^{N} Count_i}{N})} \times 100$$

Where:

$Count_i$ = The observed traffic count for link i;

$Model_i$ = The modeled traffic volume for link i; and

N = The number of links in the group of links including link i.

Table 4 and Table 5 provide percent error and percent RMSE validation metrics, stratified by functional classifications and AADT ranges, respectively. For consistency with the ODME process, traffic counts with fewer than 100 daily combination trucks were excluded from this reporting. Both the Local-classified roads and the lowest AADT grouping (under 1,000) are generally the worst performing metrics due to the resolution of a statewide model. Beyond these two categories, the resulting truck trip matrix provides a significant improvement over the results of the default KYSTMv19.

The VRC manual also identifies difference plots, which compare link-level differences between modeled traffic volumes and observed traffic counts, as useful validation information. Figure 5 and Figure 6 provides this visualization of the network error, where line thickness indicates magnitude, with color indicating underloading (black) and overloading (red). Figure 5 provides the difference plot of truck volumes from the KYSTMv19, with the largest errors from underloading along I-65 and I-75. Figure 6 provides a similar plot of the expanded data assignment, showing the improved loadings along these corridors, indicated by thinner lines.

Figure 7 provides a scatterplot of model-to-count errors across 3,320 count stations. The correlation coefficient (R^2) helps determine overall fit of the network assignment, with the KYSTMv19 default at 0.846 and the improved model-distributed (MD) expansion at 0.943. An R^2 value closer to 1 indicates a stronger correlation. Although the MD data shows significant improvement, it should be noted that any ODME processing is susceptible of overfitting as the same count data is used for calibration and validation.

Table 4: Improvement to Error Statistics by Functional Class, Heavy Trucks

		% ERROR		% RMSE	
Source	Counts	Model	MD	Model	MD
Interstate	528	-2.9	-2.9	34.2	19.7
Other Freeway	130	13.5	0.8	77.6	35.5
Principal Arterial	1146	29.1	-2.9	94.4	68
Minor Arterial	912	24.3	6	123.7	73.8
Major Collector	485	24.8	6.4	133.7	68.3
Minor Collector	67	15.8	0	117.9	59.1
Local	52	10.1	14.4	123.9	89.3
Total	**3320**	**8.7**	**-1.1**	**69.8**	**42.3**

Table 5: Improvement to Error Statistics by AADT Ranges, Heavy Trucks

		% ERROR		% RMSE	
AADT Range	Counts	Model	MD	Model	MD
<1000	65	-70.6	-66.5	106.7	109.9
1000 - 5000	1011	3.1	0.4	93.8	70.1
5000 - 10000	1171	26.8	4.5	94.5	61
10000 - 20000	700	8.1	-4.3	68.8	34.5
20000 - 30000	205	4.8	-1.4	42.9	20.1
>30000	168	3.1	-1.1	29	22
Total	**3320**	**8.7**	**-1.1**	**69.8**	**42.3**

Figure 5: Heavy Truck Volume Error – KYSTMv19

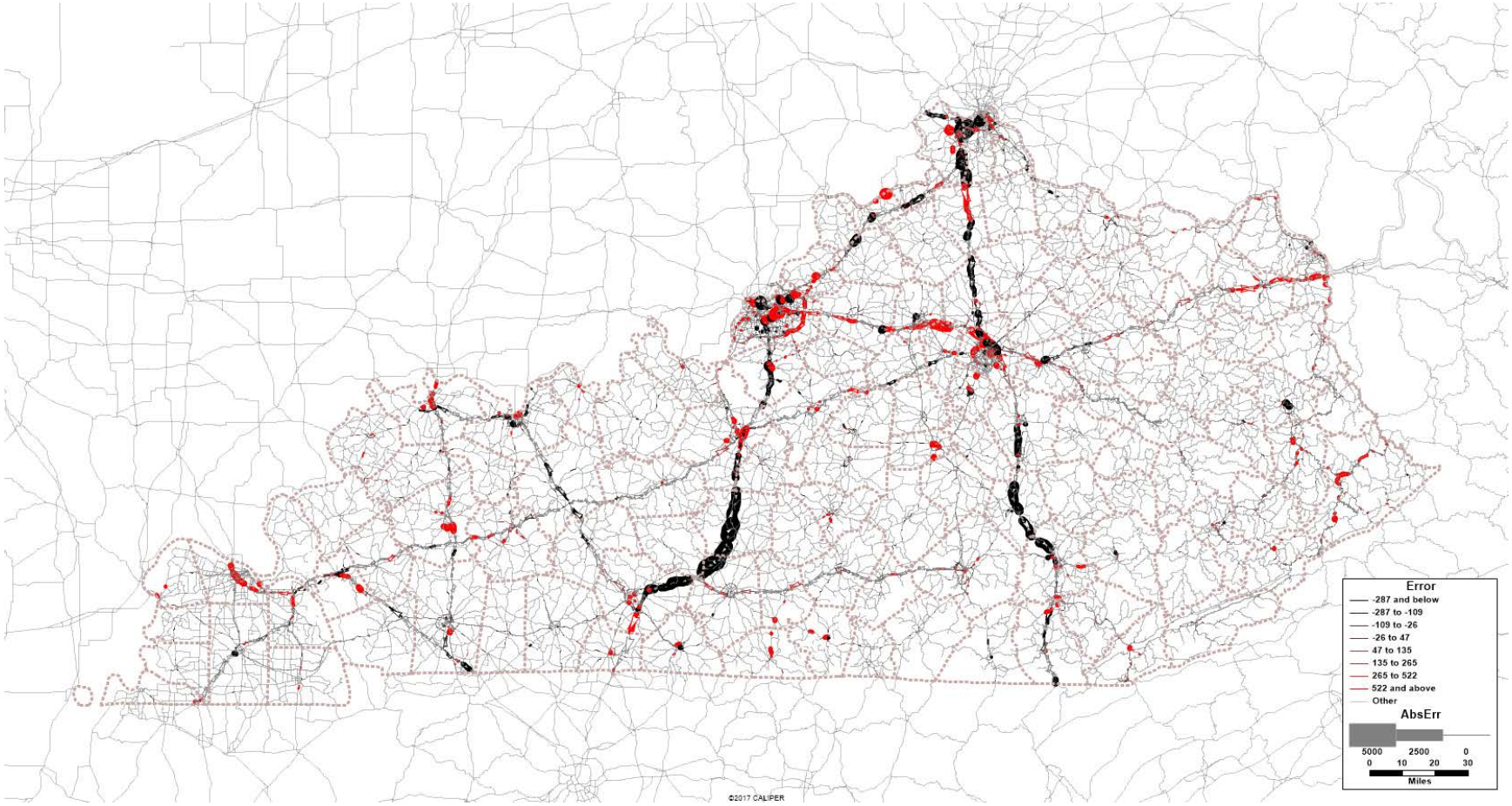


Figure 6: Heavy Truck Volume Error – Expanded Model-Distributed

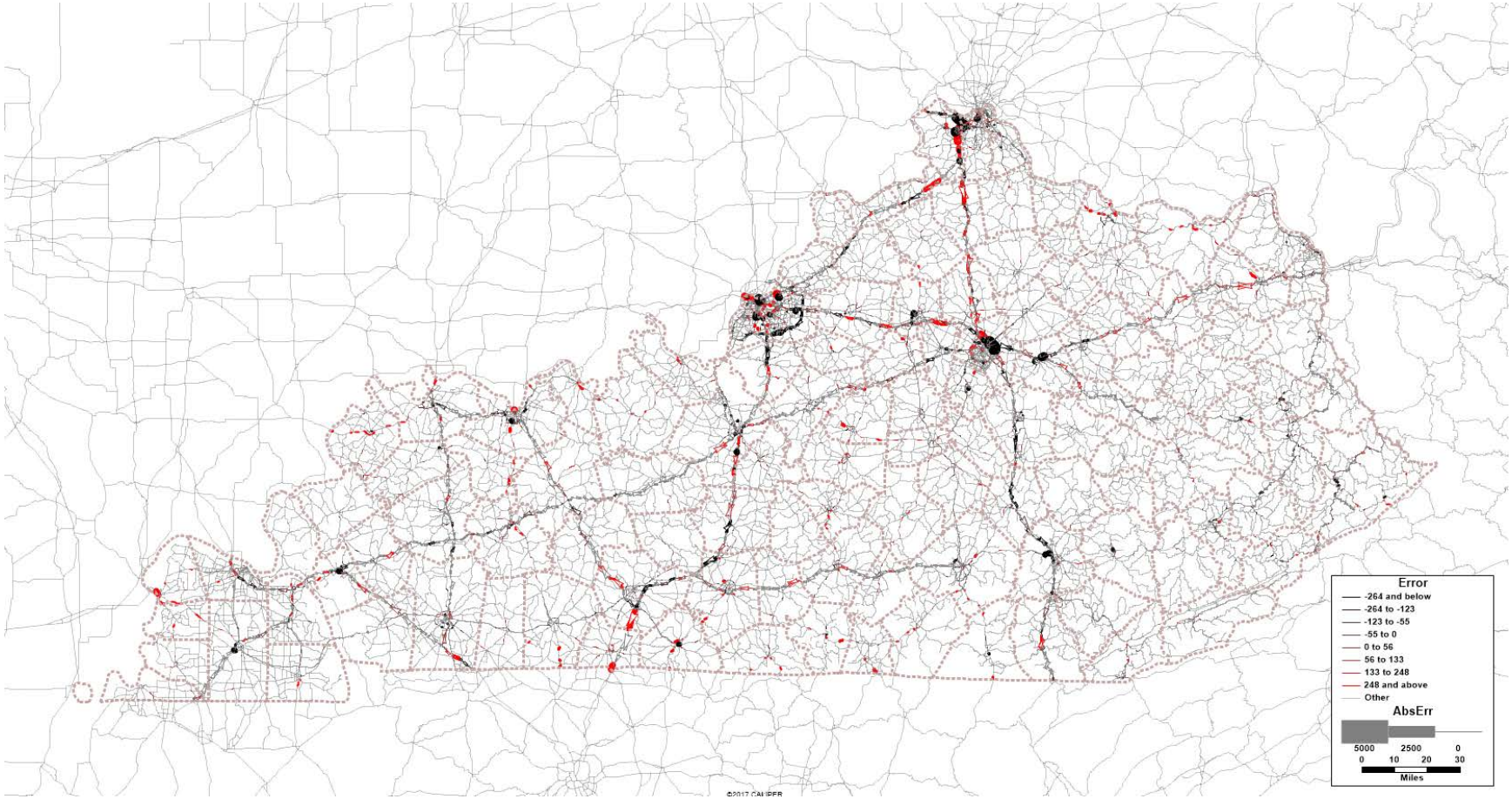
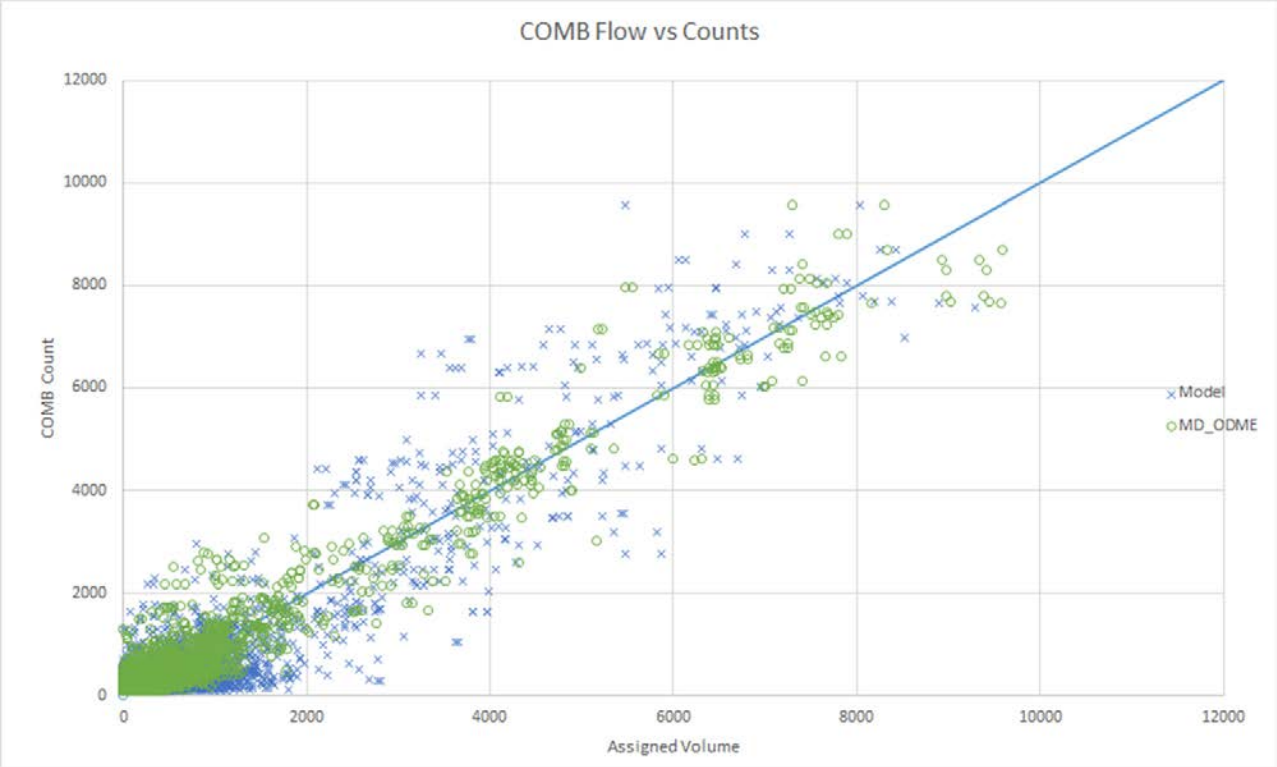


Figure 7: Scatterplot of Model & MD Volumes to Counts



4 Results

For forecasting truck volumes, the KYSTM uses interpolation between a 2015 and 2045 truck trip table to generate a scenario year trip table, defined by the user. For the base year, the expanded and validated data described above would serve as a direct input to the model. While KYTC's observed traffic counts were critical to this base year input, a process was needed to transform Transearch 2045 freight data forecasts into a model-ready format.

A two-stage process was developed to expand the 2045 Transearch data. First, a length-based growth factor was developed from analysis of the base year expansion process. The data was segmented into 50 bins of 10 miles and factors were assigned to each bin. This stage helps to address trip-length biases found in mobility data, notably with trucks, where short distance trips are under sampled and often missing from the data. The second stage was developed to address regional biases, where certain regions may lack data or are underrepresented. For this, a growth factor for each TAZ trip origin was developed from a simple analysis of matrix row marginals (rowsums). This factor was applied to the 2045 Transearch data and served as the target data for an iterative proportional fitting (IPF) procedure within the TransCAD software. The result of IPF is a 2045 trip matrix informed by Transearch forecasts and the base year data expansion effort.

KYTC has defined 12 highway districts, segmenting roadway miles along county lines, which allows for a logical aggregation of data across Kentucky's 120 counties. Figure 8 provides a boundary map of these highway districts. Table 6 and Table 7 provide a summary of heavy truck trip origins for each highway districts, as well as trips that originate outside of the state. From experience with freight data in other Appalachian and Midwest regions, it is common for freight movements to have trip ends beyond the state boundaries, resulting in external-external trips that travel across the state. Due to constraints, there are several items that merit additional analysis if the existing KYSTM truck data, developed for a 2010 update, is credible. The external share of heavy trucks is significantly different between the two versions, with 8.7% from KYSTMv19 and 47.2% from the expanded Transearch data. One other item of analysis is the growth assumptions for the 2045 future year, where KYSTMv19 presents a 58.0% growth and the expanded model-distributed data presents a 31.6% growth over the same 30-year time period. While the Transearch data provides some insight into freight movements impacting Kentucky, the project team recommends that additional data, such as truck-specific GPS or origin-destination data, be considered for future analysis and updates to the truck and freight functionality of the KYSTM.

Figure 8: KYTC Highway Districts

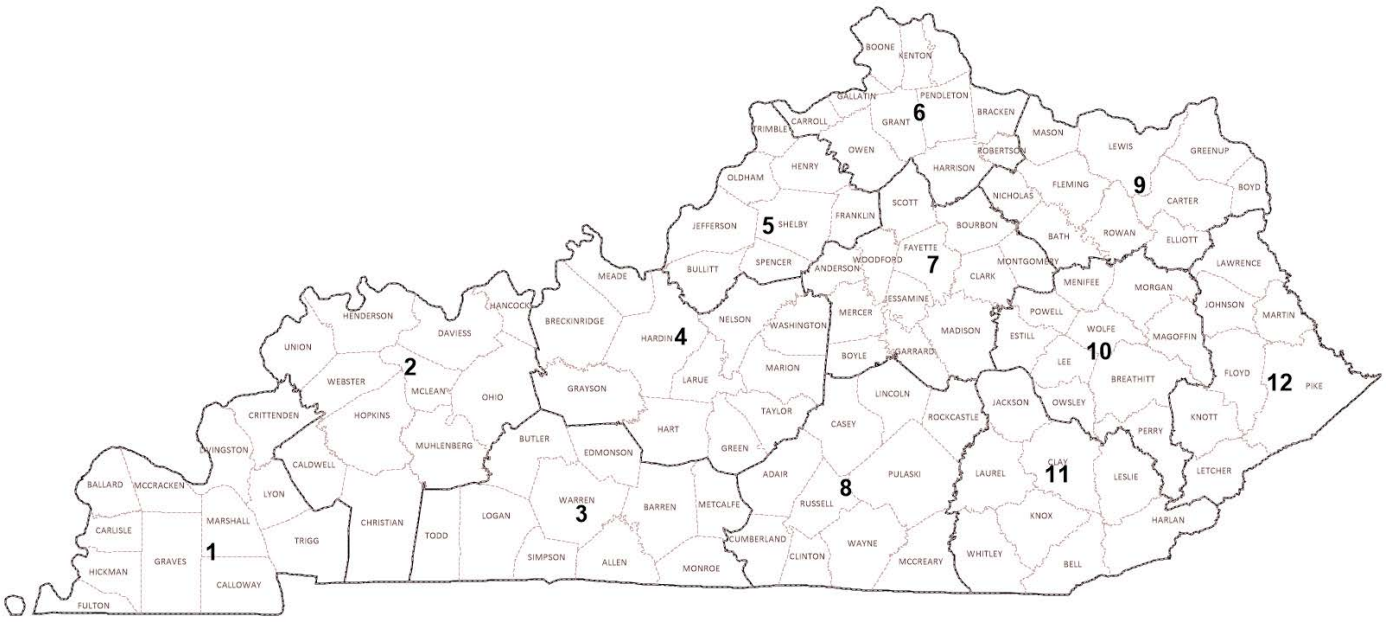


Table 6: 2018 Trip Origins by District

District	Zones	Existing	MD	Existing Share	MD Share
1	411	32,572	12,029	5.0%	2.8%
2	487	52,703	22,713	8.2%	5.4%
3	384	41,237	12,316	6.4%	2.9%
4	471	49,138	11,164	7.6%	2.6%
5	572	125,841	75,485	19.5%	17.9%
6	341	99,991	21,857	15.5%	5.2%
7	832	83,403	32,654	12.9%	7.7%
8	264	19,350	8,565	3.0%	2.0%
9	332	21,006	7,779	3.3%	1.8%
10	136	9,223	2,315	1.4%	0.5%
11	319	29,519	8,815	4.6%	2.1%
12	203	24,853	7,280	3.9%	1.7%
External	1220	56,300	199,191	8.7%	47.2%
Total	**5972**	**645,136**	**422,161**	**100.0%**	**100.0%**

Table 7: 2045 Trip Origins by District

District	Zones	Existing	MD	Existing Share	MD Share
1	411	50,983	18,412	5.0%	3.3%
2	487	73,209	28,164	7.2%	5.1%
3	384	62,285	16,303	6.1%	2.9%
4	471	72,843	13,695	7.1%	2.5%
5	572	196,515	116,034	19.3%	20.9%
6	341	172,411	40,363	16.9%	7.3%
7	832	134,457	40,618	13.2%	7.3%
8	264	28,106	10,438	2.8%	1.9%
9	332	30,776	7,501	3.0%	1.4%
10	136	13,192	2,610	1.3%	0.5%
11	319	43,254	10,596	4.2%	1.9%
12	203	36,825	5,976	3.6%	1.1%
External	1220	104,722	244,751	10.3%	44.1%
Total	**5972**	**1,019,578**	**555,461**	**100.0%**	**100.0%**