

2023 CREATE Program Truck Diversion Analysis
 Cambridge Systematics analysis of IDOT S&P 2019 Transearch data, STB Confidential Waybill Sample, & FAF 5

Diversion Time Period (risk of bridge closure leading to degraded performance and reduced terminal capacity)

Year	2019	2020	2021	2022	2026	2047	2048	2049	2050	2051	2052
TONNAGE											
Manifest Tons	12,561,389	12,968,378	13,388,553	13,822,343	29,712,114	30,674,787	31,668,650	32,694,714	33,754,023	34,847,653	35,976,717
Unit (non-coal) Tons	3,280,466	3,351,652	3,424,383	3,498,692	5,856,891	5,983,986	6,113,838	6,246,509	6,382,058	6,520,548	6,662,044
Unit (coal) Tons	2,884,796	2,867,199	2,849,709	2,832,326	2,445,500	2,430,583	2,415,756	2,401,020	2,386,374	2,371,817	2,357,349
Intermodal Tons	4,004,280	4,100,783	4,199,612	4,300,823	7,616,726	7,800,289	7,988,276	8,180,793	8,377,950	8,579,859	8,786,634
Total Tons	22,730,931	23,288,012	23,862,257	24,454,183	45,631,232	46,889,644	48,186,520	49,523,036	50,900,405	52,319,878	53,782,744
TRUCK EQUIVALENTS											
Manifest (Truck Unit Estimates)	579,196	597,962	617,336	637,338	1,370,003	1,414,391	1,460,218	1,507,529	1,556,373	1,606,799	1,658,859
Unit (non-coal) (Truck Unit Estimates)	189,710	193,826	198,032	202,330	338,705	346,055	353,564	361,236	369,075	377,084	385,267
Unit (coal) (Truck Unit Estimates)	139,841	138,988	138,140	137,297	118,546	117,823	117,104	116,390	115,680	114,974	114,273
Intermodal Units (Truck Unit Estimates)	194,795	199,490	204,297	209,221	370,529	379,458	388,603	397,969	407,560	417,382	427,441
Total Truck Estimates	1,103,542	1,130,266	1,157,806	1,186,186	2,197,783	2,257,727	2,319,489	2,383,123	2,448,687	2,516,239	2,585,840
Ton Miles											
Manifest (Highway Ton Miles)	3,125,056,419	3,226,308,247	3,330,840,634	3,438,759,871	7,391,860,308	7,631,356,582	7,878,612,535	8,133,879,581	8,397,417,279	8,669,493,599	8,950,385,192
Unit (non-coal) (Highway Ton Miles)	703,770,848	719,042,675	734,645,901	750,587,718	1,256,501,162	1,283,767,237	1,311,624,986	1,340,087,248	1,369,167,142	1,398,878,069	1,429,233,723
Unit (coal) (Highway Ton Miles)	539,102,510	535,813,985	532,545,519	529,296,992	457,008,208	454,220,458	451,449,713	448,695,870	445,958,825	443,238,476	440,534,721
Intermodal Units (Highway Ton Miles)	1,418,059,833	1,452,235,075	1,487,233,940	1,523,076,278	2,697,357,072	2,762,363,377	2,828,936,334	2,897,113,700	2,966,934,140	3,038,437,253	3,111,663,591
Total Ton Miles	5,785,989,610	5,933,399,982	6,085,265,995	6,241,720,858	11,802,726,749	12,131,707,654	12,470,623,569	12,819,776,399	13,179,477,386	13,550,047,397	13,931,817,227
Truck VMT											
Manifest (Highway Miles)	144,094,008	148,762,654	153,582,564	158,558,639	340,833,136	351,876,129	363,276,916	375,047,088	387,198,614	399,743,849	412,695,549
Unit (non-coal) (Highway Miles)	40,699,140	41,582,311	42,484,647	43,406,564	72,663,590	74,240,390	75,851,407	77,497,382	79,179,076	80,897,262	82,652,732
Unit (coal) (Highway Miles)	26,133,058	25,973,646	25,815,207	25,657,734	22,153,527	22,018,390	21,884,078	21,750,585	21,617,907	21,486,038	21,354,973
Intermodal Units (Highway Miles)	68,983,953	70,646,466	72,349,046	74,092,658	131,217,562	134,379,905	137,618,461	140,935,065	144,331,600	147,809,992	151,372,213
Total VMT	279,910,159	286,965,078	294,231,465	301,715,596	566,867,815	582,514,815	598,630,861	615,230,121	632,327,196	649,937,140	668,075,467
Avoided Ton Miles of trucked cargo						328,980,905	667,896,819	1,017,049,650	1,376,750,637	1,747,320,648	
Avoided VMT of trucked cargo						15,647,000	31,763,047	48,362,306	65,459,382	83,069,325	
					Diverted % of VMT	3%	5%	8%	10%	13%	

Factors	Values	Source/notes
Markets eligible for diversion	N/A	Railroad Units Eligible for Diversion: To/From Chicago from Midwest markets <500 roadway miles (Minneapolis, Omaha, Nashville, London ON, Wisconsin, Iowa, Illinois, Missouri, Indiana, Kentucky, Michigan, Ohio), Excluding Through Traffic
Tonnage (rows 5:9)	c5:c9	2019 data based on Cambridge Systematics analysis of S&P Transearch and STB carload waybill sample analysis
Trip distance used in tonnage and ton mile calculations (rows 19:23 and 26:30)	average 255 miles	Highway distance between markets (county or BEA level) and Cook County, calculated using Google data by Cambridge Systematics
Diversion begin (reduced terminal capacity and degraded performance due to risk of bridge closures)	2047	HNTB/HDR Analysis of AAR Data
Diversion end	2052	HNTB/HDR Analysis of AAR Data
Traffic Type Definition	N/A	Intermodal traffic includes all Intermodal traffic as classified by the STB Waybill Data Sample. Carload rail was divided into three categories based on commodities at the 2-digit STCC level: Unit-Coal (STCC code 11), Unit Except Coal (STCC codes 01, 10, 13, adn 14), and Manifest (all other STCC codes).
Payload Factors by Traffic Type (Tons per truck)	rows 12:16	S&P Global. Payload factors are a weighted average of 2019 rail tons by 2-digit STCC code using the tons per truck factors provided by S&P Global. Where there was more than one Payload factor supplied for a STCC code, the lesser payload factor was applied.
	Intermodal 20.55637	
	Carload Manifest 21.68762	
	Carload Unit (Except Coal) 17.29203	
	Coal Unit 20.62914	

Forecast Summary

Freight Traffic Type (Regional Forecasts)	Thru Traffic CAGR	In/Out/Intra Traffic CAGR	All Traffic CAGR
Intermodal	1.25%	2.41%	1.81%
Carload Rail (Regional, FAF5)	0.80%	2.81%	1.85%
Manifest	2.43%	3.24%	2.86%
Unit (Except Coal)	-0.05%	2.17%	1.49%
Coal Unit	-4.61%	-0.61%	-4.41%
Combined Intermodal/Carload Rail	1.01%	2.64%	1.83%

Cambridge Systematics analysis of FAF 5.4.1 data, 7/28/2023