

3.3.5 Assessing Vulnerability: Analyzing Develop Trends

Population Growth

The Kentucky State Data Center at the University of Louisville, projects population growth based on the most recent census data. Table 3.3.5.1 illustrates the population growth for each of the eight counties in the Lincoln Trail Region as well as the entire region. At the time of writing, there has been no additional population projections made for the region, actual 2020 population figures are included.

Half of the counties within the region are expected to grow over the next 20 years, while the other half is expected to decrease. Hardin county is expected to see the largest percentage increase of 19.92%. Meade County is expected to see the largest percentage decrease of 12.14%. Meanwhile, the entire region is expected to see an increase of 9.19%.

Tracking population growth offers the region the opportunity to assess how efficiently its first response and preparedness capabilities will effectively serve the population.

Jurisdiction	2015	2020	2020 Actual*	2025	2030	2035	2040	Projected Gain (2020-2024)
Breckinridge Co.	20,018	19,973	20,432	19,848	19,611	19,246	18,805	-5.85%
Grayson Co.	26,221	26,433	26,420	26,489	26,440	26,275	26,128	-1.15%
Hardin Co.	106,439	112,494	110,702	118,413	124,137	129,638	134,901	19.92%
Larue Co.	14,241	14,311	14,867	14,348	14,309	14,197	14,040	-1.89%
Marion Co.	19,365	19,640	19,581	19,824	19,929	19,961	19,909	1.37%
Meade Co.	27,924	27,395	30,003	26,780	26,025	25,127	24,068	-12.14%
Nelson Co.	45,126	47,473	46,738	49,702	51,695	53,337	54,752	15.33%
Washington Co.	12,063	12,354	12,027	12,656	12,904	13,079	13,198	6.83%
Lincoln Trail Region	271,397	280,073	280,770	288,060	295,050	300,860	305,801	9.19%

Source: Kentucky State Data Center, University of Louisville, 2020
** 2020 US Census*

Housing

In addition to an increase in population, each county in the Lincoln Trail Region has realized an increase in housing units and number of households. With these increases, each county must assess its level of resiliency and preparedness to meet the needs and responsibility of additional residents and property. Table 3.3.5.2 summarizes the population, number of households and number of housing units in each county in 2010. Table 3.3.5.3 immediately below it, shows the number of households and housing units in each county in 2020, and the increase since the 2010 census.

Table 3.3.5.2 - Households and Housing Units in Lincoln Trail Region - 2010

County	Population	Housing Units	Households
Breckinridge Co.	20,059	10,592	7,213
Grayson Co.	25,743	13,506	9,897
Hardin Co.	105,543	44,211	39,401
LaRue Co.	14,193	6,198	5,221
Marion Co.	19,820	8,164	7,368
Meade Co.	28,602	11,891	10,342
Nelson Co.	43,437	18,189	16,571
Washington Co.	11,717	5,034	4,480

Source: U.S. Census Bureau – 2010 Census

Table 3.3.5.3 - Households and Households in the Lincoln Trail Region - 2020

County	Housing Units	% change from 2010 to 2020	Households*	% change from 2010 to 2020 (2019 Estimates)*
Breckinridge Co.	10,704	1.06%	7,598	5.34%
Grayson Co.	13,275	-1.71%	9,758	1.40%
Hardin Co.	46,669	5.56%	41,646	5.70%
LaRue Co.	6,474	4.45%	5,741	9.96%
Marion Co.	8,350	2.28%	7,405	0.50%
Meade Co.	11,943	0.44%	10,685	3.32%
Nelson Co.	19,716	8.39%	17,853	7.74%
Washington Co.	5,196	3.22%	4,581	2.25%

Source: 2020 US Census
**U.S. Census Bureau – 2019 American Communities Survey*

Housing Growth

Table 3.3.5.4 shows data from the U.S. Census Bureau database concerning new, privately-owned, residential building permits reported by each of the eight counties in the Lincoln Trail Region. Most counties have seen a significant decline in residential construction over the past 20 years, due in part, to the decline in the economy and the reduction of troops and programs at Fort Knox. However, growth in Hardin County and Nelson County in recent has led to total increases across the Lincoln Trail region.

Jurisdiction	2004	2006	2008	2010	2012	2014	2020
Breckinridge Co. Total	21	12	10	5	5	2	2
Grayson Co. Total	1	0	1	12	6	2	10
Hardin Co. Total	936	872	433	714	273	212	595
LaRue Co. Total	88	56	25	33	38	36	37
Marion Co. Total	15	6	8	7	10	10	58
Meade Co. Total	140	147	113	145	79	79	130
Nelson Co. Total	416	328	183	146	112	176	282
Washington Co. Total	5	7	3	2	7	8	12
LTADD Total	1622	1428	776	1064	530	525	1126

Source: U.S. Bureau of the Census

Land Use

There has been no significant change in land use within the Lincoln Trail Region over the last five years. The growth areas of Hardin and Nelson Counties have continued to realize some population growth, and several counties have completed work on highway bypass projects. However, the region remains largely rural in nature and has a strong agricultural presence. According to the U.S. Department of Agriculture's Natural Agriculture Statistics Services (NASS), there were 1,476,006 acres of farmland in the Region in 2017. Across each county's farmland acreage approximately 51.37% is used as cropland, 23.5% as pastureland, 20.87% as woodland, and 4.75% for other purposes.

The economic impact of agricultural activities in the region is significant. In 2017, NASS estimated the value of agricultural products sold was \$466,884,000.00. Of that amount, about \$ 252,310.00 was in crop sales and \$ 214,574.00 in the sale of livestock.

Changes and development in the region are guided and controlled by the comprehensive plans of each jurisdiction, and development in hazard prone areas is restricted.

Table 3.3.5.5 summarizes agricultural land use and data for each of the eight counties in the region. The data illustrates that between 1997 and 2017, each county in the Lincoln Trail region averaged a 9.45% decrease in the number of farms, a decrease of 1.6% in the number of acres of land used for farmland; and an overall increase of about 83.64% in the estimated market value of farm products sold.

Table 3.3.5.5 - Lincoln Trail Region Agricultural Statistics: 1997 to 2017

Jurisdiction	Year	Number of Farms	Number of Acres in Farmland	Estimated Market Value of Farm Products Sold
Breckinridge County	1997	1,501	281,261	\$32,712,000
	2002	1,443	276,456	\$28,714,000
	2007	1,509	274,473	\$56,081,000
	2012	1,304	259,774	\$79,537,000
	2017	1,357	275,105	\$99,439,000
% Change from 1997 to 2017				
		-9.59%	-2.18%	203.98%
Grayson County	1997	1,568	221,081	\$34,860,000
	2002	1,650	233,136	\$31,642,000
	2007	1,513	216,492	\$41,192,000
	2012	1,407	200,895	\$45,663,000
	2017	1,339	212,343	\$59,578,000
% Change from 1997 to 2017				
		14.60%	-3.95%	70.90%
Hardin County	1997	1,854	236,346	\$40,418,000
	2002	1,732	239,740	\$35,898,000
	2007	1,588	222,267	\$46,907,000
	2012	1,357	202,970	\$57,949,000
	2017	1,305	199,201	\$59,242,000
% Change from 1997 to 2017				
		-29.61%	-15.71%	46.57%
LaRue County	1997	896	122,658	\$25,272,000
	2002	888	134,410	\$21,057,000
	2007	811	125,432	\$26,579,000
	2012	720	111,975	\$41,877,000
	2017	718	110,371	\$41,112,000
% Change from 1997 to 2017				
		-19.86%	-10.01%	62.67%

Marion County	1997	1,072	172,011	\$34,336,000
	2002	1,054	171,252	\$28,754,000
	2007	1,055	160,684	\$39,653,000
	2012	1,016	166,417	\$56,491,000
	2017	954	162,949	\$60,230,000
% Change from 1997 to 2017				
		-11.01%	-5.27%	75.41%
Meade County	1997	964	129,046	\$19,480,000
	2002	955	134,771	\$16,171,000
	2007	887	121,448	\$28,712,000
	2012	754	119,495	\$36,571,000
	2017	781	141,054	\$45,793,000
% Change from 1997 to 2017				
		-18.98%	9.31%	135.08%
Nelson County	1997	1,401	185,507	\$39,525,000
	2002	1,407	189,104	\$33,242,000
	2007	1,406	196,225	\$54,803,000
	2012	1,326	187,755	\$64,439,000
	2017	1,434	213,534	\$67,099,000
% Change from 1997 to 2017				
		2.35%	15.11%	69.76%
Washington County	1997	1,142	162,741	\$32,833,000
	2002	1,119	149,739	\$27,060,000
	2007	1,119	162,993	\$33,000,000
	2012	1,011	140,948	\$33,770,000
	2017	1,102	161,449	\$34,391,000
% Change from 1997 to 2017				
		-3.50%	-0.08%	4.74%
<i>Source: U.S. Department of Agriculture, National Agriculture Statistics Service</i>				

Economic and Social Growth

According to the *Lincoln Trail Occupational Outlook to 2024*, published by the Education and Workforce Development Cabinet, the Department of Workforce Investment and the Kentucky Office of Employment and Training, employment in the Lincoln Trail Region is projected to grow from a 2014 level of 90,037 to 99,094 by 2024: a projected gain of 10.06%.

Total annual job openings are expected to be about 3,094, with an annual growth in job openings of approximately 956. About 2,138 of the annual job openings are expected to result from separations from the labor force due to retirements or job transfers. 31% percent of job openings will result from growth, with the remaining 69% resulting from separations from the labor force.

The greatest number of annual job openings is expected to be in Production Occupations, followed by Office and Administrative Support Occupations and Sales and Related Occupations. The two occupations with the greatest number of job openings are Combined Food Preparation and Serving Workers, Including Fast Food and Team Assemblers.

The highest growth rate occupations for the decade are most likely to be:
 Healthcare Support Occupations (16.03%)
 Healthcare Practitioners and Technical Occupations (15.72%)
 Computer and Mathematical Occupations (15.42%)

Table 3.3.5.6 - Lincoln Trail Region Industrial Sites by County	
Breckinridge County	Meade County
Breckinridge County Commerce Park Old Cloverport Holt Road Site	Wolf Creek -- Preliminary Site 163-013
Grayson County	Nelson County
Judge K.H. Goff Industrial Park 085-001	Wilson Industrial Park 179-003
Leitchfield Industrial Site 085-008	Bardstown -- Nelson County Industrial Park
	Bardstown TEBCO 179-009
	C Ballard Property
Hardin County	Washington County
Hughes Center of Commerce & Industry	Washington County Commerce Center 229-004
T.J. Patterson Industrial Park 093-003	Springfield -- Terrell Ridge Site 229-005
Millpond Business Center 093-004	
Glendale Mega Site 093-005	
Marion County	
Crossroads Industrial Park 155-004	
<i>Source: Kentucky Cabinet for Economic Development 2021</i>	

Table 3.3.5.7 – Employment by Type and County (U.S. Census Bureau)

Type of Employment	Breckinridge				Grayson				Hardin				LaRue			
	2005	2010	2015	2020	2005	2010	2015	2020	2005	2010	2015	2020	2005	2010	2015	2020
Year	2005	2010	2015	2020	2005	2010	2015	2020	2005	2010	2015	2020	2005	2010	2015	2020
Accommodation and Food Services	223	207	229	232	443	471	530	608	3,623	4,086	4,788	4,156	177	190	193	171
Admin. & Support, Waste Man. & Remediation Services	27	**	22	23	486	319	306	275	2,115	2,535	4,037	2,269	58	90	84	130
Agriculture, Forestry, Fishing & Hunting	18	15	19	14	30	29	21	12	50	24	32	58	10	32	38	48
All Gov't	909	943	913	803	1,639	1,708	1,689	1,475	11,131	13,720	13,194	11,460	636	658	641	489
Arts, Entertainment, and Recreation	17	**	**	28	40	14	14	20	151	145	184	287	34	30	19	11
Construction	268	223	195	270	434	401	336	389	2,075	1,311	1,158	1,248	201	173	275	163
Education	**	**	**	**	0	0	**	**	116	194	237	85	**	0	0	0
Finance & Insurance	131	122	131	139	202	234	254	221	1,691	1,425	1,310	1,299	131	149	123	138
Health Care and Social Assistance	428	506	524	535	675	726	748	746	3,614	4,088	3,938	3,976	258	379	413	312
Information	34	28	**	**	44	43	28	30	867	932	809	872	**	**	**	**
Man. of Companies/Enterprises	**	**	**	0	**	**	**	**	166	346	517	871	0	0	0	0
Manufacturing	246	229	293	287	2,324	1,482	1,975	1,628	6,123	4,616	7,271	6,629	706	469	538	448
Mining, Quarrying, & Oil & Gas Extraction	24	30	**	**	**	**	**	**	**	**	**	**	0	0	0	0
Other Services (except Public Admin.)	57	99	81	59	77	141	150	89	1,166	1,243	1,327	998	83	87	75	77
Professional, Scientific, & Technical Services	47	64	132	86	64	70	66	60	1,617	1,788	1,472	1,255	28	27	35	33
Real Estate & Rental & Leasing	22	39	39	27	49	80	59	56	390	438	407	511	12	5	4	5
Retail Trade	478	520	517	522	1,111	1,061	1,022	1,013	5,849	5,813	5,917	5,759	226	209	202	217
Transportation and Warehousing	54	41	48	58	106	97	101	57	889	833	899	1,145	65	35	45	40
Unclassified	0	**	0	0	**	**	0	**	**	**	8	5	**	0	0	**
Utilities	**	**	**	**	**	**	**	**	**	**	**	134	0	**	**	**
Wholesale Trade	79	87	218	198	287	325	374	349	725	721	723	726	31	22	12	8

Type of Employment	Marion				Meade				Nelson				Washington			
	2005	2010	2015	2020	2005	2010	2015	2020	2005	2010	2015	2020	2005	2010	2015	2020
Year	2005	2010	2015	2020	2005	2010	2015	2020	2005	2010	2015	2020	2005	2010	2015	2020
Accommodation and Food Services	438	522	371	325	377	419	400	458	912	887	1,304	1,296	193	205	189	175
Admin. & Support, Waste Man. & Remediation Services	822	602	241	188	29	44	31	56	791	1,050	856	557	76	56	42	48
Agriculture, Forestry, Fishing & Hunting	40	14	**	**	7	10	19	17	10	11	51	40	30	21	47	66
All Gov't	974	1,016	779	906	1,103	1,155	1,149	674	1,839	1,925	1,973	1,528	530	506	550	391
Arts, Entertainment, and Recreation	41	23	39	21	**	**	**	**	107	85	92	69	**	**	**	**
Construction	193	172	216	201	368	426	386	387	1,405	964	1,118	1,337	283	191	272	284
Education	0	**	**	**	**	**	**	0	36	41	34	31	**	**	**	0
Finance & Insurance	127	135	147	143	112	114	125	129	364	331	348	355	82	88	88	81
Health Care and Social Assistance	708	814	975	893	280	302	271	331	1,515	1,619	1,637	1,579	211	251	322	377
Information	**	27	**	**	95	124	95	86	109	105	109	89	**	**	**	**
Man. of Companies/Enterprises	0	**	**	**	**	0	**	**	**	**	**	**	41	0	0	0
Manufacturing	2,885	2,742	3,757	2,786	289	300	367	336	3,991	3,624	4,154	4,891	911	843	1,055	1,068
Mining, Quarrying, & Oil & Gas Extraction	0	0	0	0	99	105	110	125	**	**	**	**	**	**	0	0
Other Services (except Public Admin.)	86	159	123	122	142	194	192	160	269	337	345	262	81	108	121	92
Professional, Scientific, & Technical Services	90	84	130	124	46	148	72	86	225	237	240	265	32	30	35	34
Real Estate & Rental & Leasing	23	13	22	16	81	85	91	88	78	62	92	91	14	7	**	**
Retail Trade	555	688	650	620	669	615	607	639	1,809	1,757	1,829	1,868	259	257	253	235
Transportation and Warehousing	57	35	104	90	94	37	34	39	356	464	556	557	80	84	96	87
Unclassified	0	0	**	**	**	0	**	0	21	**	**	6	**	0	**	**
Utilities	0	0	0	0	**	**	**	**	**	**	**	**	**	0	0	0
Wholesale Trade	92	135	224	176	52	34	50	27	390	399	458	507	76	68	98	137

Source: Kentucky Center for Statistics: Labor Market Information

3.3.6 Multi-Jurisdictional Risk Assessment

Overall Summary

As previously stated, most of the natural hazards documented to significantly affect the Lincoln Trail Region, do not adhere to geographic boundaries. The exceptions are floods, landslides, and karst. That data enabled the LTHMC to determine that the entire region is at risk for those hazards identified in table 3.3.1.1. On a more definitive level, the tables below summarize the degree or level of risk each hazard poses to the individual counties and the region, as it pertains to the annual frequency chance and economic loss. With limited data at the city level for each hazard, any data that was gathered was merged to create a comprehensive county risk level. For county specific frequency percentages please refer to table 3.3.2.1, or for dollar loses, table 3.3.4.9

Risk Level	Frequency Chance Per year
High Risk Hazard	61%+
Moderate Risk Hazard	31%-60%
Low Risk Hazard	11%-30%
Negligible Risk Hazard	0%-10%

Table 3.3.6.1 - Risk Level based on Historical Frequency Chance Per Year

Economic Loss: In reviewing the economic loss table below, an annual loss of \$100,000 for an entire county may not seem to justify being categorized as “High Risk”. For a large metropolitan area, it probably shouldn’t be. However, six of the eight Lincoln Trail Region counties have less than 30,000 residents and three of the six have populations less than 20,000. The limited tax base and low-to- moderate-income (LMI) index* in most of these areas further exacerbates their circumstances and it is difficult for them to handle even the “Low Risk” hazards. Few of the Lincoln Trail jurisdictions have a LMI below 40% while only some have a LMI over 50%. In an area where 40%+ of the families have an income below 80% of the median, local units of government experience immense social and economic responsibilities that are compounded by the damages caused by annual weather events.

*Low to Moderate Income Index: Low- or moderate-income census tracts are considered to be those in which the median family income is below 80% of the median family income for the Metropolitan Statistical Area (MSA) or Primary Metropolitan Area (PMSA) in which they are located.

Risk Level	Economic Loss Per Year
High Risk Hazard	\$100,000+
Moderate Risk Hazard	\$50,000-\$99,999
Low Risk Hazard	\$25,000-\$49,999
Negligible Risk Hazard	0-\$24,999

Table 3.3.6.2 - Risk Level based on Annual Historical Economic Loss

	Thunderstorms/ Winds	Floods	Hail	Lightning	Snow & Ice	Tornados
Breckinridge	Low	High	Moderate	Negligible	Low	Moderate
Grayson	Low	High	Moderate	Negligible	Low	High
Hardin	High	High	High	Low	Low	High
LaRue	Low	High	Low	Negligible	Negligible	Moderate
Marion	Low	High	High	Negligible	Low	Negligible
Meade	Low	High	High	Negligible	Negligible	High
Nelson	Low	High	High	Negligible	Low	Low
Washington	Low	High	High	Negligible	Low	Low
LTADD	Low	High	High	Negligible	Low	High