



## 5.5 Farmland

Impacts to agricultural lands resulting from direct conversion to transportation use were assessed in terms of prime farmland impacts (Farmland Conversion Impact Rating system), total number of existing farmland acres converted, and the potential annual loss in crop cash receipts.

The U.S. Department of Agriculture oversees the Farmland Protection Policy Act (FPPA). The Act's ultimate goal is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. The FPPA establishes the protocol and criteria to be used by federal agencies to (a) identify and take into account the adverse effects of their programs on the preservation of farmland, (b) consider alternative actions, as appropriate, that could lessen adverse effects, and (c) ensure that their programs are compatible with state and units of local government and private programs and policies to protect farmland. The FPPA does not provide authority to withhold Federal assistance for projects that convert farmland to non-agricultural uses.

For the purposes of implementing the FPPA, farmland is defined as prime or unique farmlands or farmland that is determined by the State or unit of local government agency to be farmland of statewide or local importance (7 CFR 658.2(a)). The USDA, NRCS defines prime farmland as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and that is available for these uses (i.e., land that could be cropland, pastureland, rangeland, forest land or other land). The NRCS generally identifies prime farmland in terms of the soil series and phase depicted as map units in each of the county soil surveys. In some instances, the series or a phase of the series is considered to be conditionally prime farmland only if it is drained, irrigated, or protected from frequent flooding.

Prime farmland does not include land already in or committed to urban development or water storage; however land utilized or designated for commercial, industrial or residential purposes is therefore, categorically excluded from consideration. Since this land is not available for agricultural production, it is not regarded as prime farmland. In such cases, expansion of the existing right-of-way would not be considered an impact to prime farmland, regardless of the soil type.

The guidelines for evaluation of program or project compliance with the FPPA using the Farmland Conversion Impact Rating (Form NRCS-CPA-106) system are outlined in 7 CFR 658.4. The NRCS is designated as the USDA agency responsible for providing assistance in the evaluation. Section 7 CFR 658.4(e) states that "[I]t is advisable that evaluations and analyses of prospective farmland conversion impacts be made early in the planning process before a site or design is selected, and that, where possible, agencies make the FPPA evaluations part of the National Environmental Policy Act (NEPA) process."

The methodology employed to assess the impact of each alternative on agricultural crop cash receipts follows the general outline provided in INDOT's Procedural Manual for Preparing Environmental Studies (1996). This approach looks at each county as an agricultural unit for which statistical data for production, cultivation, and commodity sales price can be averaged and used to calculate an annual crop loss estimate for acreages of farmland within each working alignment. All raw data used in this analysis was taken directly from the most recent three issues of the Indiana Agricultural Statistics (2000-2001 2001-2002 and 2002-2003). The latest three years of data available for acres of corn, soybean, wheat, popcorn and hay harvested in Marshall and St. Joseph counties was averaged as were the latest three years of production data (Table 5.5.17). Using the average acreage harvested and the average production, the average yield for each commodity was calculated. Average sale prices (dollars/bushel, dollars/pound or dollars/ton) were determined by averaging three years of statewide annual averages for each commodity (Table 5.5.18).



Table 5.5.17: Agricultural Harvest and Production Statistics for US 31 Counties

County	Crop	Harvested Area (acres) x1000				Production <sup>1</sup> X1000				Average Yield <sup>2</sup>
		2000	2001	2002	Average	2000	2001	20002	Average	
Marshall	corn	84.3	89.5	85.9	86.57	11167.4	13537.1	11014.5	11906.33	137.54
	soybeans	70.7	72.5	74.5	72.57	2989.5	3382.9	3201.7	3191.37	43.98
	wheat	4.3	3.0	3.0	3.43	263.3	177.1	148.4	196.27	57.17
	popcorn	2.3	2.3	2.3	2.34	6416.7	6416.4	6416.4	6416.51	2738.59
St. Joseph	hay	10.6	10.0	9.9	10.17	45.8	37.6	29.0	37.47	3.69
	corn	69.4	68.1	68.7	68.73	8994.1	9484.2	8640.6	9039.63	131.52
	soybeans	56.0	57.4	54.1	55.83	2256.5	2693.9	2144.5	2364.97	42.36
	wheat	3.5	0.0	0.0	1.17	230.8	0.0	0.0	76.93	65.94
	popcorn	0.2	0.2	0.2	0.24	620.2	620.2	620.2	620.20	2627.97
	hay	6.0	4.7	5.0	5.23	23.6	16.7	16.8	19.03	3.64

1 corn, soybeans and wheat reported in bushels; popcorn reported in pounds; hay reported in tons

2 corn, soybeans and wheat reported in bushels/acre; popcorn reported in pounds/acre; hay reported in tons/acre

Table 5.5.18: Average Crop Sales Prices for Indiana

Crop Type	1998-1999	1999-2000	2000-2001	Average
Corn	\$2.11/bushel	\$1.88/bushel	\$1.85/bushel	\$1.95/bushel
Soybean	\$5.05/bushel	\$4.71/bushel	\$4.75/bushel	\$4.84/bushel
Wheat	\$2.36/bushel	\$2.13/bushel	\$2.10/bushel	\$2.20/bushel
Popcorn	\$0.091/pound	\$0.090/pound	\$0.098/pound	\$0.093/pound
Hay	\$88.00/ton	\$91.00/ton	\$86.00/ton	\$88.33/ton

Because a certain percentage of farmland in a county is harvested as corn, a certain percentage is harvested as soybean and so on for wheat, popcorn and hay, these percentages for each county were applied to the farmland within the alignment of each alternative to reflect a proportional impact to each of these five principal farmland commodities. The five prorated percentages were calculated by taking the three-year average harvest acreage for each crop commodity and dividing it by the total three-year average harvest acreage for all four crops. Added together, the five prorated percentages for these crops within each county equal 100%. Calculating the dollar loss for each commodity within an individual county based on a specific farmland acreage purchase can then be achieved through the following equation:



$$CCL_{com} = CFA \times CPF_{com} \times CYR_{com} \times SAP_{com}$$

where:

**CCL<sub>com</sub>** is the county crop loss for a specific commodity (dollars)

**CFA** is the county farmland area within the right-of-way (acres)

**CPF<sub>com</sub>** is the county prorated factor for a specific commodity

**CYR<sub>com</sub>** is the county yield rate for a specific commodity (bushels/acre or tons/acre)

**SAP<sub>com</sub>** is the state average price for a specific commodity (dollars/bushel or dollars/ton)

Finally, the total crop cash receipt loss in dollars for each alternative was achieved by adding the appropriate commodity subtotals for each county and then adding the county subtotals (Table 5.5.19). To determine the annual percent loss in crop cash receipts for each county, the average annual crop cash receipts for Marshall and St. Joseph counties were determined using three years of recent data (Table 5.5.20). Using this county average data, the loss of crop cash receipts resulting from the direct purchase of farmland by each alternative can be translated into a percent loss for each county (Table 5.5.21).

Table 5.5.19: Agricultural Crop Cash Receipt Loss Estimates for US 31 Alternatives

County	Crop	Yield	Sales Price	Prorate Factor	Alternative Cs		Alternative Es		Alternative G-Cs		Alternative G-Es (Preferred)	
					Acres	Crop Loss (in dollars)	Acres	Crop Loss (in dollars)	Acres	Crop Loss (in dollars)	Acres	Crop Loss (in dollars)
Marshall	Corn	137.54	\$2.11	0.4945	222	\$32,000	222	\$32,000	231	\$33,000	231	\$33,000
	Soybeans	43.98	\$4.81	0.4145		\$19,000		\$19,000		\$20,000		
	Wheat	57.17	\$2.57	0.0196		\$640		\$640		\$670		
	Popcorn	2738.59	\$0.09	0.0134		\$760		\$760		\$790		
	Hay	3.69	\$99.67	0.0581		\$4,700		\$4,700		\$4,900		
St. Joseph	Corn	131.52	\$2.11	0.5239	168	\$24,000	173	\$25,000	273	\$49,000	272	\$40,000
	Soybeans	42.36	\$4.81	0.4256		\$15,000		\$15,000		\$24,000		
	Wheat	65.94	\$2.57	0.0089		\$250		\$260		\$400		
	Popcorn	2627.97	\$0.09	0.0018		\$70		\$80		\$120		
	Hay	3.64	\$99.67	0.0399		\$2,400		\$2,500		\$3,900		
County Subtotals	Marshall				222	\$57,000	222	\$57,000	231	\$59,000	231	\$59,000
	St. Joseph				168	\$42,000	173	\$43,000	273	\$77,000	272	\$68,000
Alternative Totals					390	\$99,000	395	\$100,000	504	\$127,000	503	\$127,000



County	1999	2000	2001	Average
Marshall	\$34,715,000	\$33,481,000	\$39,127,000	\$35,774,333
St. Joseph	\$39,770,000	\$40,179,000	\$43,939,000	\$41,296,000

County	Average	Percent of Crop Cash Receipt Loss Through Direct Right-of-Way Conversion			
		Alternative Cs	Alternative Es	Alternative G-Cs	Alternative G-Es (Preferred)
Marshall	\$35,774,333	0.16	0.16	0.16	0.16
St. Joseph	\$41,296,000	0.10	0.10	0.18	0.16

0 – 0.5%	0.5 – 1.0%	1.0 – 2.0%	2.0 – 3.0%	3.0%
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Counties	Farmland Conversions (acres)			
	Alternative Cs	Alternative Es	Alternative G-Cs	Alternative G-Es <sup>1</sup>
Marshall	222	222	231	231
St. Joseph	168	173	273	272
Total Farmland Acreage (acres)	390	395	504	503
Total Prime and State Important Farmland Acreage (acres)	557	517	575	594
Annual Crop Cash Receipt Loss (dollars)	\$99,000	\$100,000	\$127,000	\$127,000

<sup>1</sup> See Table 3.6.41 for Summary of Impacts Associated with Preferred Alternative G-Es following additional, in-depth studies.

Table 5.5.22 includes farmland acreage that would be impacted within each county and a summary of total estimated farmland, prime farmland, and crop cash receipt loss for each alternative. Figure 5.5.1 illustrates farmland acreage loss for each of the alternatives. Figure 5.5.2 illustrates the assessment of prime and statewide important farmland impacts. Figure 5.5.3 illustrates estimated crop cash receipt loss in dollars per year.

Coordination with the USDA-NRCS regarding assessment of farmland conversion impacts in accordance with the Farmland Protection Policy Act was initiated with a request to the USDA-NRCS Indianapolis state headquarters office on December 10, 2003. This initial assessment involved scor-

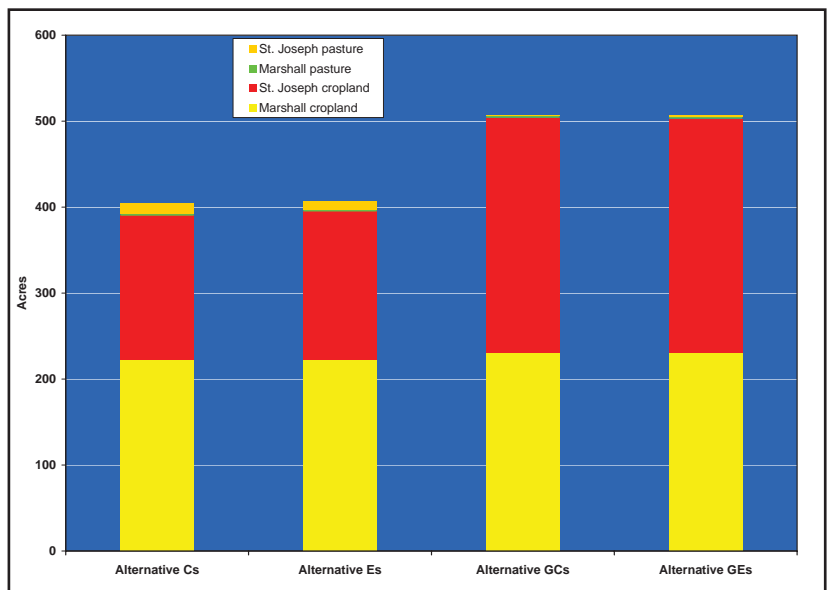


Figure 5.5.1 Total Farmland for US 31 Alternatives



ing for Alternatives C, E and G-C using the Farmland Conversion Impact Rating Form AD-1006 and was returned in a response letter dated January 7, 2004 (Appendix K). Subsequent shifts in alignments resulting in Alternatives Cs, Es and G-Cs, as well as the development of a new hybrid Alternative G-Es, prompted additional coordination with the USDA-NRCS on January 31, 2004, to determine if the changes were of sufficient magnitude and scope to warrant a re-evaluation of impacts to prime and state important farmland for the project. Based on the USDA-NRCS response letter dated March 1, 2005 (Appendix K) and subsequent phone correspondence, the decision was made to re-evaluate farmland impacts for the current alignments by submitting a second Farmland Conversion Impact Rating assessment to USDA-NRCS. The request for re-evaluation was submitted to USDA-NRCS on March 21, 2005 using Form NRCS-CPA-106 (Farmland Conversion Impact Rating for Corridor Type Projects). The USDA-NRCS completed Parts II, IV and V of the re-evaluation and returned the assessment on April 18, 2005 (Appendix K). The following summarizes the assessment of anticipated impacts to farmland based on the USDA-NRCS re-evaluation of Alternatives Cs, Es, G-Cs and G-Es.

The No-Build alternative will have no impacts on agricultural resources. The April 18, 2005 NRCS evaluation (Appendix K - Farmland Protection Policy Act, Form NRCS-CPA-106) revealed that Preferred Alternative G-Es would have the greatest impact to prime and statewide important farmland acreage (594 acres combined as shown in Table 5.5.19), approximately 20 acres more than Alternative G-Cs (575 acres combined). Prime and state important farmland impacts for Alternative Es (517 acres combined) are slightly less than that for Alternative Cs (557 acres combined) by virtue of the fact that the alignment of Alternative Es connects back into the existing US 31 alignment south of US 20 in South Bend where the extent of land development in the area precludes consideration of the prime farmland soil types along US 31 as prime farmland. Combining the Land Evaluation Criterion and Site Assessment Criteria scores on Form NRCS-CPA-106 yielded total point scores of 139 for Alternative Cs, 138 for Alternative Es, 146 for Alternative G-Cs, and 145 for Alternative G-Es (Preferred Alternative). As stated in 7 CFR Part 658.3, the USDA recommends that “sites receiving a total score of less than 160 be given a minimal level of consideration for protection and no additional sites be evaluated.” Since each of the alternatives considered in the project received a total point value less than 160 points, none will receive any further consideration for farmland protection. No other alternatives other than

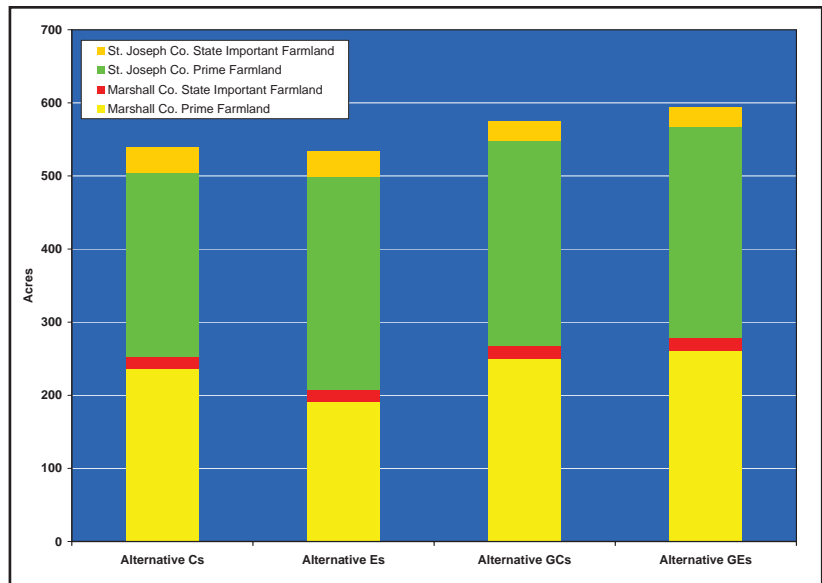


Figure 5.5.2 Total Prime Farmland Area for US 31 Alternatives

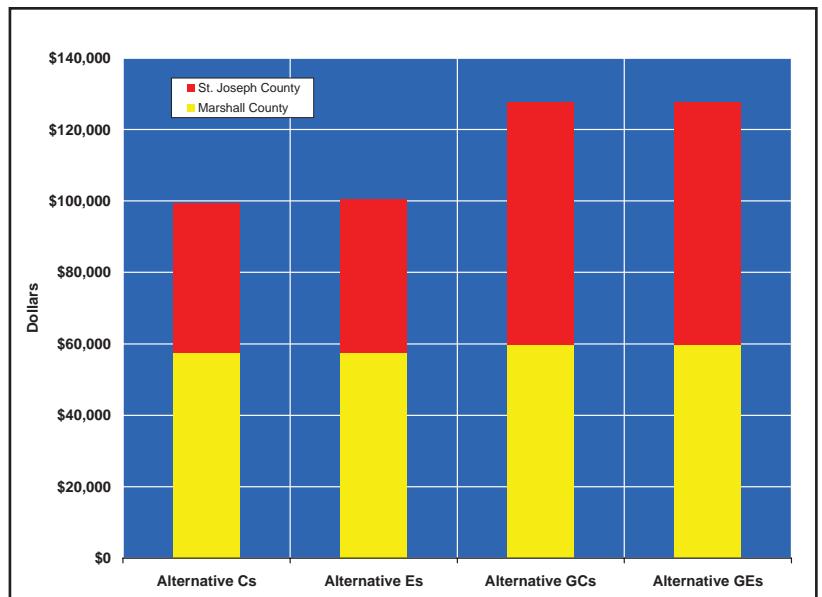


Figure 5.5.3 Annual Crop Cash Receipts Loss for Marshall and St. Joseph Counties for US 31 Alternatives

Alternative G-Es would have the greatest impact to prime and statewide important farmland acreage (594 acres combined as shown in Table 5.5.19), approximately 20 acres more than Alternative G-Cs (575 acres combined). Prime and state important farmland impacts for Alternative Es (517 acres combined) are slightly less than that for Alternative Cs (557 acres combined) by virtue of the fact that the alignment of Alternative Es connects back into the existing US 31 alignment south of US 20 in South Bend where the extent of land development in the area precludes consideration of the prime farmland soil types along US 31 as prime farmland. Combining the Land Evaluation Criterion and Site Assessment Criteria scores on Form NRCS-CPA-106 yielded total point scores of 139 for Alternative Cs, 138 for Alternative Es, 146 for Alternative G-Cs, and 145 for Alternative G-Es (Preferred Alternative). As stated in 7 CFR Part 658.3, the USDA recommends that “sites receiving a total score of less than 160 be given a minimal level of consideration for protection and no additional sites be evaluated.” Since each of the alternatives considered in the project received a total point value less than 160 points, none will receive any further consideration for farmland protection. No other alternatives other than



those already discussed in this study will be considered without a re-evaluation of the project's potential impacts upon farmland.

Based on a field assessment of land use and photo interpretation, it was determined that Alternative G-Es (Preferred Alternative) would directly impact an estimated 503 acres of cropland and approximately four acres of pasture. This constitutes approximately 50% of the proposed estimated right-of-way (1,011 acres) for this alternative. Alternative G-Cs involves nearly identical impacts to cropland and pastureland. Alternatives Cs and Es would require approximately 404 and 407 acres of cropland, respectively, and roughly 10 to 12 acres of pasture. Although the impacted cropland and pastureland acreage for Alternatives Cs and Es is 20% less than that expected for Alternative G-Cs and G-Es (Preferred Alternative), it still represents approximately 42% of the total required right-of-way for these alignments.

For the southern 4.4 miles of each alternative from US 30 up to just south of 4A Road in Marshall County the alignment for all alternatives follows along US 31 and is therefore expected to require only narrow linear strips of farmland property along both sides of existing facility. From this point northward to just south of the county line (Tyler Road) all four alternatives continue to share a common alignment on new terrain through Marshall County crossing portions of an estimated 18 farm fields, 15 of which would be bisected. In several instances these fields would be crossed at skewed angles to the property boundaries, increasing the potential for point rows. As Alternative Cs continues northward across existing US 31 and up to the proposed interchange with US 20, this alignment would cross an additional 27 farm fields, 15 of which would be fragmented or bisected to some degree. Likewise, Alternative Es would involve an additional 33 farm field encroachments in St. Joseph County up to the proposed Kern Road interchange. Seventeen of these fields would be split by the alignment. Alternative G-Cs would cross an additional 34 farm fields along its alignment up to the proposed US 20 interchange, 26 of which involve fragmenting. Preferred Alternative G-Es is similar to Alternative G-Cs in the number of farm fields impacted (approximately 35 fields) and number of sites potentially bisected (26 fields).

The total estimated annual loss in crop cash receipts for Marshall and St. Joseph counties would be greatest for Alternative G-Es (Preferred Alternative) and Alternative G-Cs at approximately \$127,000 a year. The reductions anticipated resulting from Alternatives Cs and Es are estimated at around \$100,000 annually. Since all four alternatives share nearly all of their alignment through Marshall County, the annual crop cash receipt loss would essentially be the same in this county regardless of alternative.

## Summary of Preferred Alternative G-Es

The April 18, 2005 NRCS evaluation (Appendix K - Farmland Protection Policy Act, Form NRCS-CPA-106) revealed that the Preferred Alternative G-Es would have the greatest impact to prime and statewide important farmland acreage (594 acres combined). Combining the Land Evaluation Criterion and Site Assessment Criteria scores on Form NRCS-CPA-106 yielded total point score of 145 for Preferred Alternative G-Es. As stated in 7 CFR Part 658.3, the USDA recommends that "sites receiving a total score of less than 160 be given a minimal level of consideration for protection and no additional sites be evaluated." Since the Preferred Alternative received a total point value less than 160 points, it will receive any further consideration for farmland protection.

Following the identification of Alternative G-Es as the Preferred Alternative, additional, in-depth studies were performed on the Alternative. Included in these additional studies were minor refinements of the local access plan and associated proposed right-of-way requirements. Based on a field assessment of land use and photo interpretation, it was determined that the Preferred Alternative G-Es would directly impact an estimated 530 acres of cropland and approximately four acres of pasture. This constitutes approximately 50% of the proposed estimated right-of-way (1,050 acres) for this alternative.

The Preferred Alternative G-Es will impact approximately 35 farm fields and bisect approximately 26 fields. The total estimated annual loss in crop cash receipts for Marshall and St. Joseph counties would be greatest for Preferred Alternative G-Es at approximately \$127,000 a year.