MID-STATES CORRIDOR

APPENDIX FF - AGRICULTURAL IMPACTS

Mid-States Corridor
Tier 1 Environmental Impact Statement

Prepared for

Indiana Department of Transportation

Mid-States Corridor Regional Development Authority

DECEMBER 8, 2022 *UPDATED JUNE 7, 2023*

Prepared by

Mid-States Corridor Project Consultant

INDIANA DEPARTMENT OF TRANSPORTATION INDOT

LOCHMUELLER GROUP
Reinvent Your Future

TABLE OF CONTENTS

Tables

Figures

AGRICULTURAL IMPACTS

Introduction

The purpose of this section is to provide additional details regarding the potential agricultural land impacts by the alternatives. The tables in this appendix will present impacts according to the various sections of each alternative.

Approximately 31 percent of the total land area for the 12-county Mid-States Tier 1 Study Area is agricultural (pasture/hay, row crops, and small grains). Approximately ten percent of the total prime farmland in Indiana is within the Mid-States Tier 1 Study Area. The area also contains a major poultry and poultry product producer. Any impacts to major structures used for agribusiness, such as poultry facilities, will be addressed in **Section 3.5 - Relocation Impacts.**

Resource Analysis

To analyze the losses of production cost per alternative, the total values use a range of costs for pasturelands, from $349/acre to $605/acre. These values were determined assuming hay is grown on pasture land and corn is grown on cropland . These values were calculated based on data available from the 2020 State Agriculture Overview for the state of Indiana. The data was collected by the United States Department of Agriculture (USDA) – National Agricultural Statistics Service.[1]

Alternative B is the only alternative with a corridor that traverses the study area west of Huntingburg and Jasper. This portion of the study area is generally more suitable to agricultural production. While this alternative requires the least amount of proposed right-of-way acquisition; the data shows that comparatively, Alternative B would have the most right-of-way acquisition that is categorized as agricultural lands (cropland and pastureland; **Table 1**). A more in-depth examination of Alternative B indicates over 1/3 of the soils are considered prime farmland. Furthermore, this alternative has the highest potential for impacts to agricultural production, as shown in **Table 1**. Alternative B estimates a total annual production loss of $1,406,000 for the expressway facility type and $1,337,000 for the Super-2 facility type.

Alternative C is a unique alternative sharing a corridor with alternative M, O, P and RPA P east around Huntingburg and Japer, until diverging west toward I-69 north of the White River. Like Alternative B, greater that 50 percent of the total working alignment is considered agriculture; however, it has the lowest impacts to prime farmland with only 234 acres associated with the Super-2 facility type and 321 acres associated with the expressway facility type (**Table 2**). Additionally, this alternative has the lowest potential for impacts to agricultural production. The total annual production loss for Alternative C is $1,101,000 for the expressway facility type and $780,000 for the Super-2 facility type. Local improvements (LI) for Alternative C only account for 29 acres of impacts to agricultural lands.

Alternative M is the longest alternative covering the most miles within the 12-County Study Area, traversing east of Huntingburg and Jasper and continuing northeast toward Bedford. This alternative also requires the most right-of-way acquisition of all the alternatives. While only 35 to 38 percent of the

[1] Data for value per acreage of farmland utilized the USDA database for commodities and overview for the state of Indiana. Values and determinants can be located at https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=INDIANA.

Alternative M working alignment is within agriculture land use, it still accounts for the highest total of agricultural acres impacted (**Table 3**). Furthermore, Alternative M also maintains the most acres required for the associated local improvements. While Alternative M has the most acres, only 39 percent of the soil is considered prime; however, estimates of total annual production loss are the second highest.

Alternative O is one of the least impactful alternatives regarding total acres of cropland and loss of farm income (**Table 4**). The expressway would impact more than the Super-2 facility type for Alternative O, but the total amount of agricultural land is less than 1,300 acres and only approximately 27 percent of these lands were considered prime farmland. As such, the annual loss to farm income was estimated between $852,000 to $971,000.

Alternative P has the second greatest range of impacts, containing the east and west variations around Loogootee (**Tables 5 and 6**). The data indicates this alternative would have some of the highest impacts to agricultural lands, prime farmland, and loss of annual agricultural income.

RPA P has the greatest range of impacts as it contains several variations around Loogootee (**Table 6a**). The data indicates this alternative would have some of the highest impacts to agricultural lands and loss of annual agricultural income. Of the four RPA P options, RPA P1 would have the greatest impact to agricultural lands and annual agricultural income while RPA P2 would be the least impactful. RPA P4 would have the highest impacts to prime farmland soils, impacting 693 acres, while RPA P2 would have the least amount of impacts to prime farmland soils, impacting 495 acres.

Alternative R is the least impactful alternative regarding total acres of cropland and loss of farm income (**Table 6a**). The total amount of agricultural land is less than 250 acres. As such, the annual loss to farm income was estimated between $134,000 to $167,000.

Each Alternative incorporates a series of local improvements. These impact totals are included in Tables 1 to 6 but identified individually in **Table 7**.

TABLE 1: POTENTIAL AGRICULTURAL IMPACTS, ALTERNATIVE B

Alternative B: Impacts to Agricultural Land and Agricultural Income									
Facility Type	**Alternative**	**Section**	**Cropland[b] (acres)**	**Loss of Cropland Production Income [c] (Thousand $)**	**Pastureland / Hay [b] (acres)**	**Loss of Hay Production Income [d] (Thousand $)**	**Total Agricultural Land Use in the Working Alignment (acres)**	**Total Loss of Select [e] Agriculture Production Income (Thousand $)**	**Prime Farmland Soils (acres) [f]**
Expressway	**B2**	**2- Working Alignment**	852	709	76	27 to 46	928	736 to 755	297
		2-LI	36	30	14	5 to 8	50	35 to 38	26
		3- Working Alignment	595	495	180	63 to 109	775	558 to 604	279
		3-LI	9	8	1	0 to 1	10	8 to 9	1
		Total- Working Alignment	1,447	1,203	256	90 to 155	1,703	1,293 to 1,358	575
		Total-LI	46	38	15	5 to 9	61	43 to 47	27
		Grand Total	**1,492**	**1,242**	**271**	**95 to 164**	**1,763**	**1,337 to 1,406**	**602**
Super-2	**B3**	**2- Working Alignment**	668	556	61	21 to 37	729	577 to 593	238
		2-LI	36	30	14	5 to 8	50	35 to 38	26
		3- Working Alignment	553	460	175	61 to 106	728	521 to 566	265
		3-LI	9	8	1	0 to 1	10	8 to 9	1
		Total- Working Alignment	1,221	1,016	235	82 to 142	1,457	1,098 to 1,158	503
		Total-LI	46	38	15	5 to 9	61	43 to 47	27
		Grand Total	**1,267**	**1,054**	**250**	**87 to 151**	**1,517**	**1,141 to 1,205**	**531**

TABLE 2: POTENTIAL AGRICULTURAL IMPACTS, ALTERNATIVE C

Alternative C: Impacts to Agricultural Land and Agricultural Income									
Facility Type	**Alternative**	**Section**	**Cropland[b] (acres)**	**Loss of Cropland Production Income[c] (Thousand $)**	**Pastureland / Hay[b] (acres)**	**Loss of Hay Production Income[d] (Thousand $)**	**Total Agricultural Land Use in the Working Alignment (acres)**	**Total Loss of Select[e] Agriculture Production Income (Thousand $)**	**Prime Farmland Soils (acres)[f]**
Expressway	**C2**	**2- Working Alignment**	612	509	136	47 to 82	748	556 to 591	199
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	466	387	165	58 to 100	631	445 to 487	98
		3-LI	-		-	0 to 0	-	0 to 0	
		Total- Working Alignment	1,078	897	301	105 to 182	1,379	1,002 to 1,079	297
		Total-LI	21	17	8	3 to 5	29	20 to 22	24
		Grand Total	**1,099**	**914**	**309**	**108 to 187**	**1,408**	**1,022 to 1,101**	**321**
Super-2	**C3**	**2- Working Alignment**	436	363	104	36 to 63	540	399 to 426	130
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	377	313	137	48 to 83	513	361 to 396	81
		3-LI	-		-	0 to 0	-	0 to 0	
		Total- Working Alignment	813	676	240	84 to 145	1,053	760 to 821	211
		Total-LI	21	17	8	3 to 5	29	20 to 22	24
		Grand Total	**833**	**693**	**248**	**87 to 150**	**1,082**	**780 to 843**	**234**

TABLE 3: POTENTIAL AGRICULTURAL IMPACTS, ALTERNATIVE M

Alternative M: Impacts to Agricultural Land and Agricultural Income									
Facility Type	**Alternative**	**Section**	**Cropland[b] (acres)**	**Loss of Cropland Production Income [c] (Thousand $)**	**Pastureland / Hay [b] (acres)**	**Loss of Hay Production Income [d] (Thousand $)**	**Total Agricultural Land Use in the Working Alignment (acres)**	**Total Loss of Select [e] Agriculture Production Income (Thousand $)**	**Prime Farmland Soils (acres) [f]**
Expressway	**M2**	**2- Working Alignment**	612	509	136	47 to 82	747	556 to 591	199
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	622	518	414	144 to 250	1,036	662 to 768	480
		3-LI	30	25	14	5 to 9	44	30 to 34	22
		Total- Working Alignment	1,234	1,027	549	192 to 332	1,784	1,219 to 1,359	679
		Total-LI	51	42	23	8 to 14	73	50 to 56	46
		Grand Total	**1,285**	**1,069**	**572**	**200 to 346**	**1,857**	**1,269 to 1,415**	**724**
Super-2	**M3**	**2- Working Alignment**	436	363	104	36 to 63	540	399 to 426	130
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	487	405	365	127 to 221	852	532 to 626	395
		3-LI	30	25	14	5 to 9	44	30 to 34	22
		Total- Working Alignment	923	768	468	163 to 283	1,391	931 to 1,051	525
		Total-LI	51	42	23	8 to 14	73	50 to 56	46
		Grand Total	**973**	**810**	**491**	**171 to 297**	**1,465**	**981 to 1,107**	**571**

TABLE 4: POTENTIAL AGRICULTURAL IMPACTS, ALTERNATIVE O

Alternative O: Impacts to Agricultural Land and Agricultural Income									
Facility Type	Alternative	Section	Cropland[b] (acres)	Loss of Cropland Production Income [c] (Thousand $)	Pastureland / Hay [b] (acres)	Loss of Hay Production Income [d] (Thousand $)	Total Agricultural Land Use in the Working Alignment (acres)	Total Loss of Select [e] Agriculture Production Income (Thousand $)	Prime Farmland Soils (acres) [f]
Expressway	O2	2- Working Alignment	572	476	142	49 to 86	714	525 to 562	171
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	282	235	324	113 to 196	606	348 to 431	182
		3-LI	12	10	20	7 to 12	32	17 to 22	1
		Total- Working Alignment	854	711	466	163 to 282	1,320	874 to 993	353
		Total-LI	33	28	28	10 to 17	61	38 to 45	25
		Grand Total	**887**	**738**	**494**	**172 to 299**	**1,381**	**910 to 1,037**	**378**
Super-2	O3	2- Working Alignment	434	361	111	39 to 67	545	400 to 428	121
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	200	166	284	99 to 172	484	265 to 338	157
		3-LI	12	10	20	7 to 12	32	17 to 22	1
		Total- Working Alignment	634	528	395	138 to 239	1,029	666 to 767	279
		Total-LI	33	28	28	10 to 17	61	38 to 45	25
		Grand Total	**667**	**555**	**424**	**148 to 256**	**1,091**	**703 to 811**	**304**

TABLE 5: POTENTIAL AGRICULTURAL IMPACTS, ALTERNATIVE P-VARIATION PE (EAST LOOGOOTEE VARIATION)

Alternative Pe: Impacts to Agricultural Land and Agricultural Income									
Facility Type	**Alternative**	**Section**	**Cropland[b] (acres)**	**Loss of Cropland Production Income[c] (Thousand $)**	**Pastureland / Hay[b] (acres)**	**Loss of Hay Production Income[d] (Thousand $)**	**Total Agricultural Land Use in the Working Alignment (acres)**	**Total Loss of Select[e] Agriculture Production Income (Thousand $)**	**Prime Farmland Soils (acres)[f]**
Expressway	**P2e**	**2- Working Alignment**	612	509	136	47 to 82	748	556 to 591	199
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	730	607	211	74 to 128	941	681 to 735	478
		3-LI	23	19	28	10 to 17	50	29 to 36	33
		Total- Working Alignment	1,342	1,117	347	121 to 210	1,689	1,238 to 1,327	677
		Total-LI	44	36	36	12 to 22	79	48 to 58	56
		Grand Total	**1,386**	**1,153**	**383**	**134 to 232**	**1,768**	**1,287 to 1,385**	**733**
Super-2	**P3e**	**2- Working Alignment**	436	363	104	36 to 63	540	399 to 426	130
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	566	471	168	59 to 102	735	530 to 573	379
		3-LI	23	19	28	10 to 17	50	29 to 36	33
		Total- Working Alignment	1,002	834	272	95 to 164	1,274	929 to 998	509
		Total-LI	44	36	36	12 to 22	79	48 to 58	56
		Grand Total	**1,046**	**870**	**307**	**107 to 186**	**1,354**	**977 to 1,056**	**565**

TABLE 6: POTENTIAL AGRICULTURAL IMPACTS, ALTERNATIVE P-VARIATION PW (WEST LOOGOOTEE VARIATION)

Alternative Pw: Impacts to Agricultural Land and Agricultural Income									
Facility Type	**Alternative**	**Section**	**Cropland[b] (acres)**	**Loss of Cropland Production Income[c] (Thousand $)**	**Pastureland / Hay[b] (acres)**	**Loss of Hay Production Income[d] (Thousand $)**	**Total Agricultural Land Use in the Working Alignment (acres)**	**Total Loss of Select[e] Agriculture Production Income (Thousand $)**	**Prime Farmland Soils (acres)[f]**
Expressway	**P2w**	**2- Working Alignment**	612	509	136	47 to 82	748	556 to 591	199
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	746	620	259	90 to 156	1,004	710 to 776	425
		3-LI	23	19	28	10 to 17	50	29 to 36	33
		Total- Working Alignment	1,358	1,130	394	138 to 239	1,752	1,268 to 1,369	624
		Total-LI	44	36	36	12 to 22	79	48 to 58	56
		Grand Total	**1,402**	**1,166**	**430**	**150 to 260**	**1,832**	**1,316 to 1,426**	**680**
Super-2	**P3w**	**2- Working Alignment**	436	363	104	36 to 63	540	399 to 426	130
		2-LI	21	17	8	3 to 5	29	20 to 22	24
		3- Working Alignment	559	465	202	71 to 122	761	536 to 587	334
		3-LI	23	19	28	10 to 17	50	29 to 36	33
		Total- Working Alignment	995	828	306	107 to 185	1,301	935 to 1,013	464
		Total-LI	44	36	36	12 to 22	79	48 to 58	56
		Grand Total	**1,039**	**864**	**341**	**119 to 207**	**1,380**	**983 to 1,071**	**520**

TABLE 7: POTENTIAL AGRICULTURAL IMPACTS, REFINED PREFERRED ALTERNATIVE P

RPA P: Impacts to Agricultural Land and Agricultural Income									
Facility Type	Alternative	Section	Cropland[b] (acres)	Loss of Cropland Production Income[c] (Thousand $)	Pastureland / Hay[b] (acres)	Loss of Hay Production Income[d] (Thousand $)	Total Agricultural Land Use in the Working Alignment (acres)	Total Loss of Select[e] Agriculture Production Income (Thousand $)	Prime Farmland Soils (acres)[f]
Expressway	RPA P1	Total- Working Alignment	1,358	1,130	394	138 to 239	1,752	1,268 to 1,369	624
		Total-LI	44	36	36	12 to 22	79	48 to 58	56
		Grand Total	**1,402**	**1,166**	**430**	**150 to 260**	1,832	**1,316 to 1,426**	680
	RPA P3	Total- Working Alignment	1,278	1,063	398	139 to 241	1,676	1,202 to 1,304	634
		Total-LI	44	37	36	13 to 22	80	50 to 59	56
		Grand Total	**1,322**	**1,100**	**434**	**151 to 263**	1,756	**1,251 to 1,363**	690
	RPA P4	Total- Working Alignment	1,321	1,099	407	142 to 246	1,728	1,241 to 1,345	636
		Total-LI	44	37	36	13 to 22	80	50 to 58	56
		Grand Total	**1,365**	**1,136**	**442**	**154 to 267**	1,807	**1,290 to 1,403**	693
Super-2	RPA P1	Total- Working Alignment	995	828	306	107 to 185	1,301	935 to 1,013	464
		Total-LI	44	36	36	12 to 22	79	48 to 58	56
		Grand Total	**1,039**	**864**	**341**	**119 to 207**	1,380	**983 to 1,071**	520
	RPA P2	Total- Working Alignment	911	758	282	98 to 171	1,193	856 to 929	439
		Total-LI	44	37	35	12 to 21	79	49 to 58	56
		Grand Total	**955**	**795**	**317**	**111 to 192**	1,272	**905 to 986**	495
	RPA P3	Total- Working Alignment	936	779	295	103 to 178	1,231	882 to 957	459
		Total-LI	44	37	36	13 to 22	80	49 to 58	56
		Grand Total	**980**	**815**	**331**	**116 to 200**	1,311	**931 to 1,016**	515
	RPA P4	Total- Working Alignment	972	809	313	109 to 189	1,286	918 to 998	474
		Total-LI	44	37	36	13 to 22	79	49 to 58	56
		Grand Total	**1,016**	**845**	**349**	**122 to 211**	1,365	**967 to 1,056**	530

TABLE 7: POTENTIAL AGRICULTURAL IMPACTS, ALTERNATIVE R

Alternative R: Impacts to Agricultural Land and Agricultural Income									
Facility Type	*Alternative*	*Section*	Cropland[b] (acres)	Loss of Cropland Production Income[c] (Thousand $)	Pastureland / Hay [b] (acres)	Loss of Hay Production Income [d] (Thousand $)	Total Agricultural Land Use in the Working Alignment (acres)	Total Loss of Select [e] Agriculture Production Income (Thousand $)	Prime Farmland Soils (acres) [f]
Super-2	R	Grand Total	107	89	129	45 to 78	236	134 to 167	151

Notes Apply to Tables 1 to 7

Tier 1 Alternative impacts are reported in ranges including all the alternative variations and facility type options.
Facility type 1, freeways, has been removed from consideration. Therefore, no modifications to existing US 231 in Section 1 and existing SR 37 in Section 3 are anticipated. No impacts are anticipated on either of these facilities.
(b) Agriculture land use was obtained from the cropland and pastureland/hay classes of the 2016 National Landcover Dataset.
(c) Calculated at $832 per acre. Price per acre was determined from Corn (Grain) harvested acres and dollar value produced published in the 2020 State Agriculture Overview for the state of Indiana, USDA, NASS. [https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=INDIANA]
(d) Calculated at $349 per acre for the low price and $605 per acre for the high price. The price range reflects the differences in value ranging between alfalfa hay and other hay. Prices were determined from the harvested acres and the value produced of alfalfa hay and hay excluding alfalfa published in the 2020 State Agriculture Overview for the state of Indiana, USDA, NASS. [https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=INDIANA] Dollar value ranges reported in the table are determined by the minimum and maximum agriculture acreage and the minimum and maximum price per acre; showing the lowest and highest estimates from the least acres at the lowest price to the most acres at the highest price.
(e) Select production values summarized include cropland acres valued at grain corn prices and pastureland acres at a range of hay prices from alfalfa to other hay. The numbers presented here give a general overview for the purpose of fairly comparing highly variable areas to determine a study corridor. Determining a true loss of value for agriculture production requires a focus and in-depth study of land activities that is appropriate for Tier 2 level of investigation. The values in this table do not include other land production activities such as pasture grazing for cattle and other livestock production, the range of potential crop values and productivity, or agriculture operation improvements on the land such as poultry houses.
(f) Includes soils designated as "All prime farmland" in the NRCS soil data. Conditional prime farmland and farmland of statewide importance is NOT included. Prime farmland soils under "developed" land uses in NCLD Land Use data were not included as they can no longer be converted to agriculture.

TABLE 8: POTENTIAL AGRICULTURAL IMPACTS, LOCAL IMPROVEMENTS

Local Improvements*				Agricultural Land Impacts (acres)			
LI-#	Existing Road	Associated Alternatives	Section	Cropland	Pasture/Hay	Total Agricultural Land	Prime Farmland
LI-1	US 231	B, C, M, O, P, RPA P	2	8.8	0.5	9.3	6
LI-2	US 231	B, C, M, O, P, RPA P	2	3.9	6.4	10.3	0.8
LI-3	US 231	B, C, M, O, P, RPA P	2	0.005	0	0.0	10.8
LI-4	US 231	C, M, O, P, RPA P	2	0	0	0.0	0
LI-5	US 231	C, M, O, P, RPA P	2	8.1	1.3	9.4	5.9
LI-6	US 231	M, P, RPA P	3	12.9	3.7	16.6	7.8
LI-7	US 231	M, P, RPA P	3	4	6.7	10.7	6.5
LI-8	US 231	P, RPA P	3	1.7	5.7	7.4	3.8
LI-9	US 231	P, RPA P	3	4.3	11.4	15.8	14.5
LI-10	SR 56	B	2	14.2	1.1	15.2	0.8
LI-11	SR 257	B	2	9.6	5.7	15.3	7.3
LI-12	SR 257	B	3	9.3	1.1	10.4	1.3
LI-13	SR 450	M	3	12.9	2.3	15.2	4.9
LI-14	SR 450	M	3	0	1.7	1.7	3.1
LI-15	SR 56	O	3	4.6	12.1	16.7	0.7
LI-16	SR 56	O	3	6	0.7	6.7	0
LI-17	SR 145	O	3	0.6	4.8	5.4	0.5
LI-18	US 150	O	3	1.2	2.4	3.6	0

**Impact for Local Improvements are included with the impacts of the alternative(s) shown.*

FIGURE 1: AGRICULTURAL LANDS IN THE STUDY AREA

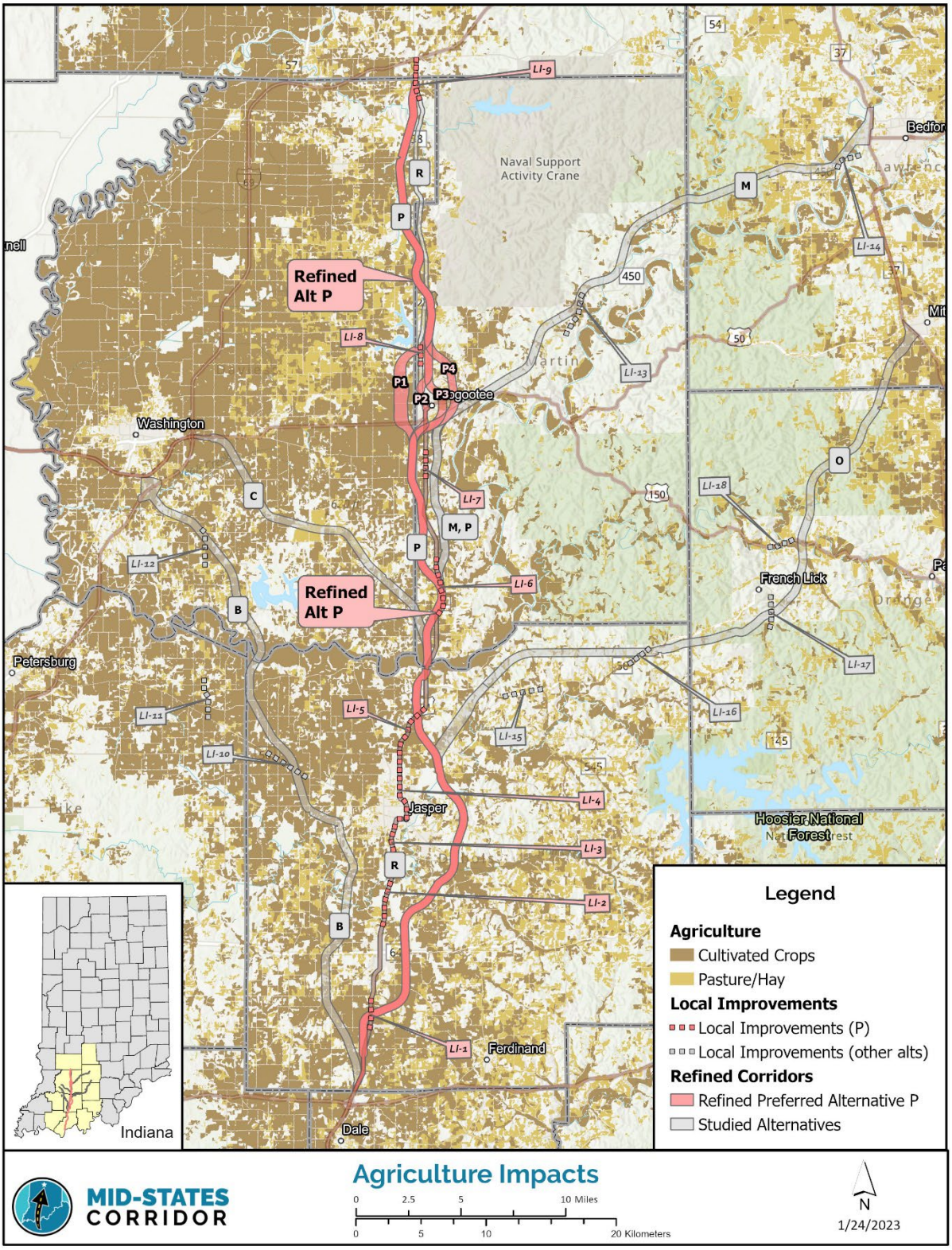

FIGURE 2: PRIME FARMLAND IN THE STUDY AREA