



5.4 Farmland

For purposes of this Chapter, Preferred Alternative 8 that was identified in the Draft Environmental Impact Statement (DEIS) will be referred to as “Alternative 8.” The Preferred Alternative for the Final Environmental Impact Statement (FEIS) will be referred to as the “Refined Preferred Alternative 8.”

Since the publication of the DEIS, the following substantive change has been made to this chapter:

- Updated **Section 5.4.3.1**, *Farmland Protection Policy Act*, and **Section 5.4.5**, *Summary*, to reflect NRCS corrected NRCS-CPA-106 forms provided on January 23, 2013 for Alternatives 5 through 8.
- Updated **Section 5.4.4**, *Analysis*, to include the Refined Preferred Alternative.

5.4.1 Introduction

Since early settlement, agricultural land in Indiana has been, and continues to be, one of the most valuable natural resources within the state. There is a continued loss of farmland as cities expand and rural areas become more attractive for industry and housing. Data from the 2007 Census of Agriculture indicate that 14.8 million acres or 64.4% of Indiana’s 22.9 million acres was farmland (National Agricultural Statistics Service [NRCS], 2010-2011). The state’s cropland and pastureland (all types) accounted for 12.7 million (55.5%) and 1.0 million (4.3%) acres, respectively. The remaining 1.1 million acres exists as miscellaneous agricultural property including woodland.

The United States Department of Agriculture (USDA) oversees the administration of the Farmland Protection Policy Act (FPPA). The ultimate goal of the FPPA 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 Natural Resources Conservation Service (NRCS) defines prime farmland as:

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“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. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. In general, prime farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, an acceptable level of acidity or alkalinity, an acceptable content of salt or sodium, and few or no rocks. Its soils are permeable to water and air. Prime farmland is not excessively eroded or saturated with water for long periods of time, and it either does not flood frequently during the growing season or is protected from flooding” (SSM, USDA Handbook No. 18, October 1993).

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. Land utilized or designated for commercial, industrial or residential purposes is, therefore, categorically excluded from consideration. Farmland already in urban development also includes lands identified as “urbanized area” (UA) on the Census Bureau Map. Within Monroe County, Bloomington is designated as an UA. In Morgan County, Martinsville is also designated as an UA (see **Figure 4.2-12**, located at the end of **Section 4.2, Human Environment**).

In 2007, 12.8 million acres of Indiana was considered prime farmland, placing it ninth in the country in total acreage of this resource (USDA, 2007 [National Resources Inventory (NRI), Table 11, dated December 2009]). Only three states have more than 50% of their land area classified as prime farmland: Indiana, Illinois, and Iowa. In fact, at 55%, Indiana ranks second only to Illinois in the percent of its land that is considered prime farmland. With 56,200 acres of prime agricultural land converted to developed land from 2002 to 2007, Indiana ranks 26th in the percent of prime agricultural land conversion in the nation and sixth in the average annual rate of prime agricultural land converted to developed land (USDA, 2007 [derived from Tables 7 and 8 of the Farmland Information Center based on 2007 NRI data]). Eighty-four percent of Indiana’s prime farmland in 2007 was utilized for cropland, 6% was devoted to pastureland, and the remaining 10% was in the form of forestland, Conservation Reserve Program (CRP) land or miscellaneous rural land.

Farmland preservation and the conversion of prime and unique farmland to urban development are issues of concern in Indiana. Continued population growth, increases in transportation systems and efficiency, and communication flexibility are some of the factors which make it increasingly easier to live and work in widely-dispersed communities today. The Hoosier



Farmland Preservation Task Force¹ indicates that from 1978 to 1992, an average of 88,714 acres of farmland per year have been lost to other uses (Indiana Land Resources Council, 1999). Data from the 2007 Census of Agriculture indicates that from 1997 to 2007, approximately 75,197 acres of farmland was lost annually to other uses. In light of this trend, the Farm and Ranch Lands Protection Program (FRPP) works cooperatively with State, Tribal, and local government entities and non-governmental organizations to help them preserve valuable farmland for future generations, protecting agricultural land use and related conservation values of the land.²

Section 5 of I-69 entails upgrading an existing multi-lane, divided transportation facility to a full freeway design. Most of the right-of-way used for the Section 5 project already is devoted to transportation use. Accordingly, the impacts to most resources in Section 5 will be lessened (on a per-mile basis) in comparison to Sections 1 through 4, which are being constructed on new terrain. The farmland impacts in this chapter include only those outside of the existing rights-of-way for SR 37 and other transportation facilities.

5.4.2 Methodology

Impacts to farm operations and agricultural lands resulting from direct conversion to transportation use were assessed using three different methods. The first assessment concerns the total number of farmland acres converted as defined in the FPPA. The second addresses the potential annual loss in crop production. The third focuses on the severance of existing farm operations and the creation of point row tracts and other uneconomic remnants. Point rows are considered uneconomic remnants that result from the formation of an acute angle along the edges of fields that limit or restrict the ability of farm equipment to access the area for farming purposes. Uneconomic remnants also include strips of land along an edge of a field that are too narrow to farm productively.

5.4.1.1 Farmland Protection Policy Act

This project is being developed in compliance with the *Farmland Protection Policy Act of 1981* and in accordance with the state and federal regulations concerning farmland protection. The guidelines for evaluation of program or project compliance with the FPPA using the Farmland Conversion Impact Rating for Corridor Type Projects form NRCS-CPA-106 system are outlined in 7 CFR 658.4. The NRCS is the USDA agency responsible for providing assistance in the evaluation. Regulation 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

¹ The Task Force was commissioned by Indiana’s Governor in 1997 to study farmland preservation issues. The group identified Indiana land use trends, causes of farmland loss, and consequences of farmland conversion; and made recommendations to the Governor and Legislature in 1999 that included requiring Farmland Impact Assessments from INDOT and establishing an Indiana Land Resources Council (ILRC). ILRC was established that same year. ILRC is charged with providing technical assistance and resources to local communities on land use tools and strategies.

² USDA, “Farm and Ranch Lands Protection Program,” NRCS, <http://www.in.nrcs.usda.gov/programs/FRPP/FRPPhomepage.html>.

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or design is selected, and that, where possible, agencies make the FPPA evaluations part of the National Environmental Policy Act (NEPA) process.” To facilitate the analysis, each alternative was superimposed onto the project aerial photography. The following steps were taken in preparation for the submittal of the NRCS-CPA-106 form:

- Step 1. The total area of all land within the right-of-way of each of the alternatives under consideration was calculated for Monroe and Morgan counties based on the right-of-way shown on the aerial photography. The calculations included the right-of-way that could be acquired to develop the mainline, interchanges, overpasses, and frontage/service roads. The land area within the existing SR 37 right-of-way was then removed from this total since it is already designated for transportation use.
- Step 2. The total area of all land outside the right-of-way that would be left as uneconomic remnants (too small to productively farm) or that would be landlocked was calculated. Landlocked parcels are those parcels to which road or driveway access has been terminated as a result of the project, and constructing new access roads is not proposed.

The requisite sections (Parts I and III) of the NRCS-CPA-106 form were completed and submitted to the NRCS Indianapolis headquarters office for evaluation. As prescribed in Part III of the form, the following data was presented for each of the alternatives:

- A. Total Acres To Be Converted [to transportation use] Directly.* This data was obtained from the Step 1 calculations, referenced above.
- B. Total Acres To Be Converted Indirectly, Or To Receive Services.* This data was obtained from the Step 2 calculations, referenced above.
- C. Total Acres In Corridor.* This is the sum of the Step 1 and Step 2 data.

The NRCS used the Land Evaluation and Site Assessment (LESA) system for the assessment. As described on the NRCS website,³ “In agricultural land evaluation, soils are rated and placed into groups ranging from the best [referred to as prime] to the least suited for a specific agricultural use, such as cropland, forestland, or rangeland. Then, a relative value is determined for each group. For example, the best group may be assigned a value of 100, while all other groups are assigned lower values.” The NRCS evaluated the submitted data and returned the forms with the following information identified for each alternative:

- A. Total Acres Prime And Unique Farmland.*
- B. Total Acres Statewide And Local Important Farmland.*
- C. Percentage Of Farmland In County Or Local Gov[ernmen]t. Unit To Be Converted.*
- D. Percentage Of Farmland In Gov[ernmen]t. Jurisdiction With Same Or Higher Relative Value.*

³ USDA, NRCS Website, Land Evaluation and Site Assessment, http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/?cid=nrcs143_008438 (Accessed March 13, 2013).



The returned forms included the NRCS-assigned relative value of the farmland to be converted (scale of 0 – 100), per alternative for both Monroe and Morgan Counties (see **Appendix K, NRCS Forms**). Ten corridor assessment criteria, listed in Part VI of NRCS-CPA-106, were then applied to each alternative. The criteria have assigned values ranging from 0-5 to 0-25 points. The assessment criteria were scored according to the NRCS instructions and 7 CFR 658.5. The points identified for each criterion were then added to determine the Corridor Assessment score for each alternative. This score was then added to Relative Value (Part V) points identified by the NRCS for the portion of each alternative within Monroe and Morgan Counties. In 7 CFR 658.4(c)(1), the USDA recommends that “sites with the highest combined scores be regarded as most suitable for protection under these criteria and sites with the lowest scores, as least suitable.” In addition, USDA recommends in 7 CFR 658.4(c)(3) that “sites receiving scores totaling 160 or more be given increasingly higher levels of consideration for protection.”

5.4.2.2 Annual Crop Production Loss

The method employed to assess the impact of each alternative on agricultural production follows the general outline provided in the Indiana Department of Transportation (INDOT) *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 USDA 2007 Census of Agriculture or from the Indiana Agricultural Statistics’ Annual Summary. The most recent average of harvested land was determined using the latest three years of data available for acres of corn, soybean, and hay harvested in Monroe and Morgan counties.

Next, the latest three years of production data for the four commodities was averaged for both counties. Using the average acreage harvested and the average production, the average yield for each commodity was calculated. Average sale prices (dollars/bushel or dollars/ton) were determined by averaging three years of statewide annual averages for each commodity. **Table 5.4-1** shows the production averages for Monroe and Morgan counties.



Table 5.4-1: Production of Principal Crops, 2008-2010 Averages, Monroe and Morgan Counties

2008-2010 Average	Corn		Soybeans		Wheat ¹		Hay ³		Total	
	Monroe	Morgan	Monroe	Morgan	Monroe	Morgan	Monroe	Morgan	Monroe	Morgan
Harvested (acres)	5,430	45,200	7,230	42,530	200	250	11,720	5,200	24,590	93,190
Production ²	789,667	6,877,000	290,867	1,934,067	13,033	13,067	27,700	14,867	NA	NA
Average Yield (per acre)	145.3	152.1	40.2	45.5	65.2	52.3	2.4	2.9	NA	NA
Statewide Average Annual Market Price ¹	4.42		10.6		5.10		127.67		NA	NA

Source: USDA, NASS, "Indiana Statistics," <http://www.nass.usda.gov/in>.

¹Three years of data for wheat is not available at the individual county level, average is based on available years.

²Corn, soybeans and wheat (bushels) or hay (tons).

³Reported as total hay in 2008. Starting in 2009, reporting changed to alfalfa and other hay, which have been combined to determine total hay for years 2009 and 2010.

Because a certain percentage of farmland in a county is harvested as corn, a certain percentage is harvested as soybean, and so on; these percentages for each county were applied to the farmland within each alternative to reflect a proportional impact to each of the four principal farmland commodities. The four 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 four prorated percentages for these crops within each county equal 100%. The dollar loss for each commodity within an individual county based on a specific farmland acreage purchase was then obtained using the following equation:

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

where:

- CCL_{com}** is the county crop loss for a specific commodity (dollars)
- CFA** is the county farmland area within the right-of-way (acres)
- CPF_{com}** is the county prorated factor for a specific commodity
- CYR_{com}** is the county yield rate for a specific commodity (bushels/acre or tons/acre)
- SAP_{com}** is the state average price for a specific commodity (dollars/bushel or dollars/ton)



Finally, the total production loss in dollars for each alternative was calculated by adding the appropriate commodity subtotals for each county and then adding the county subtotals. To determine the annual percent loss in crop cash receipts for each affected county, it was necessary to determine the average annual crop cash receipts for both counties crossed by the alternative, using three years of recent data. 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 (see **Section 5.4.3.2**, *Annual Crop Production Loss*).

5.4.2.3 Parcel Severance, Point Rows and Landlocked Parcels

Property information was obtained as Geographic Information System (GIS) shapefiles from the county assessor in each county to determine ownership and property line locations of agricultural land within the Study Area. The property boundary lines were then transcribed on aerial photographs. The right-of-way limits of each alternative were overlaid on these aerials to obtain the following information about potential farmland impacts resulting from each alternative:

- Number of parcels within the right-of-way and number of acres, per parcel, within the right-of-way
- Number and size (acres) of parcels created as a result of the alternative's severing (splitting) of farmland
- Number and size of uneconomic remnants (i.e., point rows, or strips of land too narrow or small to farm or have other productive uses)

In addition, each parcel was examined to determine whether the property could be accessed via a local service road. Where the cost of constructing a local service road exceeded the value of the property served, the parcels were considered to be landlocked property.

5.4.3 Analysis

Direct impacts on farmland will result from the acquisition of farmland for additional right-of-way needed for construction of Section 5 of I-69. The results of the assessment for the alternatives allow for general comparisons of prime farmland impacts, loss of crop production, parcel severance and point row creation.

5.4.3.1 Farmland Protection Policy Act

Formal consultation with the U.S. Department of Agriculture, Natural Resources Conservation Service for compliance with the FPPA was initiated using the Farmland Conversion Impact Rating for Corridor Type Projects form NRCS-CPA-106 to assess this project's effect on farmland. The assessment criteria included on the NRCS-CPA-106 form were scored according to the NRCS instructions and 7 CFR 658.5. NRCS provided its assessment of impacts to



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farmland and the total point values determined for each build alternative. The NRCS assessment data is shown in **Table 5.4-2**.

Table 5.4-2: Farmland Conversion Impact Rating for Section 5 Alternatives

From NRCS-CPA-106	Alternatives				
	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8
Total acres prime +unique farmland					
Monroe County	74.97	67.63	32.88	21.73	32.52
Morgan County	65.19	114.96	52.55	62.33	71.35
Total acres statewide and local important farmland					
Monroe County	0	0	0	0	0
Morgan County	0	0	0	0	0
Percentage of farmland in county or local government unit to be converted					
Monroe County	0.125	0.086	0.062	0.044	0.066
Morgan County	0.040	0.068	0.027	0.031	0.044
Total Points: Relative value of farmland to be converted + Corridor assessment					
Monroe County	110	122	114	112	116
Morgan County	120	126	145	143	136

Source: Data from NRCS-CPA-106.

Note: This data is based on corrected NRCS forms provided by NRCS on January 23, 2013 (see **Appendix K**) prior to the development of the Refined Preferred Alternative 8. The Refined Preferred Alternative 8 is a variation of the DEIS Preferred Alternative 8.

The total points calculated ranged from 110 to 122 in Monroe County and 120 to 145 in Morgan County. Since this project received total point values of less than 160 points, it will receive no further consideration for farmland protection, as the project will have no significant impact to farmland. No alternatives other than those discussed in this document will be considered without a re-evaluation of the project’s potential impacts upon farmland. **Appendix K, NRCS Forms**, contains the completed NRCS-CPA-106 forms and related NRCS correspondence.

5.4.3.2 Annual Crop Production Loss

Table 5.4-1 compares the production of the main crops in the two counties over the most recent three-year period for which the data is recorded. **Table 5.4-3** summarizes the agricultural production in Monroe and Morgan Counties and state ranking according to the USDA NASS, Indiana 2010-2011. Both Monroe and Morgan County have a smaller percentage of their land in farms than the state. Morgan County has double the percent of their land in farms than Monroe County, and also ranks higher for corn, soybeans, wheat, and hay (alfalfa).



Table 5.4-3: Agricultural Production—Monroe and Morgan Counties and Indiana

Description	Indiana	Monroe County	Morgan County
Total Land Area (acres) *	22,924,685	252,360	258,540
Land in Farms (and % of Total Area)*	14,773,184 (64.4%)	53,538 (21.2%)	114,136 (44.1%)
Harvested Cropland (acres)*	12,108,940	22,747	88,863
State Ranking for Agricultural Production (2010)			
Corn **		88	61
Soybeans **		88	65
Wheat **		N/A	75
Hay (Alfalfa/Other)**		54/13	40/25
<p>* USDA, Year 2007 Census of Agriculture. The census is taken every five years covering the years ending in "2" and "7."</p> <p>** USDA, NASS, "Indiana Agricultural Bulletin: 2010-2011," Annual Statistical Bulletin, http://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Annual_Statistical_Bulletin/1011/11index.asp (Accessed June 4, 2012).</p> <p>N/A = Not Applicable</p>			

Table 5.4-4 summarizes the estimated farm income losses, by county, for each of the build alternatives in the Section 5 corridor. The estimated acres and losses are based on three-year averages (2008, 2009, and 2010). As can be seen, the losses as a result of the alternatives will be a very small percentage (a maximum 0.32% for Monroe County and maximum of 0.07% for Morgan County) of the overall receipts realized from crop production collectively. **Table 5.4.5** summarizes this information for each of the alternatives.



Table 5.4-4: Estimated Crop Production and Production Loss for Alternatives, by County

Alternative	Corn		Soybeans		Wheat		Hay		Total		Receipts: County 3-Year \$ Average	County % 3-Year \$ Average
	Acres	\$ Loss	Acres	\$ Loss	Acres	\$ Loss	Acres	\$ Loss	Acres	\$ Loss		
Monroe County												
Alternative 4	20.3	\$13,032	27.0	\$11,512	0.7	\$248	43.8	\$13,204	91.8	\$37,996	\$11,886,667	0.32%
Alternative 5	15.4	\$9,895	20.5	\$8,740	0.6	\$188	33.2	\$10,025	69.7	\$28,849	\$11,886,667	0.24%
Alternative 6	5.8	\$3,748	7.8	\$3,311	0.2	\$71	12.6	\$3,797	26.4	\$10,927	\$11,886,667	0.09%
Alternative 7	5.0	\$3,194	6.6	\$2,822	0.2	\$61	10.7	\$3,236	22.5	\$9,313	\$11,886,667	0.08%
Alternative 8	6.2	\$3,975	8.2	\$3,511	0.2	\$76	13.3	\$4,027	28.0	\$11,589	\$11,886,667	0.10%
Refined Preferred Alternative 8	3.3	\$2,129	4.4	\$1,881	0.1	\$41	7.2	\$2,157	15.0	\$6,208	\$11,886,667	0.05%
Morgan County												
Alternative 4	25.4	\$17,092	23.9	\$11,528	0.1	\$37	2.9	\$1,067	52.4	\$29,725	\$66,572,000	0.04%
Alternative 5	42.6	\$28,639	40.1	\$19,316	0.2	\$63	4.9	\$1,788	87.8	\$49,806	\$66,572,000	0.07%
Alternative 6	18.7	\$12,591	17.6	\$8,492	0.1	\$28	2.2	\$786	38.6	\$21,897	\$66,572,000	0.03%
Alternative 7	23.0	\$15,461	21.6	\$10,428	0.1	\$34	2.6	\$965	47.4	\$26,889	\$66,572,000	0.04%
Alternative 8	18.9	\$12,689	17.8	\$8,558	0.1	\$28	2.2	\$792	38.9	\$22,067	\$66,572,000	0.03%
Refined Preferred Alternative 8	21.5	\$14,450	20.2	\$9,746	0.1	\$32	2.5	\$902	44.3	\$25,130	\$66,572,000	0.04%

Acres = Estimated number of acres that would be converted from farmland as a result of the project. Acreages are prorated by percentages based on "Harvested Acres" of each crop averaged over a 3-year period, as shown on Table 4.2-17 in Chapter 4.2. Acres and \$ Loss per crop may not add up to the County total due to rounding.

Source: Based on 2008, 2009, and 2010 data from USDA, NASS. Indiana average prices from USDA, NASS, "Indiana Agricultural Bulletin: 2010-2011," Annual Statistical Bulletin, (http://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Annual_Statistical_Bulletin/1011/11index.asp) (Accessed June 4, 2012).



Table 5.4-5: Estimated Annual Crop Production Loss for Section 5 Alternatives—Monroe County and Morgan County Combined

Alternative (Monroe + Morgan Counties)	Total Harvested Acres to Be Acquired	Total \$ Loss (3-year Average)
Alternative 4	144.2	\$67,721
Alternative 5	157.5	\$78,655
Alternative 6	65.0	\$32,824
Alternative 7	69.9	\$36,202
Alternative 8	66.9	\$33,656
Refined Preferred Alternative 8	59.3	\$31,338

Based on 2009, 2010, and 2011 Indiana average prices from USDA, NASS, "Indiana Agricultural Bulletin: 2010-2011," Annual Statistical Bulletin, http://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Annual_Statistical_Bulletin/1011/11index.asp (Accessed June 4, 2012).

Acres are prorated by percentage based on "Harvested Acres" (Table 4.2-17 in Chapter 4.2).

While crop production losses would occur as a result of I-69, improved travel safety would be expected with the interstate by separating local traffic through the use of overpasses, underpasses, and interchange ramps as depicted in **Figure 5.3-5** through **Figure 5.3-10** (tabbed map set at the end of **Section 5.3**). Although some local traffic patterns would be altered, overall travel time to regional markets and suppliers would improve (see **Section 3.3, Screening of Alternatives**).

5.4.1.1 Parcel Severance, Point Rows, and Landlocked Parcels

Section 5's mainline does not bisect any existing agricultural parcels due to the use of existing SR 37 for each of the alternatives. **Table 5.4-6** shows the direct impacts to farmland, by alternative, as a result of additional right-of-way acquisition. Impacts include removal of agricultural land from production for right-of-way and the creation of uneconomic remnants and/or parcels landlocked as a result of or loss of access. The number of parcels remaining after severance ranges from 57 to 109, the majority of which will be less than five acres in size. During the parcel impact analysis process, uneconomic remnants were considered and categorized as potential full parcel acquisitions assuming those parcels would lose all utility. However, it is unlikely that all of these parcels would have no productive use. Some are adjacent to other farm parcels owned either by the same individual or by a neighbor who might want to acquire or lease the farmland. INDOT could buy the uneconomic remnant to offer for resale. Also, depending on location, some parcels might be suitable for development. In the case of landlocked parcels, many parcels that would have lost access as a result of the project will be provided new access via access or frontage roads as features of the project. For approximately one to three cases, depending on the alternative, providing access was not deemed reasonable from an economic standpoint. For example, it would cost more to provide new access than to acquire the property. The disposition of landlocked parcels and uneconomic remnants will be addressed during final design.



5.4.1.1 Indirect Impacts

Indirect impacts to agricultural lands resulting from induced growth associated with the Section 5 project are addressed in detail in **Section 5.24, *Indirect and Cumulative Impacts***. A total of 95 acres of induced growth is forecasted for each of the alternatives, which have been allocated to agricultural land, forest land, and increased densities on developed land. For Monroe County, the predicted impacts to agricultural lands from Section 5 induced growth ranges from 13 acres (Alternatives 4 and 6) to 17 acres (Alternatives 5, 7, 8 and Refined Preferred Alternative 8). For Morgan County, the predicted impact to agricultural lands is 19 acres (Alternative 4) to 20 acres (Alternatives 5 through 8, as well as Refined Preferred Alternative 8).

5.4.4 Mitigation

Impacts in the form of permanent conversion of farmland to non-farmland use generally cannot be mitigated easily by the creation of new farmland elsewhere. Mitigation of farmland impacts tends to focus on those practices that assist in avoiding and/or minimizing conversion, or designing alignments to minimize disruption to existing agricultural patterns. General practices that were considered in developing alternatives for Section 5 included the following:

- The mainline for I-69 through Section 5 occurs on land already designated for transportation use (existing SR 37), thereby minimizing farmland impacts and disruption of existing agricultural patterns.
- When reasonable, alignments for local access roads were developed to follow existing property lines and to minimize dividing or splitting of large tracts of farmland.
- Agricultural property lines were followed where practicable and feasible or fields were crossed at perpendicular angles to reduce the creation of point rows and other uneconomic remnants.
- Where cost-effective, access will be provided to parcels that would otherwise be landlocked as a result of the project. Overpasses or underpasses were proposed at several locations to maintain the connectivity of county roads, thereby facilitating access to farm fields and operations severed by the interstate.

5.4.5 Summary

Direct impacts to farmland anticipated to occur as a result of each alternative proposed in Section 5 are summarized in **Table 5.4-6**. As can be seen, the alternatives range in total farmland acres to be acquired for right-of-way from 59.9 acres for Refined Preferred Alternative 8 to 160.2 acres for Alternative 5 (not including agricultural land that may exist within the existing SR 37 right-of-way). Alternatives range in acres of cropland to be acquired from 59.3 acres for Refined Preferred Alternative 8 to 157.5 acres for Alternative 5. In terms of annual crop income reduction, Refined Preferred Alternative 8 has the least loss of \$31,338 and Alternative 5 has the highest loss of \$78,655. Overall, Refined Preferred Alternative 8 has the least impacts to farmland.



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Alternatives were developed within a 2,000-foot corridor that follows the existing SR 37 roadway. As such, alignments generally overlap and more than one alternative may have the same proposed design features (i.e., number of lanes, right-of-way width, locations of interchanges and overpasses, etc.). Efforts to minimize impacts to farmland have been included in each alternative where possible by following property lines to avoid/minimize severances, crossing fields at perpendicular angles to avoid/minimize point rows, providing access to parcels that would otherwise be landlocked; and maintaining the connectivity of county crossroads.

The project has been evaluated in compliance with the FPPA. Farmland Conversion Impact Rating forms for Corridor Type Projects have been prepared in coordination with the NRCS. Based on this analysis, none of the alternatives met the NRCS threshold for “higher levels of consideration for protection” (7 CFR 658.4 (c) (3)). The total acres of prime and unique farmland estimated by the NRCS to be converted within Section 5 for alternatives range from 84.06 acres for Alternative 7 to 182.59 acres for Alternative 5.



Table 5.4-6: Summary of Direct Farmland Impacts With Section 5 Alternatives

Potential impacts	Alternatives					
	4	5	6	7	8	Refined Preferred Alternative 8
Total acres to be acquired for additional right-of-way*	801.5	761.7	347.5	319.1	373.4	327.1
Total farmland acres to be acquired	149.4	160.2	65.4	70.4	67.4	59.9
Acres of cropland to be acquired	144.2	157.5	65.0	69.9	66.9	59.3
Total number of farmland parcels in right-of-way **	82	79	63	58	62	53
Total number of parcels after severance	103	109	85	80	83	57
0 – 4.99 acres	54	47	44	37	42	24
5 – 9.99 acres	13	17	12	8	12	9
10 or more acres	36	45	29	35	29	24
Number of uneconomic remnants	6	6	6	8	9	7
Number of parcels landlocked	3	2	1	3	1	2
Annual receipt loss and % of loss compared with total county receipts						
Monroe County	\$37,996 0.32%	\$28,849 0.24%	\$10,927 0.09%	\$9,313 0.08%	\$11,589 0.10%	\$6,208 0.05%
Morgan County	\$29,725 0.04%	\$49,806 0.07%	\$21,897 0.03%	\$26,889 0.04%	\$22,067 0.03%	\$25,130 0.04%
Total receipt loss	\$67,721	\$78,655	\$32,824	\$36,202	\$33,656	\$31,338
Total acres prime + unique farmland***						
Monroe County	74.97	67.63	32.88	21.73	32.52	Not Available****
Morgan County	65.19	114.96	52.55	62.33	71.35	Not Available****
Notes:						
* Total acres to be acquired for additional right-of-way exclude existing SR 37 right-of-way since it is already in transportation use. Farmland acreage includes total "agricultural land" from the GIS land use layer excluding agricultural land that exists within the existing SR 37 right-of-way. Cropland includes "pasture" and "row crops" from GIS land use layer excluding cropland that exists within the existing SR 37 right-of-way.						
** Farmland parcels in the right-of-way include the total number of unique Parcel IDs in the buffered right-of-way that intersect with "agricultural land" from the GIS land use layer. Parcels after severance was calculated by intersecting the GIS parcel layer with the "agricultural" land use layer and removing the buffered right-of-way. Uneconomic remnants and parcels landlocked were determined by review of GIS data overlaid on aerial images.						
*** USDA-NRCS Form NRCS-CPA-106, in Appendix K , NRCS Forms. These figures indicate the acres of prime + unique farmland that NRCS has determined will be converted to transportation use as a result of the project.						
**** NRCS consultation was based on Alternative 8. Totals for the Refined Preferred Alternative 8 would be less than 32.52 acres and 71.35 acres prime/unique farmland respectively for Monroe and Morgan counties.						



5.5 Economic Impacts

For purposes of this section, Preferred Alternative 8 that was identified in the Draft Environmental Impact Statement (DEIS) will be referred to as “Alternative 8.” The Preferred Alternative for the Final Environmental Impact Statement (FEIS) will be referred to as the “Refined Preferred Alternative 8.”

Since the publication of the DEIS, the following substantive changes have been made to this section:

- Included Refined Preferred Alternative 8 in the analysis (as summarized in **Table 5.5-1** through **Table 5.5-5**, **Table 5.5-8**, **Table 5.5-9**, and **Figure 5.5-9**).
- Updated overall project costs for Alternatives 4 through 8 in **Section 5.3.3**, *Analysis*, based on revisions to right-of-way and relocation costs.

5.5.1 Introduction

This chapter addresses the economic impacts, both positive and negative, which are anticipated to result from the I-69 Section 5 alternatives. These localized impacts need to be viewed against the backdrop of the overall economic benefits which will accrue for all of Southwest Indiana when I-69 is completed between Evansville and Indianapolis. These benefits are documented in the Tier 1 FEIS (**Section 3.4.4**, *Economic Development Indicators*).

The methodologies for the analysis of localized impacts are documented in **Section 5.5.2**, *Methodology*. **Section 5.5.3**, *Analysis*, documents both the positive and negative impacts within the area associated with this Section of the Evansville-to-Indianapolis project. These impacts include:

- Direct Economic Impacts (**Section 5.5.3.1**)
- Indirect Economic Impacts (**Section 5.5.3.2**)
- Business and Employment Impacts (**Section 5.5.3.3**)
- Effects on Local Tax Base (**Section 5.5.3.4**)
- Effects on Local Property Values (**Section 5.5.3.5**)

Section 5.5.4, *Mitigation*, discusses mitigation measures to address negative economic impacts. **Section 5.5.5**, *Summary*, presents a summary of the economic impacts for Section 5 of I-69.

5.5.2 Methodology

5.5.2.1 Study Area

For most of the analyses in this chapter (and in this document as a whole), the Section 5 Study Area is defined by the Year 2010 Census Block Groups that the project corridor traverses. The



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project corridor is located within Morgan and Monroe counties. Existing conditions within this Study Area are detailed in **Section 4.2**, *Human Environment (Community Impact Assessment)*.

The analyses of indirect economic impacts (**Section 5.5.3.2**) and business and employment impacts (**Section 5.5.3.3**) were based on Traffic Analysis Zone (TAZ) data rather than Census Block data; therefore, the boundaries of the Study Area for these analyses were different from the Year 2010 Census Block Group boundaries of the Study Area in other sections of this document. TAZs were used for the economic and business analysis because (1) compared to Census Blocks, TAZs are smaller in size, which permits more comprehensive data gathering and more detailed analysis, (2) future year socioeconomic data for the TAZs (including population and employment statistics) already were developed for forecasting traffic volumes, and (3) these analyses involve indirect impacts that may extend beyond the immediate vicinity of the project itself. Therefore, the Study Area was modified to follow TAZ boundaries rather than Census Block Group boundaries to analyze indirect impacts.

To analyze economic impacts, an Expert Land Use Panel was established for Section 5.¹ The panel identified the location and comparative order of magnitude of growth in population and employment induced by the project in Section 5 and that which would have occurred without the project. **Section 5.24**, *Indirect and Cumulative Impacts*, contains a detailed discussion of the role of the Expert Land Use Panel and the indirect and cumulative impacts analyses employing the TAZ data. **Section 5.3**, *Land Use and Community Impacts*, (**Figure 5.3-2** through **Figure 5.3-4**) depicts the TAZ analysis areas, showing both those forecasted and not forecasted to experience induced growth due to I-69.

5.5.2.2 Direct Economic Impacts

Localized direct economic impacts in the Section 5 Study Area include loss of farm income, business and institutional displacements, changes in access and traffic volumes for existing adjacent businesses. The value of loss of farm income for each alternative was estimated by multiplying the number of farmland acres taken for right-of-way, by the United States Department of Agriculture (USDA)-reported average production rates, to determine the quantity of each crop taken out of production. These quantities were then multiplied by the average commodity prices for the years 2008 through 2010 for the state of Indiana.

Other direct economic impacts include the project cost; annual maintenance and operation costs; the overall impact on highway users, including operating cost differences and travel time modifications resulting from changes in the roadway network; changes in the local property tax base due to taking taxable property for public right-of-way; a possible temporary increase in the cost of construction materials due to increased demand during construction; and changes in property values due to improved or diminished access or exposure. Overall highway user

¹ The panel was composed of representatives of agencies or organizations involved in development activities on a local or regional level. Members of the panel included representatives of the Morgan County Planning Commission, Morgan County Economic Development Corporation, Monroe County Planning Department, Bloomington Planning Department, Ellettsville Planning Department, Bloomington/Monroe County Metropolitan Planning Organization, Indiana University, Bloomington Economic Development Corporation, and the Bloomington Board of Realtors.



impacts were estimated based on the total vehicle hours traveled and the total vehicle miles traveled projected for Monroe and Morgan counties for the no build and build scenarios.

5.5.2.3 Indirect Economic Impacts

Indirect economic impacts that can be quantified with less precision, but which nevertheless are real, include increases in business and employment associated with changes in land use due to development induced by improved access. While these indirect impacts produce a net increase in economic activity, they may have an adverse indirect impact on existing, competing businesses.

5.5.2.4 Business and Employment Impacts

Forecasts of employment from Tier 1 were obtained for the year 2035 by TAZ for both the no build and build scenarios. Monroe and Morgan county maps were created showing the no build and build employment forecasts for the year 2035 for each TAZ. The maps were presented to a panel of land use experts made up of local officials for verification or revision, and to determine the probable location and order of magnitude of the growth in population and employment.

An Expert Land Use Panel was assembled to assist in forecasting future land use in Section 5 in the year 2035 with and without I-69. The study team used panel input to assign future induced growth to appropriate TAZs. The panel focused on TAZs within Monroe and Morgan counties to determine order of magnitude of growth that can be expected in each TAZ. The Expert Land Use Panel evaluated how changes in access between alternatives may result in increased (induced) jobs and/or residents or decreased jobs and/or residents if access were reduced.

The overall level of growth in population and employment in the year 2034 (which was extrapolated to 2035) was provided in Tier 1 by the Regional Economic Models, Inc. (REMI) economic forecasts (see Tier 1 FEIS, Section S.3.2.2); the Expert Land Use Panel assisted in determining to which TAZs this growth or loss should be allocated for the year 2035. A total of 34 TAZs (18 in Monroe County and 16 in Morgan County) were identified as likely to have induced changes in the number of jobs and/or residents because of I-69 development. Alternatives 4, 5, 7, 8, and Refined Preferred Alternative 8 could induce changes in 31 TAZs, while Alternative 6 could affect 29 TAZs. **Section 5.3, *Land Use and Community Impacts*, (Figure 5.3-2 to Figure 5.3-4)** identifies these TAZ locations relative to the Section 5 corridor.

5.5.2.5 Local Property Tax Base and Property Value Impacts

Property tax impacts resulting from losses of residential property were estimated by taking the tax rate times the assessed valuation of the properties expected to be displaced in each subsection of the alternatives. These tax losses were then summed across all of the subsections making up each of the specific alternatives.

The agricultural and commercial property tax losses were estimated by applying the statewide agricultural land base rate value per acre to each alternative's agricultural land taking in each county and then multiplying the resulting numbers by the average county tax rates. The 2011 statewide agricultural land base rate value increased from \$1,290 to \$1,500 per acre. The



average 2011 tax rate for Monroe and Morgan counties are 1.59% and 1.28%, respectively, for an overall Study Area average of 1.435%.

5.5.3 Analysis

5.5.3.1 Direct Economic Impacts

Direct economic impacts are those project effects that are a clear and immediate result of implementing the project, such as timber, farmland, and business property acquisitions, project cost (construction as well as long term maintenance expenditures), and roadway user costs affected by the project. These impacts are translated into dollar values to permit comparing the economic cost of one alternative with another.

Loss of Timber Income

Direct impacts to timber sales as a result of any build alternative are likely but minimal due to the amount and ownership of forest land being acquired for the Section 5 project. Direct forest land impacts from the alternatives vary from approximately 229 acres (Refined Preferred Alternative 8) to 441 acres (Alternative 4). Indirect impacts to forest land caused by induced growth from the Section 5 project are anticipated to impact 40 to 47 acres. Refer to **Section 5.20, *Forest Impacts*, Figure 5.20-3**, for an overview of the forest areas within the Section 5 corridor. Upland forest affected by the I-69 Evansville to Indianapolis project will be mitigated at a 3 to 1 ratio (with a goal of 1 to 1 replacement and 2 to 1 preservation). The existing forest land that will be converted to conservation will also represent a loss of potential timber available for harvest. Areas converted to mitigation land will no longer be available for timbering activities. Therefore, these lands will be taken out of production of forest products. Per federal law, all land for the project will be purchased at fair market value.

A survey of Indiana's forests published by USDA Forest Service (1999-2003) identified a total of 233,600 acres of forest in the two counties in the Section 5 Study Area, including 142,600 Acres in Monroe County and 91,000 acres in Morgan County. The entire Section 5 corridor includes approximately 5,086 acres of land, 1,904 acres or 37% of which is forested (including upland and wetland forest on 193 separate tracts). While some forest land will be directly and indirectly affected by this project, the loss of available forest land represents only a small fraction (less than 0.2%) of the existing forest land in Monroe and Morgan counties.

Timber harvest by landowners potentially affected by the Section 5 project may occur due to the potential of land being acquired for this project and uncertainty regarding the right-of-way acquisition limits and process. The short-term increase in available timber supply could affect the price of timber in the local market place. In addition, timber salvage from the Section 5 construction project could also affect the local area timber supply and market price. Salvage represents timber recovery as construction occurs and forested land is cleared to accommodate features of the project. Timber salvage, if determined feasible by the contractor, would occur during construction and would be conducted by the construction contractors. Because these potential impacts are not quantifiable, no attempt is made to assess their costs in this section.



Loss of Farm Income

Based on crop production and price averages for the years 2008-2010, Refined Preferred Alternative 8 is estimated to result in an annual crop cash receipt loss of \$31,338 (\$6,208 in Monroe County and \$25,130 in Morgan County), as shown in **Table 5.5-1**. Farm income losses for each alternative are summarized in **Table 5.5-2**, ranging from \$31,338 (Refined Preferred Alternative 8) to \$78,655 (Alternative 5). **Section 5.4, Farmland Impacts**, provides additional details of Section 5 farm production losses. **Table 5.4-4** uses these data to estimate the gross economic effect on the Section 5 counties and express it as a percentage of total receipts.

Table 5.5-1: Estimated Annual Crop Production Loss for Section 5 Alternatives, by County

Alternative	Total		County Receipts	
	Harvested Acres	\$ Loss	3-Year \$ Average	% 3-Year \$ Average
Monroe County				
Alternative 4	91.8	\$37,996	\$11,886,667	0.32%
Alternative 5	69.7	\$28,849	\$11,886,667	0.24%
Alternative 6	26.4	\$10,927	\$11,886,667	0.09%
Alternative 7	22.5	\$9,313	\$11,886,667	0.08%
Alternative 8	28.0	\$11,589	\$11,886,667	0.10%
Refined Preferred Alternative 8	15.0	\$6,208	\$11,886,667	0.05%
Morgan County				
Alternative 4	52.4	\$29,725	\$66,572,000	0.04%
Alternative 5	87.8	\$49,806	\$66,572,000	0.07%
Alternative 6	38.6	\$21,897	\$66,572,000	0.03%
Alternative 7	47.4	\$26,889	\$66,572,000	0.04%
Alternative 8	38.9	\$22,067	\$66,572,000	0.03%
Refined Preferred Alternative 8	44.3	\$25,130	\$66,572,000	0.04%

Source: Based on 2008, 2009, and 2010 data from USDA National Agricultural Statistics Service (NASS). Indiana average prices from USDA, NASS, "Indiana Agricultural Bulletin: 2010-2011," Annual Statistical Bulletin, http://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Annual_Statistical_Bulletin/1011/11index.asp (Accessed June 4, 2012).

Acres = Estimated number of acres that would be converted from farmland as a result of the project. Acreages are prorated by percentages based on "Harvested Acres" of each crop averaged over a 3-year period, as shown on **Table 4.2-17**. Acres and \$ Loss per crop may not add up to the County total due to rounding.



Table 5.5-2: Estimated Annual Crop Production Loss for Section 5 Alternatives, Total Monroe and Morgan Counties

Alternative	Total \$ Production Loss		
	Monroe County	Morgan County	Combined Total
Alternative 4	\$37,996	\$29,725	\$67,721
Alternative 5	\$28,849	\$49,806	\$78,655
Alternative 6	\$10,927	\$21,897	\$32,824
Alternative 7	\$9,313	\$26,889	\$36,202
Alternative 8	\$11,589	\$22,067	\$33,656
Refined Preferred Alternative 8	\$6,208	\$25,130	\$31,338

Source: Based on 2008, 2009, and 2010 data from USDA, NASS, "Indiana Agricultural Bulletin: 2010-2011," Annual Statistical Bulletin, http://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Annual_Statistical_Bulletin/1011/11index.asp (Accessed June 4, 2012).

Business and Institutional Displacements

For the purpose of evaluating potential business relocation impacts on a consistent and conservative (most potential displacements) basis, a right-of-way impact model was developed in Geographic Information Systems (GIS) using parcel data, buildings data, and buffered rights-of-way for each alternative. These layers were evaluated relative to established parameters to identify potential impacts. Details of the displacement impact analysis are found in **Section 5.2, Social Impacts**. As summarized in **Table 5.5-3**, Refined Preferred Alternative 8 would result in the least impact with a total of 17 business displacements, one institutional displacement, and one utility facility displacement. Fifteen businesses, one institution, and the utility facility are in Monroe County and the other two businesses are in Morgan County. Alternative 6 would result in 33 businesses and one institutional displacement. Alternative 7 would result in 27 business and one institutional displacements. Alternatives 4 and 5 would result in approximately twice as many business and institutional displacements with 77 and 71 businesses, respectively, and three institutions for each.

Business and institutional displacements would occur throughout the corridor as shown in **Figure 5.3-5** to **Figure 5.3-10** (tabbed maps following **Section 5.3, Land Use and Community Impacts**). In each of the alternatives, multiple business and institutional displacements are concentrated at the following locations: Fullerton Pike, SR 45/2nd Street, SR 48/3rd Street, Whitehall Crossing, Vernal Pike/17th Street, Arlington Road, Wayport Road, and Old SR 37. Representative potential business displacements are shown on **Figure 5.5-1** to **Figure 5.5-3**.



Figure 5.5-1: SR 48/3rd Street
Source: Section 5 Project Team field visit



Figure 5.5-2: Fullerton Pike
Source: Section 5 Project Team field visit



Figure 5.5-3: Simpson Chapel Road
Source: Section 5 Project Team field visit



Table 5.5-3: Summary of Potential Business and Institutional Impacts by Section 5

Business and Institution	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Refined Preferred Alt 8
# of Business, Institutional, and Major Utility Displacements (Monroe County)	74	71	30	24	29	17
Est. # of Employees (Monroe County)	878	848	326	286	321	256
# of Business, Institutional, and Major Utility Displacements (Morgan County)	7	5	6	6	6	2
Est. # of Employees (Morgan County)	29	34	32	32	32	6
<i># Business Displacements Section 5 Subtotal</i>	<i>77</i>	<i>71</i>	<i>33</i>	<i>27</i>	<i>32</i>	<i>17</i>
<i># Institutional* Displacements Section 5 Subtotal</i>	<i>3</i>	<i>3</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i># Major Utility* Displacements Section 5 Subtotal</i>	<i>1</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>1</i>
# Business, Institutional, and Major Utility Displacements Total	81	76	36	30	35	19
Est. # of Employees Total	907	882	358	318	353	282

Source: Michael Baker, Jr., Inc. 2012, field view and business needs survey responses.

Note: Final decisions regarding displacements will be made during design and right-of-way acquisition process. Potential impacts based on buffered right-of-way data.

*Institutional displacements include churches, and major utility facilities include water pump stations.

Potential business and institutional displacements are identified in **Table 5.5-4**. As summarized in **Chapter 11, Comments, Coordination, & Public Involvement**, surveys were sent to businesses and institutions throughout the corridor to obtain input on the details of their day-to-day operations, including type of business, number of employees, location of customers, access requirements, operational requirements, and other details. Surveys were mailed June 2012 and hand-delivered in July 2012 to businesses potentially displaced by the project. Of the 620 business surveys mailed, approximately 115 responses were provided, including 20 from businesses potentially displaced by the project. Business types were identified in the survey responses or in the field and were classified according to North American Industry Classification



System codes (NAICS). Estimated number of employees included both full-time and part-time employees, with the assumption that a part-time employee counted as one-half a full-time equivalent. When business and institutional surveys did not include the number of employees or the survey was not returned, a conservative (maximum) estimate of the number of jobs was assumed for each potential displacement based on business type, size, and comparable establishments.

Business use and ownership may change prior to implementation of this project. As such, **Table 5.5-4** represents a “snapshot” of the 17 to 77 potentially displaced businesses and the institutional establishments at the time of this study. More complete details about business displacements are included in **Section 5.2, Social Impacts**. The most affected business types include retail, services, and accommodations and food service, with over 10 of each type potentially displaced by one or more of the alternatives. Alternatives 6, 7, and 8 avoid displacing retail establishments and other businesses at SR 45/2nd Street, SR 48/3rd Street, and Vernal Pike/Industrial Way. Refined Preferred Alternative 8 has the fewest overall potential business displacements, which range from small independent businesses like Wayport Kennels to chain businesses like McDonalds.

Alternatives 4 through 8 would displace three medical business buildings: the Monroe Hospital Administrative Building, the Rural/Metro Ambulance, and the Monroe Medical Arts Building. The Monroe Medical Arts Building contains the Southern Indiana Family Practice, Gynecology Associates, Decatur Vein Clinic, Beams Health and Wellness Spa, Monroe Primary Care, Monroe Operations, and the Monroe Hospital Sleep Center. These businesses are located near Fullerton Pike and SR 37. Alternatives 4 and 5 would also potentially displace the Indiana University Health Cancer Prevention Center located south of Tapp Road on the east side of SR 37. Refined Preferred Alternative 8 would displace Rural/Metro Ambulance. These businesses may need to relocate in close proximity to Monroe Hospital, but they are not a part of the institutional hospital building.

Refined Preferred Alternative 8 avoids two churches (Full Gospel Tabernacle and New Testament). It also avoids the City of Bloomington Pump Station but would displace the Washington Township Water Pump Building, as would the remaining alternatives. Alternatives 6, 7, 8, and Refined Preferred Alternative 8 minimize the potential for institutional displacements.

The number of employees affected by potential displacements ranges from a low of approximately 282 in Refined Preferred Alternative 8 to a high of approximately 907 in Alternative 4. The largest potentially affected employers (over 30 employees) include Bob Evans, Outback Steakhouse, Scholar’s Inn Bakehouse, Nature’s Way, Monroe Hospital – Administration, McDonalds, and Ken Nunn Law Office. Of these largest employers, Refined Preferred Alternative 8 would only impact Nature’s Way and McDonalds.

The business needs survey and availability of relocation options suggest that of these businesses, a majority would be able to relocate within Monroe or Morgan counties, so the permanent direct impacts associated with job and tax revenue loss would be minimized. Other direct business impacts including partial right-of-way acquisitions and parking impacts are noted in **Section 5.2, Social Impacts**.



Table 5.5-4: Potential Business and Institutional Displacements

Displacement - Business Name	Category	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Ref Pref Alt 8	Est. # Employees ¹	Map ID ²
MONROE COUNTY									
A Touch of Grace	Business	•	•					5	b1256
Aldi	Business	•	•					20	b0288
Anderson Construction	Business	•	•					20	b0496
Arby's	Business	•	•					20	b0341
Aspen Dental	Business		•					10	b0369
AT&T	Business	•	•					10	b0361
Beams Health and Wellness Spa	Business	•	•	•	•	•		15	b1259
Bloomfield State Bank	Business	•	•					15	b0275
Bloomington Holiness Church	Institution	•	•	•	•	•	•	5	b0086
Bob Evans	Business	•	•					30	b0331
BP Gas Station	Business	•	•					5	b0721
C & H Stone Co.	Business	•	•	•		•	•	26	b0089
Carpenters Local 1664	Business	•	•					10	b0505
Circle K	Business	•	•					5	b0720
City of Bloomington Pump Station	Utility		•	•	•	•		0	b1270
Computer Clubhouse	Business	•	•					5	b0271
Dave O'Mara Contractor	Business			•	•	•		20	b0415
Decatur Vein Clinic	Business	•	•	•	•	•		10	b1258
Dotlich Crane Service	Business	•	•	•	•	•	•	10	b0488
Empty Suite 5	Business	•	•					0	b1201
Empty Suite 7	Business	•	•					0	b1203
Empty Suite 8	Business	•	•					0	b1204
Exterior Finishes, Inc.	Business	•						5	b0399
Force - Athletic Revolution	Business	•	•					10	b1183
Former Ivy Tech Buildings	Business	•	•					0	b0525
Former Ivy Tech Buildings	Business	•	•					0	b0528
Former Ivy Tech Buildings	Business	•	•					0	b0531
Former Ivy Tech Buildings	Business	•	•					0	b0532
Full Gospel Tabernacle	Institution	•	•					5	b0891



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Table 5.5-4: Potential Business and Institutional Displacements

Displacement - Business Name	Category	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Ref Pref Alt 8	Est. # Employees ¹	Map ID ²
Great Clips	Business	•	•					10	b0360
Gynecology Associates	Business	•	•	•	•	•		15	b1257
Indiana University Health Cancer Prevention Center	Business	•	•					10	b0153
John Naylor Trucking	Business	•						10	b0609
Ken Nunn Law Office	Business	•	•					81	b0370
LT Automotive	Business	•	•	•	•	•		10	b0442
Mann Plumbing	Business	•	•					10	b1198
McDonald's	Business	•	•				•	70	b0344
Midwest Underground Suite 13	Business	•	•					10	b1208
Monroe Co. Pizza	Business	•						20	b0328
Monroe Hospital Administrative Building	Business	•	•	•	•	•		50	b1184
Monroe Hospital Sleep Center	Business	•	•	•	•	•		10	b1262
Monroe Operations	Business	•	•	•	•	•		10	b1261
Monroe Primary Care	Business	•	•	•	•	•		10	b1260
Nature's Way	Business	•	•	•	•	•	•	45	b0718
Outback Steakhouse	Business	•	•					58	b0338
Penn Station Subs	Business	•	•					10	b0362
Prall & Co.	Business	•	•					10	b1195
Professional Golfcar Corp	Business	•	•	•	•	•	•	29	b0093
Rural/Metro Ambulance	Business	•	•	•	•	•	•	10	b0081
RWS Storage	Business	•	•	•	•	•	•	5	b0825
Scholar's Inn Bakehouse	Business	•	•					55	b0809
Scientia, LLC (formerly vacant)	Business	•	•	•	•	•	•	15	b0080
Scottish Inn	Business	•	•					10	b0352
Shiisa Quilts Suite 6	Business	•	•					5	b1202
Signs Now	Business			•	•			6	b0413
Sky Blue Hair Salon and Spa Suite 9	Business	•	•					10	b1205
Southern Indiana Family Practice	Business	•	•	•	•	•		10	b0060
Starbucks	Business	•	•					15	b0359



Table 5.5-4: Potential Business and Institutional Displacements

Displacement - Business Name	Category	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Ref Pref Alt 8	Est. # Employees ¹	Map ID ²
Steak 'n Shake	Business	•	•					20	b0280
Sturgis Garage and Wrecker Services	Business	•	•	•	•	•	•	8	b0421
The Light Source	Business	•	•	•		•	•	5	b0802
Therapeutic Massage Suite 14	Business	•	•					10	b1209
Theraplay, Inc. Suite 11	Business	•	•					10	b1206
Thompson's Furniture	Business	•	•	•	•	•	•	10	b0722
Thompson's Furniture	Business	•	•					10	b0633
TK Constructors	Business	•	•	•		•	•	4	b0842
Trane Parts	Business	•						5	b0400
U-haul Moving and Storage	Business	•	•	•		•		5	b0873
Under construction	Business	•	•					0	b1269
Vacant	Business	•	•	•		•		0	b1180
Vacant	Business	•	•	•		•	•	0	b1263
Vacant	Business	•						0	b0396
Vacant	Business	•	•					0	b0036
Washington Township Pump Building	Utility	•	•	•	•	•	•	1	b0692
Wayport Kennels	Business	•	•	•	•	•	•	11	b0775
Weight Watchers Suite 12	Business	•	•					10	b1207
Wylie's Floor Covering	Business	•	•	•	•	•	•	17	b0735
Yates Engineering Services Suite 1	Business	•	•					10	b0418
Monroe County Business, Institution, Utility Totals³		74	71	30	24	29	17		
MORGAN COUNTY									
Brian's Off Road Shop	Business	•		•	•	•		5	b1178
Hillview Motel	Business	•		•	•	•		3	b1138
Hunter Self Storage	Business	•	•					2	b1147
Hunter's Towing	Business	•		•	•	•		3	b1177
Fastenal	Business		•					20	b1128
Melissa A. Schiff, CPA, PC and Schiff Properties	Business	•		•	•	•		10	b1138



Table 5.5-4: Potential Business and Institutional Displacements

Displacement - Business Name	Category	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Ref Pref Alt 8	Est. # Employees ¹	Map ID ²
New Testament Baptist Church	Institution	•	•					5	b1090
Shot Maker's Golf Complex	Business	•	•	•	•	•		5	b1122
Stat Engineering	Business		**	**	**	**	•	5	b1269
The Idle Zone Sales and Repair	Business		•	•	•	•	•	6	b1123
Morgan County Business, Institution, Utility Totals³		7	5	6	6	6	2		
MONROE AND MORGAN COUNTY TOTALS³		81	76	36	30	35	19		

Source: Michael Baker, Jr., Inc. 2013 and business needs survey.

¹ Provided in business surveys.

² Map ID corresponds to **Figure 5.3-5** to **Figure 5.3-10** (tabbed map set following **Section 5.3**).

³ Major utilities (e.g., the Washington Township Water Pump Building) are not counted in relocation costs and overall relocation totals. These features are counted in utility costs associated with design. With inclusion of utilities, totals in **Table 5.5-4** do not correlate with totals in **Table 5.2-1**, **Table 5.2-2**, and **Table 5.2-5**.

** Additional business space was reconstructed and leased in the Idle Zone building during Fall 2012. This business addition occurred after DEIS analysis and publication and therefore is counted as a relocation impact for Refined Preferred Alternative 8 only.

Changes in Direct Access and Travel Patterns

Currently, there are approximately 34 direct access points for individual businesses and business districts to SR 37. These current access points include interchanges, intersections, or individual driveways with direct SR 37 access. Should I-69 be constructed, these access points would be consolidated to interchange access only and travelers would be required to use interchanges, existing local roads, and new access roads to access business areas east and west of the interstate. These changes in access for existing and planned commercial developments are summarized for each alternative in **Figure 5.5-4** through **Figure 5.5-9**, located at the end of the chapter. For Refined Preferred Alternative 8, **Figure 5.5-9** also includes average daily traffic counts where available. A summary of changes in direct access to existing businesses is summarized in **Table 5.5-5**. The highest concentration of businesses is at Fullerton Pike, SR 45/2nd Street, and SR 48/3rd Street. In any alternative, these major commercial centers would have similar or improved access with a full interchange.

From the perspective of impacts to businesses and business districts, this analysis assumes that an interchange would provide similar access and positive benefits to existing and planned businesses. An overpass would provide slightly reduced access with fewer benefits than a full interchange; however, in some cases the east/west accessibility would provide new benefits to existing businesses. Where roads would be closed from direct access to I-69, access via existing local roads and new access roads would be provided to the remaining businesses and institutions. It is assumed that this would result in the potential for negative impacts to business operations



related to the additional travel distance and time required. **Section 5.3**, *Land Use and Community Impacts*, describes the revised travel routes at each access point along SR 37. An example of different access and travel routes would be for the businesses and institutions near Acuff Road east of SR 37 (Cook, Meadows Hospital, Bloomington North High School, and three churches). In Alternative 4, direct access to I-69 would be removed at Acuff Road and provided 1.3 miles north at the new Kinser Pike interchange. In Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8, access would be provided 3.1 miles south at the existing SR 46 interchange.

As shown in **Figure 5.5-9**, the Refined Preferred Alternative 8 would provide equal or better access than existing conditions at 29% of the business access points along the corridor through development of interchanges. These locations include Fullerton Pike, Tapp Road, SR 45/2nd Street, SR 48/3rd Street, SR 46, Walnut Street, Kinser Pike, Sample Road, and Liberty Church Road. Overpasses or underpasses with improved east/west connectivity, but no direct access to I-69, would be provided or maintained at 18% of the access points, including Rockport Road, Vernal Pike and 17th Street, Arlington Road, Kinser Pike, and Crossover/Chambers Pike. No direct interstate access is provided at 53% of the access points; however, access will be provided via local and new access roads resulting in slightly longer travel times. An analysis of representative travel times is provided in the following section.

Travel times vary between business centers based on the access provided by each alternative. Average travel times compared to the No Build resulted in an increase of 0.5 minute for Alternative 4, 0.7 minute for Alternatives 5, 7, 8, and Refined Preferred Alternative 8, and 1.0 minute for Alternative 6. Alternative 4 had the greatest increase in travel time with 13.3 additional minutes when traveling from Vernal Pike/Industrial to Monroe Hospital. Alternatives 5, 7, 8, and Refined Preferred Alternative 8 had the greatest reduction in travel time – with a decrease of 6.8 minutes from southbound I-69 – SR 37/SR39 interchange to SR 37/Vernal Pike. Details of the analysis of travel time differences for Alternatives 4 through Refined Preferred Alternative 8 are provided in **Appendix JJ**, *Local Travel Accessibility Analysis*. There are several observations regarding the travel time impacts for all alternatives.

- Build travel times between origins and destinations that are both within the section of I-69 between Fullerton Pike and SR 46 are generally similar to No Build travel times. Travel times for Alternative 4 and 6 are slightly higher when an origin or destination is off Tapp Road.
- Build travel times between origins and destinations that are both within the sections of I-69 north of SR 46 are generally greater than the No Build travel times.
- Build travel times increase the further an origin or destination is from a proposed interchange location. Some of the largest increases are when one of the origins or destinations is the Turkey Track neighborhood, Maple Grove HD, Cooksey Lane Residences, or Vernal Pike/Industrial location.
- Build travel time increases associated with getting onto I-69 can be reduced or eliminated the farther one travels on I-69. Traveling the full length of Section 5 results in a six to seven minute reduction in travel times when compared to the No Build condition.



The impacts of access changes are both positive and negative to individual businesses, depending on their dependence on highway-related or drive-by traffic, shipping needs, and number and location of customers and employees. The business needs surveys obtained July and August 2012 provide some insight in the business owners' perspective on the impact of access changes. These surveys are provided in their entirety in **Appendix A**, *Business Needs Survey*. Examples of feedback from a few of the representative businesses and institutions from south to north are summarized below.

- C&H Stone Company is located at 4000 S. Rockport Road with access to SR 37 at S. Rockport Road and Fullerton Pike. Customers are based in Bloomington and out of state. The business is concerned about access during construction, relocation of their office building, and impacts to yet to be mined limestone. The business does not expect to gain or lose customers as a result of the project.
- Ace Pawn Shop is located at 1528 Oakdale Drive with access to SR 37 via SR 45/2nd Street; its customer base is in Bloomington. The business does not have any concerns for direct or indirect impacts for the project and does not expect to gain or lose customers.
- Meadows Hospital is located at 3600 N. Prow Road with current direct access to SR 37 at Acuff Road. Customers are based in Bloomington, Martinsville, Ellettsville, and central and southern Indiana. The facility has concerns with the closure of access at Acuff Road coupled with closure of access at Kinser Pike and feels it is at risk for losing business to competitors in other cities that are easier to access for customers and emergency vehicles.
- Hoosier Energy Rural Electrical Cooperative and corporate headquarters is located at 7398 North SR 37 and serves a 15,000 square mile service area between I-70 and the Ohio River plus 11 counties in Illinois. Hoosier Energy does not expect to lose customers, but they anticipate that the loss of direct access will result in additional travel time, travel distance, and costs for moving freight and passengers. Other concerns include diminished value of real estate, increased traffic noise impacts, and reduced ability to mobilize and dispatch crews and materials.
- Poynter Sheet Metal is located at 8768 North SR 37 with customers statewide and out of state. Traffic volumes include 75 employees, 30 customers, and 55 delivery vehicles daily. Poynter Sheet Metal notes the direct loss of customers related to reduced access and increased distance of approximately 5 miles for employees, customers, and deliveries.
- The Idle Zone at 3490 SR 37 with access to SR 37 at Godsey Road has customers throughout the project area, as well as Indianapolis and central Indiana. This business has concerns for lack of easy access, reduced over the counter sales, and potential displacements under Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8.



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Table 5.5-5: Changes in Direct Access to Existing and Planned Businesses, by Alternative

Cross Street	Existing Business Location	Approximate Number and Type*	Planned Economic Development Area/TIF	Alt 4 Access	Alt 5 Access	Alt 6 Access	Alt 7 Access	Alt 8 Access	Refined Preferred Alt 8 Access
S. Rockport Road	West of SR 37	1 vacant office building	Fullerton Pike TIF	Reduced	Reduced	Reduced	Reduced	Reduced	Reduced
Fullerton Pike	West of SR 37	Monroe Hospital and commercially zoned sites on west. C&H Stone only business to the east.	Fullerton Pike TIF	Similar	Similar	Similar	Similar	Similar	Similar
Tapp Road	East of SR 37	Under 5 health care and services including Southern Indiana Medical Park and Worldwide Automotive Service	State Road 37/Tapp Road TIF	Reduced	Similar	Reduced	Similar	Similar	Similar
SR 45/ 2 nd Street	West of SR 37	Over 30 retail, services, and industrial including Rural King (formerly Wal-Mart), Aldi, Steak and Shake, Menards, Stephens Honda, and Coca-Cola.		Similar	Similar	Similar	Similar	Similar	Similar
SR 48/ 3 rd Street	East and west of SR 37	Over 50 retail, services, and accommodations and food service including Kmart, Wendys, McDonalds, Scottish Inn, Kenn Nunn Law Office	Whitehall West 3rd TIF	Similar	Similar	Similar	Similar	Similar	Similar



Table 5.5-5: Changes in Direct Access to Existing and Planned Businesses, by Alternative

Cross Street	Existing Business Location	Approximate Number and Type*	Planned Economic Development Area/TIF	Alt 4 Access	Alt 5 Access	Alt 6 Access	Alt 7 Access	Alt 8 Access	Refined Preferred Alt 8 Access
Whitehall Crossing Blvd.	West of SR 37	Over 10 retail and services, including Cracker Barrel, Kohl's, Bank One, and Sonic (also accessible via SR 48/3rd Street)	Whitehall West 3rd TIF	No Direct–New access road proposed					
Vernal Pike and 17th Street	East and west of SR 37	Over 20 services and industrial including United Rentals, Theraplay, Signs Now, and Anderson Construction.	Westside TIF	Reduced	Reduced	Reduced	Reduced	Reduced	Reduced
SR 46		no businesses adjacent to interchange	Bloomington TIF (North Park TIF)	Similar	Similar	Similar	Similar	Similar	Similar
Arlington Road	West of SR 37	Under 5 services and institutional, including Terry's Banquet and Catering, vacant buildings, and INDOT maintenance	Bloomington TIF (North Park TIF)	Reduced	Reduced	Reduced	Reduced	Reduced	Reduced
Acuff Road	East of SR 37	Under 10 institutional and services, including Northside Christian Church, Monroe County High School, Cook, and Meadows Hospital	Kinser Pike/Prow Road TIF	No Direct–New access road proposed					



Table 5.5-5: Changes in Direct Access to Existing and Planned Businesses, by Alternative

Cross Street	Existing Business Location	Approximate Number and Type*	Planned Economic Development Area/TIF	Alt 4 Access	Alt 5 Access	Alt 6 Access	Alt 7 Access	Alt 8 Access	Refined Preferred Alt 8 Access
Kinser Pike	West of SR 37	1 business - John Naylor Trucking	Kinser Pike/Prow Road TIF	Similar	Reduced	No Direct—New access road proposed	Reduced	Reduced	Reduced
Walnut Street	East of SR 37	Under 5 retail and services including Sate Beauty Supply and Castle Mulch		Reduced	Similar	Reduced	Similar	Similar	Similar
Connaught Road and Ellis Road	East and west of SR 37	Under 5 retail, services, and utility including Thompson's Furniture, Gibraltar Design, and Hoosier Energy accessed by private driveways south of Ellis Road and/or Ellis Road		No Direct – New access road proposed					
Wayport Road	East of SR 37	Under 5 retail and services including BP Gas station and Circle K		No Direct – New access road proposed					
Sample Road	East of SR 37	No current businesses following I-69 development		Similar	Similar	Similar	Similar	Similar	Similar



Table 5.5-5: Changes in Direct Access to Existing and Planned Businesses, by Alternative

Cross Street	Existing Business Location	Approximate Number and Type*	Planned Economic Development Area/TIF	Alt 4 Access	Alt 5 Access	Alt 6 Access	Alt 7 Access	Alt 8 Access	Refined Preferred Alt 8 Access
Private Driveways north of Sample	East and west of SR 37	1 retail and services including Bloomington Auto Parts		No Direct – New access road proposed					
Business Driveway south of and Simpson Chapel/ Duxbury Drive	East of SR 37	1 retail business - Worm's Way		No Direct – New access road proposed					
Simpson Chapel Road/Williams Road and Duxbury Drive	East and west of SR 37	Under 5 retail and institutional including Oliver Winery, Scholars Inn Bakehouse, and Simpson Chapel Methodist Church		No Direct – New access road proposed					
Lee Paul Road	West of SR 37	Under 5 construction and real estate/leasing including TK Constructors, and Sims and Pedigro		No Direct – New access road proposed					
Fox Hollow Road	East of SR 37	Under 5 retail and institutional including Family Life Worship Center and Parker Pools		No Direct – New access road proposed					



Table 5.5-5: Changes in Direct Access to Existing and Planned Businesses, by Alternative

Cross Street	Existing Business Location	Approximate Number and Type*	Planned Economic Development Area/TIF	Alt 4 Access	Alt 5 Access	Alt 6 Access	Alt 7 Access	Alt 8 Access	Refined Preferred Alt 8 Access
Business Driveways across from Crossover Road	East of SR 37	1 industrial business - Poynter Sheet Metal		No Direct – New access road proposed					
Crossover/Chambers Pike	East and west of SR 37	Under 5 utility, real estate/leasing, and institutional including utility substation, U-Haul Moving and Storage, and Full Gospel Tabernacle		Reduced	Reduced	Reduced	No Direct – New access road proposed	Reduced	Reduced
Sylvan Lane/East Sparks Lane	East of SR 37	1 business - Sparks Garage		No Direct – New access road proposed					
Paragon Road/Pine Road	West of SR 37	1 institution - Zion Hill Church		Similar	Reduced	No Direct – New access road proposed			
Old SR 37 south of Liberty Church	West of SR 37	1 institution - New Testament Baptist Church		No Direct – New access road proposed					



Table 5.5-5: Changes in Direct Access to Existing and Planned Businesses, by Alternative

Cross Street	Existing Business Location	Approximate Number and Type*	Planned Economic Development Area/TIF	Alt 4 Access	Alt 5 Access	Alt 6 Access	Alt 7 Access	Alt 8 Access	Refined Preferred Alt 8 Access
Liberty Church Road	East and west of SR 37	Under 5 retail, recreation, and institutions including Shot The Idle Zone and Liberty Church		No Direct – New access road proposed	Similar	Similar	Similar	Similar	Similar
Legendary Road	West of SR 37	1 retail business - Fastenal		No Direct – New access road proposed					
Old SR 37	East of SR 37	Over 5 retail, service, and other businesses including Hillview Motel, Melissa A. Schiff, CPA, Serious Sports, Hunter Self Storage, Hunter's Towing, and Brian's Off Road Shop		No Direct – New access road proposed					

Source: Michael Baker, Jr., Inc. 2013

* Representative businesses, not all businesses are noted.

Note: Refer to **Figure 5.3-5 to 5.3-10** in **Section 5.3** for changes in access, new access roads, and displacements.

Key to Changes in Access:

No Direct Access to I-69, additional travel along existing, or new access road to access I-69 = least favorable to existing businesses

Reduced Access from SR 37 replacing existing access with east/west grade separation = less favorable to existing businesses

Similar access with interchange access = beneficial to existing businesses



Impacts Due to Changes in Traffic Patterns

In general, traffic volumes on I-69 by the design year would double compared to existing volumes on SR 37. This would allow for greater range of potential customers for highway related businesses with direct interchange access, such as Fullerton Pike, SR 45/2nd, SR 48/3rd, and SR 46.

Changes in traffic volumes, levels of service (LOS²), and other traffic conditions are discussed in detail in **Section 5.6, *Traffic Impacts***. Based on the above analysis, none of the alternatives have significantly more impacts than another alternative. However, Alternatives 5, 8 and Refined Preferred Alternative 8 have the fewest overall traffic impacts when considering the number of increased roadway links with congestion, interchange accessibility, and local access provided.

Refined Preferred Alternative 8 will have eight locations with an improved LOS. (All LOS estimates are for the design year). The greatest improvement will be SR37/I-69 between SR 46 and SR48/3rd Street, which will improve from LOS E to LOS C. Locations with improved LOS include:

- Southbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS E to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS C to LOS B, as the Build Alternative includes two additional lanes.
- Northbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS D to LOS C.
- Northbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.

² Level of service (LOS) is the method commonly used to evaluate a roadway's functionality. LOS is a measure of operational conditions. These conditions are defined in terms of factors such as speed and travel time, maneuverability, and delay. There are six levels of service, designated by the letters "A" through "F." LOS "A" represents the most desirable operating conditions, while LOS "F" defines the least acceptable.

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Eight locations will have a lower LOS due to an increase in traffic volumes in the Build Condition without an increase in capacity. These locations are:

- SR 45 from Liberty Drive to Curry Pike; reduces from LOS A to LOS B.
- SR 45 from Basswood Drive to Weimer Road; reduces from LOS A to LOS B
- SR 48 west of SR 37/I-69; reduces from LOS C to LOS E.
- Sample Road west of SR 37; reduces from LOS A to LOS D
- Sample Road east of SR 37; reduces from LOS A to LOS D
- Simpson Chapel Road from Sample Road to Williams Road; reduces from LOS A to LOS B.
- Liberty Church Road east of SR 37/I-69; reduces from LOS A to LOS B.
- Liberty Church Road east of SR 37/I-69; reduces from LOS A to LOS B.

Although these segments experience a lower LOS than the No Build condition, all but three roadway segments (Sample Road east and west of SR 37/I-69 and SR 48 west of SR 37/I-69) fall within the acceptable LOS threshold of LOS C in rural areas or LOS D in urban areas.

Project Costs

Design and construction of I-69 would include a potential range of costs dependent on the alternative. **Section 6.4, *Selection of the Preferred Alternative***, discusses project cost estimates in detail. Estimates of project cost in Year 2015 dollars, including design, construction, right-of-way, relocation, utilities, and mitigation are:

- Alternative 4: \$,741,749,000
- Alternative 5: \$748,946,000
- Alternative 6: \$473,688,000
- Alternative 7: \$464,571,000
- Alternative 8:³ \$414,959,000 to \$454,269,000
- Refined Preferred Alternative 8: \$393,743,000

³ INDOT and the Federal Highway Administration (FHWA) evaluated options to incorporate the existing Walnut Street interchange as a full or partial interchange. This cost estimate represents the estimated cost range attributable to providing either a full or partial interchange at this location. Additional detail about these considerations is included in **Chapter 6, *Comparison of Alternatives***.



INDOT is pursuing innovative finance and delivery to deliver this project to the community as quickly as possible in order to alleviate concerns about the need for improvements to SR 37 that have been expressed by various members of the community in preparation for the opening of I-69 Section 4. Safety priorities include removing at-grade crossings such as Vernal Pike, especially in the urban area. INDOT is ready to begin right-of-way services once the use of federal funds are authorized. I-69 Section 5 will not be constructed as a toll facility. The expenditure of funds is an input to the local economy and therefore a positive economic impact. The local economic impact may include:

- Direct impacts that may include wages and local purchases of building materials
- Indirect impacts, such as increases in construction employment that could cause construction companies and building material vendors to increase their level of employment
- Induced effects, such as construction staff purchasing more goods and services from local businesses

Highway User Costs

Highway user costs include the cost of operating a vehicle, such as fuel, maintenance, insurance.; the cost of travel time; and the cost of crashes. The construction of I-69 will, in general, improve overall accessibility and safety within the region. However, there are localized situations where roads will be closed by the new I-69 right-of-way and travel patterns will necessarily change, sometimes resulting in a longer trip.

Highway user operating costs are directly related to the distance traveled. User time costs are directly related to the time required to make a trip. Highway user costs are also incurred due to crashes that result in fatalities, injuries, and/or property damage. Improvements in the overall condition of the region's roadway system can reduce these costs by providing a safer system which nevertheless increases overall travel speeds. The Build Alternative will result in more trips being made on a limited-access, multilane interstate highway where average travel speeds will be higher and the crash rates lower than on existing SR 37. The total vehicle miles traveled, the total vehicle hours traveled, and the total crashes expected in Monroe and Morgan counties in an average year has been forecast for the No Build Condition and the Build Alternative in Year 2035. **Table 5.5-6** compares the average daily vehicle operating costs and average daily user time costs for the No Build and Build Alternatives within the two-county area.

The user costs within the two-county traffic analysis area are forecasted to increase under the Build Alternative. The cost increase primarily reflects the increase in through traffic from outside of this area that will be attracted to I-69. Such through traffic represents trips that would be made on a route outside the two-county area if I-69 were not built. Therefore, the overall vehicle miles traveled and vehicle hours traveled on the road network in the two-county area in the year 2035 will increase along with the associated user costs, as shown in **Table 5.5-6**, while those measures would decrease outside the two-county area. The average daily costs for vehicle miles traveled and time spent traveling within the two-county traffic analysis area of Monroe and Morgan counties in the year 2035 is estimated to increase approximately \$512,500 per day



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compared to the No Build Alternative because more motorists and vehicles would be drawn to this area by I-69. For those highway users within the two-county area, average trip speeds will be improved and average crash rates will be reduced over the current averages, as discussed in Section 3.3.1.3, *Transportation Performance Measures Summary*.

Table 5.5-7 also presents the average annual crash costs projected within the two-county area in the year 2035 for the No Build and Build Alternative scenarios. Because crashes are a relatively infrequent occurrence, standard transportation planning practice analyzes them on an annual, rather than daily basis. Despite the slight increase in the number of accidents predicted for the Build Alternatives compared to the No Build, overall costs within the two-county area are forecasted to decrease \$21,867,400 per year with the Build Alternatives. The cost decrease is due to the Build Alternatives diverting traffic from less safe rural highways to a safer interstate facility, reducing the likelihood of travelers being involved in higher-cost serious crashes. The increase in the total number of accidents predicted for the Build Alternatives compared to the No Build is due to the added through traffic from other interstates and principal arterials outside the two counties reported. However, as shown and discussed in Section 3.3.1.3, *Transportation Performance Measures Summary*, the crash frequency or crash rates will be reduced for the Build Alternative over the current No Build averages.

		No Build		Build	
Vehicle Miles Traveled	Operating cost per 1,000 Miles	Miles	Operating Cost Total (Average)	Miles	Operating Cost Total (Average)
Auto Vehicle Miles Traveled	\$ 398	6,675,892	\$2,657,000	7,322,078	\$2,914,200
Truck Vehicle Miles Traveled	\$ 1,261	780,356	\$984,000	925,194	\$1,166,700
Cost Totals			\$3,641,000		\$4,080,900
Vehicle Hours Traveled	Time Value Per Hour	Hours	Time Cost Total	Hours	Time Cost Total
Auto Vehicle Hours Traveled	\$ 16	175,058	\$2,801,000	179,417	\$2,870,700
Truck Vehicle Hours Traveled	\$ 29	15,307	\$444,000	15,410	\$446,900
Cost Totals			\$3,245,000		\$3,317,600

Source: Vehicle miles traveled and time savings for Monroe and Morgan counties were calculated based on data provided by BLA 2012.

Vehicle operating cost and driver time savings were obtained from Transportation Research Circular E-C477, "Assessing the Economic Impact of Transportation Projects," October 1997. Cost rates were calculated based on the change in the Consumer Price Index for transportation from 2000 to 2010 and are in 2010 dollars and are rounded.



		No Build		Build	
Crashes	Cost Per Crash	Crashes	Crash Cost Total	Crashes	Crash Cost Total
Fatal Crashes	\$ 4,720,000	30	\$141,600,000	28	\$132,160,000
Injury Crashes	\$ 103,000	1,471	\$151,513,000	1,358	\$139,874,000
Property Damage Crashes	\$ 5,400	5,420	\$29,268,000	5,274	\$28,479,600
Cost totals			\$322,381,000		\$300,513,600

Source: Cost per Crash values were obtained from Economic Impacts of Indiana's Statewide Long Range Transportation Plan, Appendix A, Table A.7 Cambridge Systematics and BLA July, 2004 and updated from year 2007 \$ to Year 2010 \$ based on the change in the Consumer Price Index for all urban consumers from 2007 to 2010 and are in 2010 dollars.

5.5.3.2 Indirect Economic Impacts

The Council on Environmental Quality (CEQ) Regulations define indirect impacts as “effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.” An indirect impact for I-69 would be the change in use of a particular piece of property as a result of a project alternative. These changes in land use are anticipated to occur in currently undeveloped areas that have not been identified as part of a planned or proposed development. These changes would result from the improved accessibility and greater economic efficiency provided by the new highway. This increased attractiveness of land within the Section 5 Study Area will draw new residential and business development to the area that otherwise would not occur. These induced developments are a result of the proposed action and are reasonably foreseeable as a response to the project.

As described in **Chapter 3, Alternatives**, the No Build Alternative is used as a baseline to gauge potential effects of the Build Alternatives. Under the No Build Alternative, growth in population and employment also is anticipated, but to a lesser extent than under the Build Alternatives. Under the No Build Alternative, approximately 55,700 residents, 26,800 households, and 34,200 jobs are expected to be added in Monroe and Morgan between 2010 and 2035 (see **Section 5.24, Indirect and Cumulative Impacts, Table 5.24-4**).

Section 5.24, Indirect and Cumulative Impacts, presents a detailed analysis of the indirect and cumulative impacts of the construction of I-69 and other actions that may take place in the project area. This section also describes the City of Martinsville’s approval of four TIF districts within its existing city limits and its plans to annex portions of Morgan County to expand the city limits.

The forecasted induced population and employment changes are the same for any of the alternatives because each of the alternatives is located within the same corridor, varying only slightly between the actual alignments, and would have the same number and locations of interchanges. The location and number of interchanges are the features of the project which most directly affect the location of induced growth resulting from changes in access. The forecasted amount of traffic, which creates much of the economic demand for the amount of indirect land use changes, is also the same for each build scenario. Combined, the interchange



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locations and traffic volumes affect the location and amount of indirect population and employment changes.

Forecasts of population and employment were made in the Tier 1 study for the year 2034. For each TAZ identified for the Section 5 Tier 2 study, these values were extrapolated to 2035 for both the No Build and Build Alternatives. A TAZ is a geographic area that is consistent with the highway network, and is relatively homogeneous with respect to population demographics and land use. The traffic model regards trips on the highway network as originating and terminating within these TAZs. See **Section 3.1.2, *Traffic Modeling***, for further discussion of TAZs.

Maps of the TAZs in Monroe and Morgan counties were created which displayed the No Build and Build population and employment forecasts for the year 2035. The maps were presented to the Expert Land Use Panel, made up of local development officials. The panel verified and modified these forecasts to finalize the anticipated location of the growth in population and employment. See **Section 5.24.3, *Analysis (Indirect and Cumulative Impacts)***, for more detail on the Expert Land Use Panel and the process of allocating the predicted induced growth.

As shown in **Section 5.3, *Land Use and Community Impacts***, (**Figure 5.3-2 to Figure 5.3-4**), a total of 34 TAZs (18 in Monroe County and 16 in Morgan County) were identified as likely to have induced changes in the number of jobs and/or residents because of I-69 development. Alternatives 4, 5, 7, 8, and Refined Preferred Alternative 8 could induce changes in 31 TAZs, while Alternative 6 could affect 29 TAZs.

Through this process, a total of 29 to 31 TAZs per alternative were identified as forecasted to have induced changes in the number of jobs and/or households because of the proposed project. This anticipated induced change in housing units and employment is presented in **Table 5.5-8**, and the locations of the TAZs where this induced growth is expected to occur are shown in **Figure 5.3-2 to Figure 5.3-4**. Due to the more urban nature of this corridor and the potential changes in existing access, induced changes may include job or household growth or loss. This induced change, expected only if I-69 is constructed, is based on a projected total of 337 new households requiring 73 acres of new residential development and 350 new jobs induced requiring 22 acres of new business development within Monroe and Morgan counties.

The Tier 1 economic analysis determined the average number of dwelling units per acre was 4.82 in Monroe County and in Morgan County the average number of dwelling units per acre was determined to be 4.38. The numbers of employees-per-acre were also developed in Tier 1 for Monroe and Morgan counties per-employment-type data, developed from the Institute of Transportation Engineer's (ITE) Code per Trip Generation 6th Edition. The average is 17.8 employees per acre for Monroe County and 14.6 employees per acre for Morgan County. Refer to **Section 5.24, *Indirect and Cumulative Impacts***, and **Section 5.24.3, *Analysis (Indirect and Cumulative Impacts)***, for detailed discussion of anticipated growth impacts. In order to fully disclose the impacts associated with the geographic scopes of each Tier 2 project, the geographic scopes of the cumulative impact analyses in adjacent sections will of necessity overlap. As a result, some actions will be disclosed as cumulative impacts in more than one Tier 2 EIS. For this reason, the cumulative impacts of the I-69 project as a whole cannot be calculated by "adding up" the cumulative impacts totals that are given in each Tier 2 EIS.



Table 5.5-8: Number of Jobs, Households, and Acres Induced With I-69 Section 5 Alternatives

Traffic Analysis Zone (TAZ)	Size of TAZ (acres)	Alternative 4					Alternatives 5, 7, 8, and Refined Preferred Alternative 8					Alternative 6				
		Induced Number of Housing Units	Induced Number of Jobs	Induced Acres for Housing*	Induced Acres for Jobs**	Total Induced Acres Changes & % of Total TAZ Acres	Induced Number of Housing Units	Induced Number of Jobs	Induced Acres for Housing*	Induced Acres for Jobs**	Total Induced Acres Changes & % of Total TAZ Acres	Induced Number of Housing Units	Induced Number of Jobs	Induced Acres for Housing*	Induced Acres for Jobs**	Total Induced Acres Changes & % of Total TAZ Acres
Monroe County***																
5300426	242	29	0	6.0	0.0	6.0	0	5	0.0	0.3	0.3	21	0	4.4	0.0	4.4
5300728	-	-	-	-	-	-	0	7	0.0	0.4	0.4	-	-	-	-	-
5300901	370	7	0	1.5	0.0	1.5	5	0	1.0	0.0	1.0	-	-	-	-	-
5300903	694	36	0	7.5	0.0	7.5	26	0	5.4	0.0	5.4	8	0	1.7	0.0	1.7
5300904	1163	7	0	1.5	0.0	1.5	6	0	1.2	0.0	1.2	-	-	-	-	-
5300905	1709	12	0	2.5	0.0	2.5	9	0	1.9	0.0	1.9	-	-	-	-	-
5300907	556	11	0	2.3	0.0	2.3	9	0	1.9	0.0	1.9	2	0	0.4	0.0	0.4
5300911	562	14	0	2.9	0.0	2.9	10	0	2.1	0.0	2.1	3	0	0.6	0.0	0.6
5301504	211	32	0	6.6	0.0	6.6	-	-	-	-	-	23	0	4.8	0.0	4.8
5301511	122	13	0	2.7	0.0	2.7	-	-	-	-	-	9	0	1.9	0.0	1.9
5301903	429	0	3	0.0	0.2	0.2	0	3	0.0	0.2	0.2	0	2	0.0	0.1	0.1
5302301	173	0	7	0.0	0.4	0.4	112	0	23.2	0.0	23.2	105	0	21.8	0.0	21.8
5302501	230	6	0	1.2	0.0	1.2	4	0	0.8	0.0	0.8	-	-	-	-	-
5303311	78	0	17	0.0	1.0	1.0	-	-	-	-	-	0	10	0.0	0.6	0.6
5303502	187	14	0	2.9	0.0	2.9	0	3	0.0	0.2	0.2	10	0	2.1	0.0	2.1
5303601	-	-	-	-	-	-	0	36	0.0	2.0	2.0	0	19	0.0	1.1	1.1
5304601	321	0	81	0.0	4.6	4.6	0	67	0.0	3.8	3.8	0	78	0.0	4.4	4.4
5304603	582	0	78	0.0	4.4	4.4	0	65	0.0	3.7	3.7	0	77	0.0	4.3	4.3
Monroe County Subtotals	7,629	181	186	37.4	10.6	48 0.6%	181	186	37.5	10.6	48 0.6%	181	186	37.7	10.5	48 1.1%
Morgan County****																
5500407	2,021	21	0	4.8	0.0	4.8	29	0	6.6	0.0	6.6	29	0	6.6	0.0	6.6
5500408	2,196	19	0	4.3	0.0	4.3	26	0	5.9	0.0	5.9	26	0	5.9	0.0	5.9
5500504	687	0	14	0.0	1.0	1.0	0	14	0.0	1.0	1.0	0	14	0.0	1.0	1.0
5500507	1474	0	6	0.0	0.4	0.4	0	6	0.0	0.4	0.4	0	6	0.0	0.4	0.4
5500601	264	0	8	0.0	0.5	0.5	0	8	0.0	0.5	0.5	0	8	0.0	0.5	0.5
5500814	460	0	14	0.0	1.0	1.0	0	14	0.0	1.0	1.0	0	14	0.0	1.0	1.0
5500903	110	0	10	0.0	0.7	0.7	0	10	0.0	0.7	0.7	0	10	0.0	0.7	0.7
5501005	701	10	0	2.3	0.0	2.3	14	0	3.2	0.0	3.2	14	0	3.2	0.0	3.2



Table 5.5-8: Number of Jobs, Households, and Acres Induced With I-69 Section 5 Alternatives

Traffic Analysis Zone (TAZ)	Size of TAZ (acres)	Alternative 4					Alternatives 5, 7, 8, and Refined Preferred Alternative 8					Alternative 6				
		Induced Number of Housing Units	Induced Number of Jobs	Induced Acres for Housing*	Induced Acres for Jobs**	Total Induced Acres Changes & % of Total TAZ Acres	Induced Number of Housing Units	Induced Number of Jobs	Induced Acres for Housing*	Induced Acres for Jobs**	Total Induced Acres Changes & % of Total TAZ Acres	Induced Number of Housing Units	Induced Number of Jobs	Induced Acres for Housing*	Induced Acres for Jobs**	Total Induced Acres Changes & % of Total TAZ Acres
5501009	69	13	0	3.0	0.0	3.0	18	0	4.1	0.0	4.1	18	0	4.1	0.0	4.1
5501013	68	15	0	3.4	0.0	3.4	21	0	4.8	0.0	4.8	21	0	4.8	0.0	4.8
5501015	281	33	24	7.5	1.6	9.1	48	11	11.0	0.8	11.8	48	11	11.0	0.8	11.8
5501016	64	0	24	0.0	1.6	1.6	0	11	0.0	0.8	0.8	0	11	0.0	0.8	0.8
5501706	604	0	44	0.0	3.0	3.0	0	30	0.0	2.1	2.1	0	30	0.0	2.1	2.1
5501726	-	-	-	-	-	-	0	30	0.0	2.1	2.1	0	30	0.0	2.1	2.1
5502308	305	23	10	5.3	0.7	6.0	0	15	0.0	1.0	1.0	0	15	0.0	1.0	1.0
5502309	253	22	10	5.0	0.7	5.7	0	15	0.0	1.0	1.0	0	15	0.0	1.0	1.0
Morgan County Subtotals	9,557	156	164	35.6	11.2	47 0.7%	156	164	35.6	11.4	47 0.4%	156	164	35.6	11.4	47 0.4%
Total	17,186	337	350	73	22	95 0.7%	337	350	74	22	95 0.5%	337	350	74	22	95 0.6%

Source: BLA TAZ Shapefiles, May 2012 (Year 2010) and June 2012 (Year 2035)

Notes:

* Monroe County utilized 4.82 units/acre; Morgan County used 4.38 units/acre.

** Monroe County utilized 17.8 jobs/acre; Morgan County used 14.6 jobs/acre.

*** Induced growth in these Monroe County TAZs was independently verified by the Section 5 Expert Land Use Panel and is anticipated to impact 35% agricultural / 65% forest land. These percentages are applied where growth is expected to occur on non-developed land.

**** Induced growth in these Morgan County TAZs was independently verified by the Section 5 Expert Land Use Panel and is anticipated to impact 55% agricultural / 45% forest land. These percentages are applied where growth is expected to occur on non-developed land.

Subtotals have been rounded.



5.5.3.3 Business and Employment Impacts

As summarized in **Table 5.5-3**, Refined Preferred Alternative 8 would potentially result in 17 business displacements, including 15 businesses in Monroe County and two businesses in Morgan County. Alternatives 6, 7, and 8 potential business displacements range from 27 (Alternative 7) to 33 (Alternative 8). Alternatives 4 and 5 would result in approximately twice as many potential business displacements (77 and 71, respectively).

The number of employees affected by potential displacements ranges from a low of approximately 282 in Refined Preferred Alternative 8 to a high of approximately 907 in Alternative 4. The largest potentially affected employers (over 30 employees) include Bob Evans, Outback Steakhouse, Scholar's Inn Bakehouse, Nature's Way, Monroe Hospital – Administration, McDonalds, and Ken Nunn Law Office. Alternatives 6, 7, 8, and Refined Preferred Alternative 8 reduce the potential impact by displacing less than half of these establishments.

The business needs survey and availability of relocation options suggests that of these businesses, a majority would be able to relocate within Monroe or Morgan counties, so the permanent direct impacts associated with job and tax revenue loss would be minimized. In both Monroe and Morgan Counties, commercial property is available for sale or lease in the project vicinity in sufficient quantity and in potentially desirable locations to accommodate businesses affected by the project.

As of August 2012, approximately 175 properties were available for sale or lease within the Section 5 Study Area. These properties included industrial, retail, mixed-use, vacant land, and office space, which could accommodate potential relocations within the Section 5 corridor. Any potential sites for the relocation would need to comply with zoning regulations in Monroe and Morgan counties or in the City of Bloomington. Other direct business impacts including partial right-of-way acquisitions and parking impacts are noted in **Section 5.2, Social Impacts**.

For Section 5, the indirect impacts were determined to be changes in land use from undeveloped farmland or forest to land developed for residential, commercial, industrial and other urban uses. Based on the analysis summarized in **Table 5.5-5**, the induced economic impacts in Section 5 include the following:

- Addition of 350 new jobs
- Addition of 337 new households
- Conversion or redevelopment of 95 acres to residential or commercial development which would provide higher property tax values

There will also be a short-term economic impact in the Section 5 vicinity during construction due to construction-related expenditures. Food, lodging, materials and supplies, and local labor and services will all be consumed during the construction period. It is expected that there will be



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direct economic benefits to local communities during the construction period due to construction-related activity.

5.5.3.4 Local Property Tax Base

The purchase of right-of-way for the Build Alternative would convert taxable, privately owned land to a tax-exempt status, reduce the local property tax base, and decrease the revenue generated for local government. **Table 5.5-9** shows the estimated value of the property taken and the loss in property tax base for each of the build alternatives. The improvements on the land were estimated based on field observation, a review of transfers of similar properties in the project area, and interviews with local realtors. Under current law, taxes are to be assessed based on “market value.” The prices shown in **Table 5.5-9** are an approximation of market value that has been uniformly applied to all properties for all alternatives. The tax rate used is a weighted average of the rates set for 2011, per \$100 of assessed valuation.

Alternative	Potential Partial Acquisition Total (\$)	Potential Full Acquisition Total (\$)	Total Estimated Value for Potential Land and Improvement Acquisitions(\$)	Average Tax Rate Per \$100 of Assessed Value	Estimated Loss in Property Tax Base (\$)
Alt 4 – Monroe Co.	31,397,532	66,130,077	97,527,609	1.7070	1,664,796
Alt 4 – Morgan Co.	1,890,121	8,645,809	10,535,930	1.0079	106,192
Alt 4 -- Total	33,287,653	74,775,886	108,063,539		1,770,988
Alt 5 – Monroe Co.	29,880,240	71,144,617	101,024,857	1.7070	1,724,494
Alt 5 – Morgan Co.	2,553,843	8,223,827	10,777,670	1.0079	108,628
Alt 5 -- Total	32,434,083	79,368,444	111,802,527		1,833,122
Alt 6 – Monroe Co.	15,992,995	25,237,950	41,230,945	1.7070	703,812
Alt 6 – Morgan Co.	1,045,626	5,842,773	6,888,399	1.0079	69,428
Alt 6 -- Total	17,038,621	31,080,723	48,119,344		773,240
Alt 7 – Monroe Co.	17,322,360	24,555,408	41,877,768	1.7070	714,854
Alt 7 – Morgan Co.	1,591,307	5,000,572	6,591,879	1.0079	66,440
Alt 7 -- Total	18,913,668	29,555,980	48,469,648		781,293
Alt 8 – Monroe Co.	19,780,241	32,387,921	52,168,162	1.7070	890,511
Alt 8 – Morgan Co.	1,172,176	4,951,973	6,124,149	1.0079	61,725
Alt 8 – Total	20,952,418	37,339,894	58,292,312		952,236
Refined Preferred Alt 8 – Monroe Co.	7,806,251	25,289,671	33,095,922	1.7070	564,947
Refined Preferred Alt 8 – Morgan Co.	360,352	4,737,346	5,097,698	1.0079	51,380
Refined Preferred Alt 8 - Total	8,166,603	30,027,017	38,193,620		616,327

Source: Michael Baker, Jr., Inc. 2013 and 2011 tax assessor's data

Note: Prices shown are an approximation of market values that have been uniformly applied to all properties for all alternatives.



Alternative 5 would have the greatest impact to the tax base in Monroe County with a loss of at least \$1,724,494, which is less than 0.02% of the total assessed property value from Monroe County in 2010 (**Section 4.2**, *Human Environment*, **Table 4.2-28**). In Morgan County, Alternative 5 also would have the greatest tax base impact with a loss of \$108,628, approximately 0.002% of the total assessed property value in 2010 in Morgan County. Refined Preferred Alternative 8 would have the least impact to the tax base in Monroe County with a loss of \$564,947, approximately 0.006% of the total assessed property value in 2010. Refined Preferred Alternative 8 would have the least impact to the tax base in Morgan County with a loss of \$51,380, approximately 0.001% of the total assessed property value in 2010.

Property values, in the short term within the corridor would, for the most part, be unaffected by the project and/or would experience a temporary decrease in the near term immediately following construction of I-69. Two circumstances of the project are worth noting as they could produce dramatic changes and could occur during the construction of the project or immediately upon being open to traffic. The first case includes those business properties that would lose direct access to traffic or would be affected by a reduction in pass-by traffic. These businesses are discussed in **Section 5.5.3.1**. The potential for reduction in sales could lower the lease value of the specific location and therefore the valuation of the real estate.

The second potential case of a dramatic change in property values could occur for those properties located near the proposed interchanges where new access to large traffic volumes would occur. Owners of land currently used for agriculture or forest may be approached to sell or lease the property for commercial purposes. These changed uses would command a higher value for the land than its value as farmland or forest.

Property values within the Study Area would likely increase over time as demand for land to accommodate housing and commerce increases. Long-term changes in land use and potential development induced by the project are discussed in **Section 5.24**, *Indirect and Cumulative Impacts*.

In the longer term, there is projected to be new residential and commercial development induced by the project, as discussed in **Section 5.5.3.2**, *Indirect Economic Impacts*. These improvements will cause these properties to increase in assessed value, adding to the local tax base. Also, some properties located near the proposed new I-69 interchanges are likely to become more valuable. The resulting increases in assessed valuation are expected to offset tax base losses due to the acquisition of right-of-way for the highway. Given the imprecision in assessing both the timing and magnitude of such increases in assessed valuation, no attempt is made to quantify them.

5.5.3.5 Local Property Values

Near term corridor property values will be unchanged, for the most part, after the project is built. However, two circumstances could arise where the changes may be large and occur during the construction of the project or immediately upon it being open to traffic. The first case includes those business properties that will be affected by a reduction in pass-by traffic, discussed in **Section 5.5.3.1**, above. The reduction in sales would lower the lease value of the specific location and therefore the valuation of the real estate.



The second potential case of a dramatic change in property values occurs for those properties located near the proposed interchanges where new access to large traffic volumes will occur when the project is complete. These properties will command a higher value than in their use as forest or agricultural land. Owners of existing forested or agricultural land probably will have opportunities to sell or lease that property for development. This would be especially true in the Refined Preferred Alternative 8 vicinity of the Fullerton Pike, Tapp Road, Sample Road, and Liberty Church Road. In these areas, improved access to I-69 will likely cause an increase in residential and commercial development resulting in increased property values.

Property values within the Study Area would likely increase over time as demand for land to accommodate housing and commerce increases. Long-term changes in land use and potential development induced by the project are discussed in **Section 5.24**, *Indirect and Cumulative Impacts*.

5.5.4 Mitigation

The I-69 Community Planning Program assisted in the development of a regional strategy for providing resources to local communities to manage the growth and economic development associated with I-69. The grant application program was developed and grants were made available to eligible communities in two phases beginning in August 2007. On October 29, 2007, the Indiana Department of Transportation (INDOT) awarded \$950,000 in grants to communities located along the I-69 corridor in Southwest Indiana. Greene, Lawrence, and Monroe counties and the cities of Bedford, Bloomfield, Ellettsville, Linton, and Bloomington were eligible for grants.

On February 1, 2008, Monroe County submitted an application for a \$50,000 grant. The City of Bloomington was eligible for this program but chose not to participate.

In the second phase of the program, on July 30, 2008, a \$100,000 grant was awarded to Monroe County and the Town of Ellettsville. This grant was used for the preparation of the *Monroe County Comprehensive Plan* (2012). A transportation corridor plan for SR 37/I-69 also was developed by Monroe County in 2010 as a result of the grant program. Grants awarded in this second round of grants brought the total grant awards to \$1,500,000. See **Appendix T**, *I-69 Planning Grant Program Update*, for additional details on the Community Planning Program within Section 5.

5.5.5 Summary

The above analysis presented the localized economic impacts of the construction of I-69 within the corridor and the counties surrounding Section 5. The localized impacts include the following:

- There would be a loss in farm income by taking farmland for highway right-of-way. Loss of farm income (estimated based on annual crop cash receipt loss) would range from \$31,338 in Refined Preferred Alternative 8 to \$78,655 in Alternative 5.



- Businesses and institutions would be displaced and relocated by each of the Build Alternatives. Business displacements range from 77 establishments with approximately 907 employees in Alternative 4 to 17 establishments with about 282 employees in Refined Preferred Alternative 8. The business needs survey and availability of relocation options suggests that a majority of these businesses would be able to relocate within Monroe or Morgan counties, so the permanent direct impacts associated with job and tax revenue loss would be minimal.
- Businesses and institutions within the corridor would probably be affected by the change in access, travel patterns, and traffic volumes, primarily those dependent upon traffic along SR 37. Access changes related to business and institutional access were most favorable with Refined Preferred Alternative 8 with 29% of business and institutional access points with similar or better access via an interchange to I-69, 18% of access points with a new overpass providing reduced I-69 access, but improved east/west connectivity; and 53% with no direct access to I-69, but access provided via existing local roads and new access roads. Comparatively, Alternative 6 provides similar or improved interchange access to 24% of business and institutional access points; 21% of access points include an overpass with reduced access; and 56% with no direct access.
- Travel times vary between business centers based on the access provided by each alternative. Average travel times compared to the No Build resulted in an increase of 0.5 minute for Alternative 4, 0.7 minute for Alternatives 5, 7, 8, and Refined Preferred Alternative 8, and 1.0 minute for Alternative 6. Alternative 4 had the greatest increase in travel time with 13.3 additional minutes from Vernal Pike/Industrial to Monroe Hospital. Alternatives 5, 7, 8, and Refined Preferred Alternative 8 had the greatest reduction in travel time – with a decrease of 6.8 minutes from southbound I-69 – SR 37/SR39 interchange to SR 37/Vernal Pike. Build travel time increases associated with getting onto I-69 can be reduced or eliminated the farther one travels on I-69. Traveling the full length of Section 5 results in a six to seven minute reduction in travel times when compared to the No Build condition.
- Total costs of constructing Section 5 in Year 2015 dollars is estimated to range from a low of about \$394 million for Refined Preferred Alternative 8 to a high of about \$749 million for Alternative 5. These costs include design, construction, right-of-way, relocation, mitigation, and utilities.
- Indirect economic impacts include the inducement of economic activity because of the improved access in the area. These impacts are expected to generate over 337 additional housing units and 350 jobs through the development or re-development of nearly 95 acres of land as a result of the construction of I-69.
- Taking taxable land for public right-of-way purposes will remove that land from the tax base and, in the short term, reduce the taxes collected. However, induced development and improved access to existing development is anticipated to increase property values and more than offset the short-term loss in tax base.



Section 5.5 Figure Index

(Figures follow this index, except as noted.)

Figure Reference	Number of Sheets
Figure 5.5-1: SR 48/3 rd Street	(p. 5.5-7)
Figure 5.5-2: Fullerton Pike	(p. 5.5-7)
Figure 5.5-3: Simpson Chapel Road	(p. 5.5-7)
Figure 5.5-4: Changes in Access and Traffic Patterns, Alternative 4	4 Sheets
Figure 5.5-5: Changes in Access and Traffic Patterns, Alternative 5	4 Sheets
Figure 5.5-6: Changes in Access and Traffic Patterns, Alternative 6	4 Sheets
Figure 5.5-7: Changes in Access and Traffic Patterns, Alternative 7	4 Sheets
Figure 5.5-8: Changes in Access and Traffic Patterns, DEIS Preferred Alternative 8	4 Sheets
Figure 5.5-9: Changes in Access and Traffic Patterns, Refined Preferred Alternative 8	4 Sheets

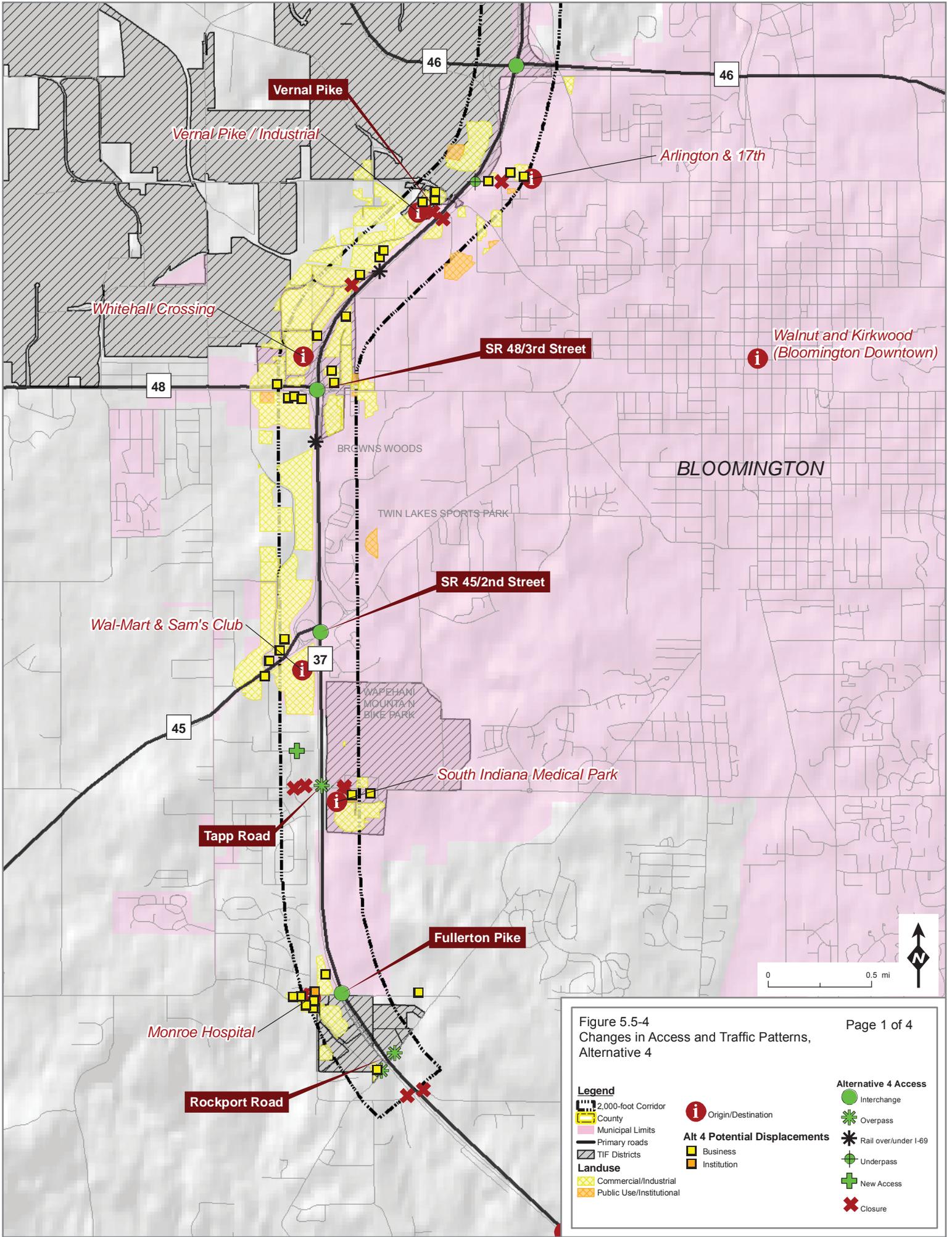


Figure 5.5-4
Changes in Access and Traffic Patterns,
Alternative 4

Legend		Alternative 4 Access	
2,000-foot Corridor	Origin/Destination	Interchange	Overpass
County	Alt 4 Potential Displacements	Rail over/under I-69	Underpass
Municipal Limits	Business	New Access	Closure
Primary roads	Institution		
TIF Districts			
Landuse			
Commercial/Industrial			
Public Use/Institutional			

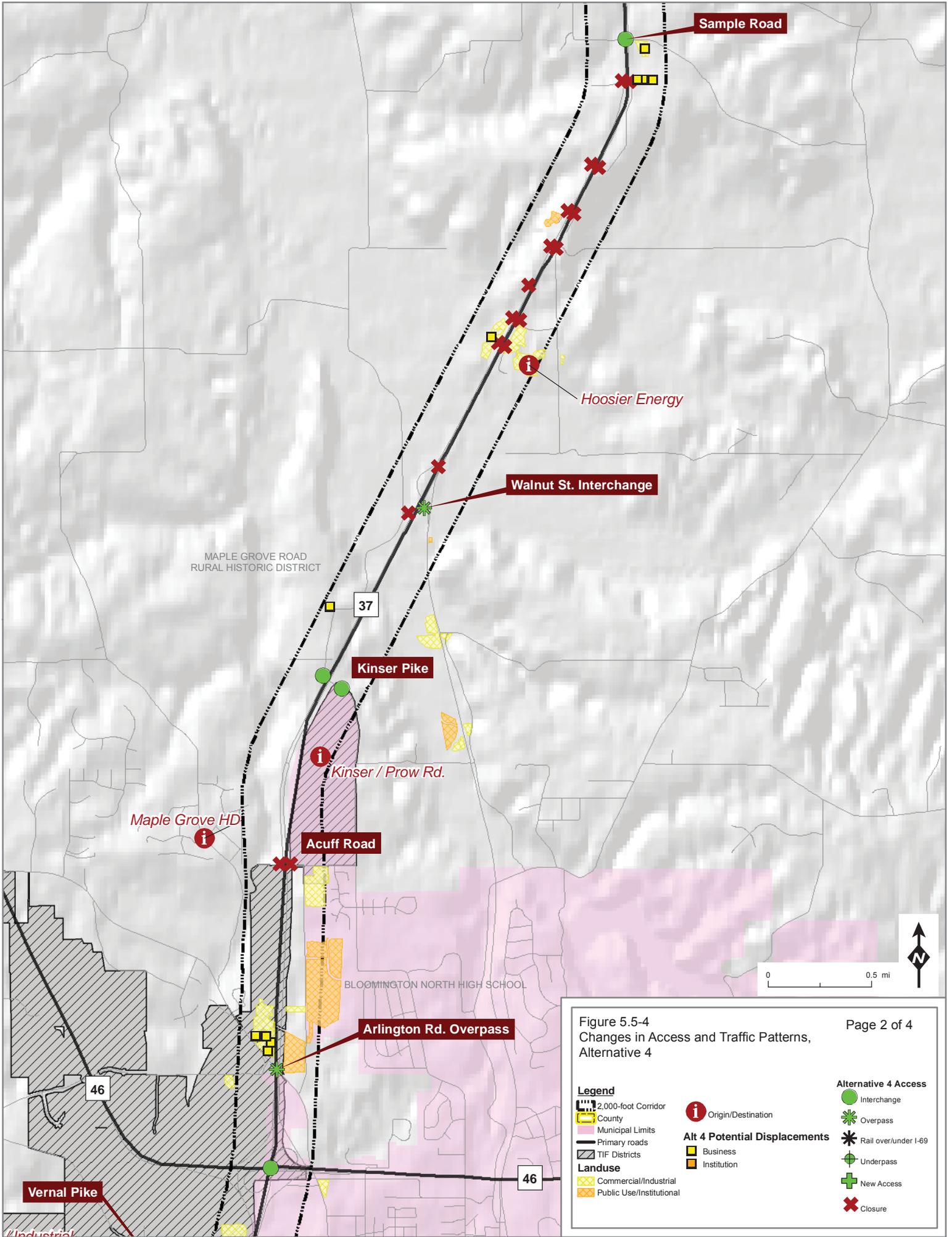


Figure 5.5-4
Changes in Access and Traffic Patterns,
Alternative 4

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts

Landuse

- Commercial/Industrial
- Public Use/Institutional

Alt 4 Potential Displacements

- Business
- Institution

Alternative 4 Access

- Interchange
- Overpass
- Rail over/under I-69
- Underpass
- New Access
- Closure

Origin/Destination

- Origin/Destination

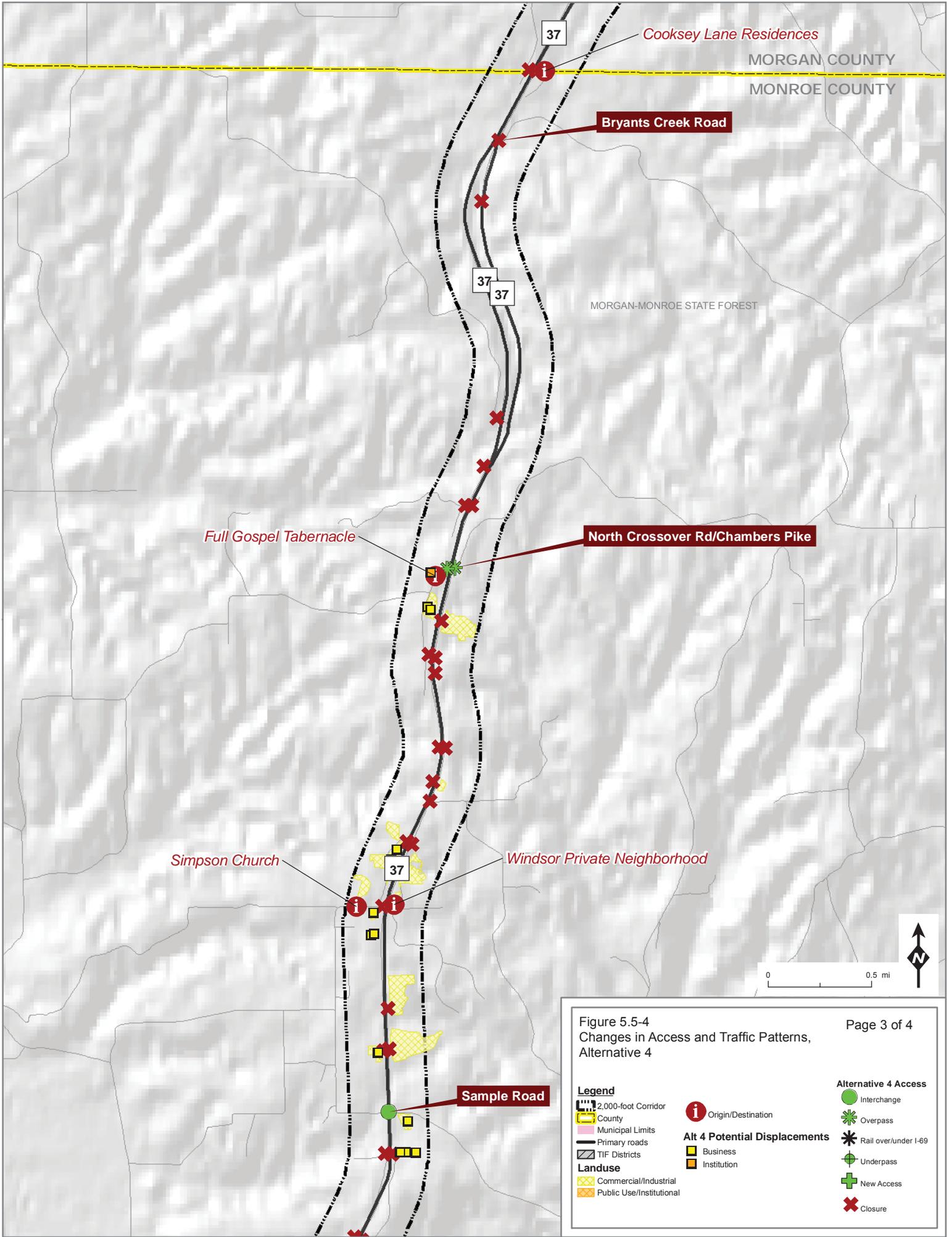


Figure 5.5-4
Changes in Access and Traffic Patterns,
Alternative 4

Legend		Origin/Destination 	Alternative 4 Access Interchange Overpass Rail over/under I-69 Underpass New Access Closure
2,000-foot Corridor County Municipal Limits Primary roads TIF Districts	Alt 4 Potential Displacements Business Institution		
Landuse Commercial/Industrial Public Use/Institutional			

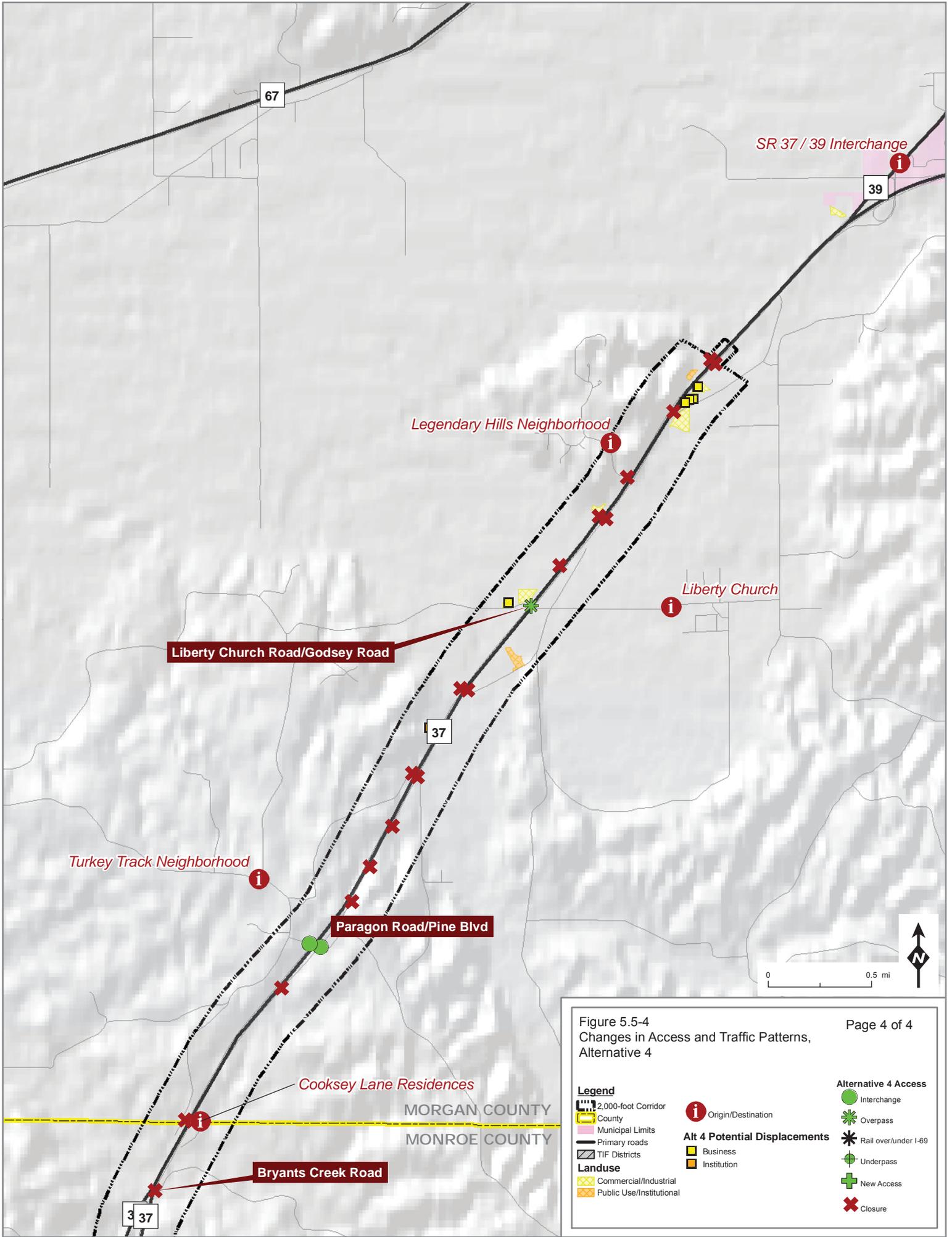
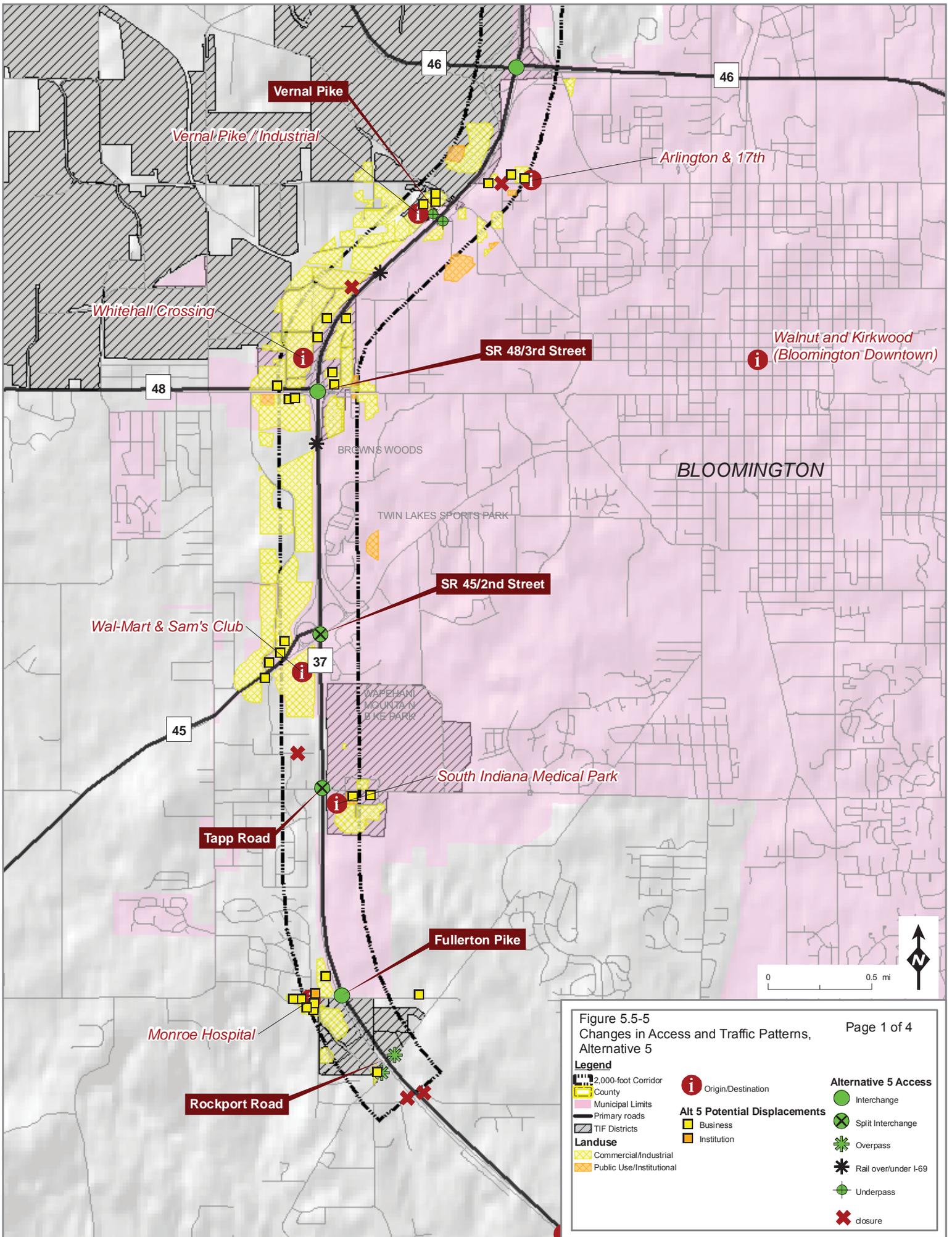


Figure 5.5-4
Changes in Access and Traffic Patterns,
Alternative 4

Legend		Origin/Destination Alt 4 Potential Displacements Business Institution	Alternative 4 Access Interchange Overpass Rail over/under I-69 Underpass New Access Closure
2,000-foot Corridor County Municipal Limits Primary roads TIF Districts Landuse Commercial/Industrial Public Use/Institutional	MORGAN COUNTY MONROE COUNTY		



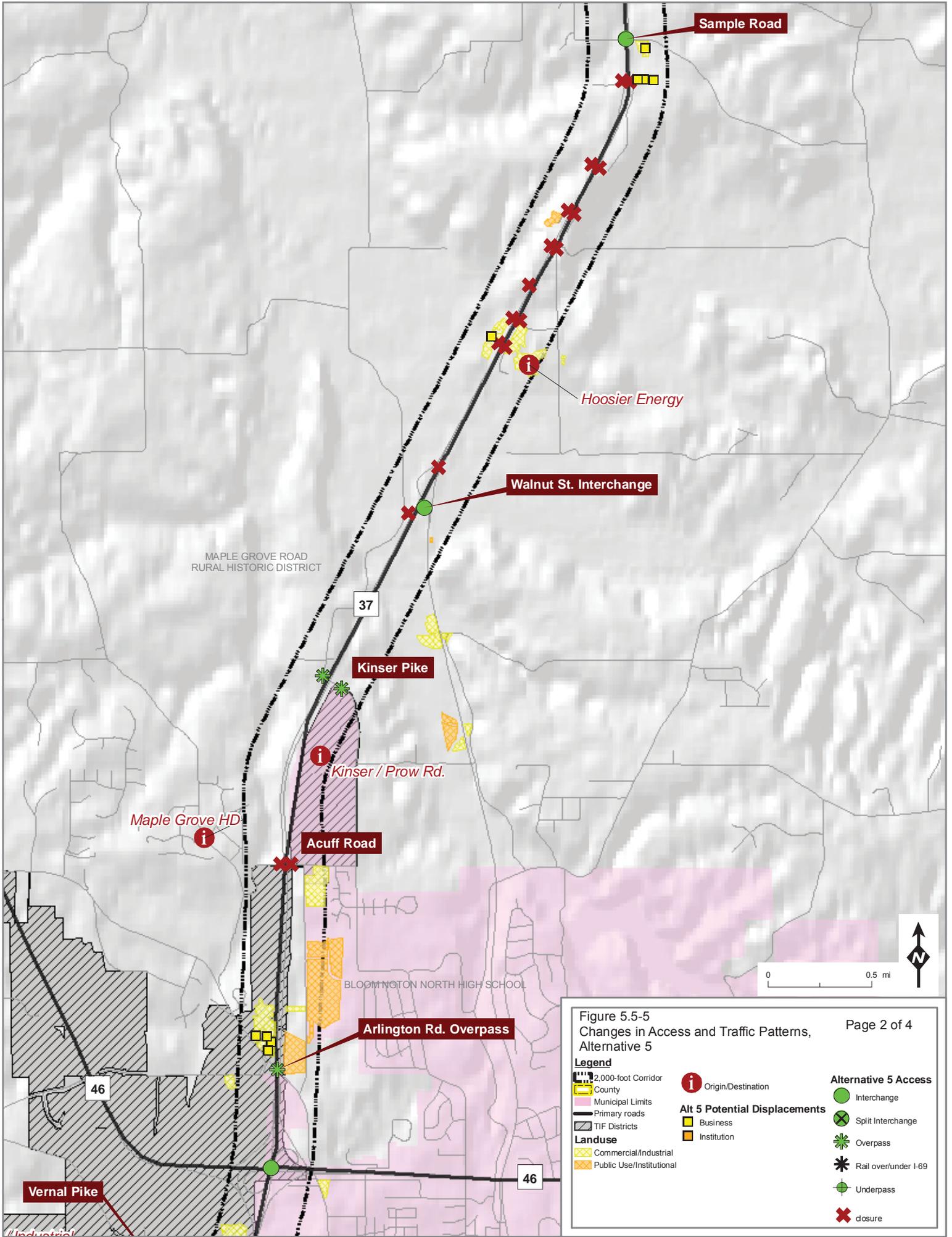


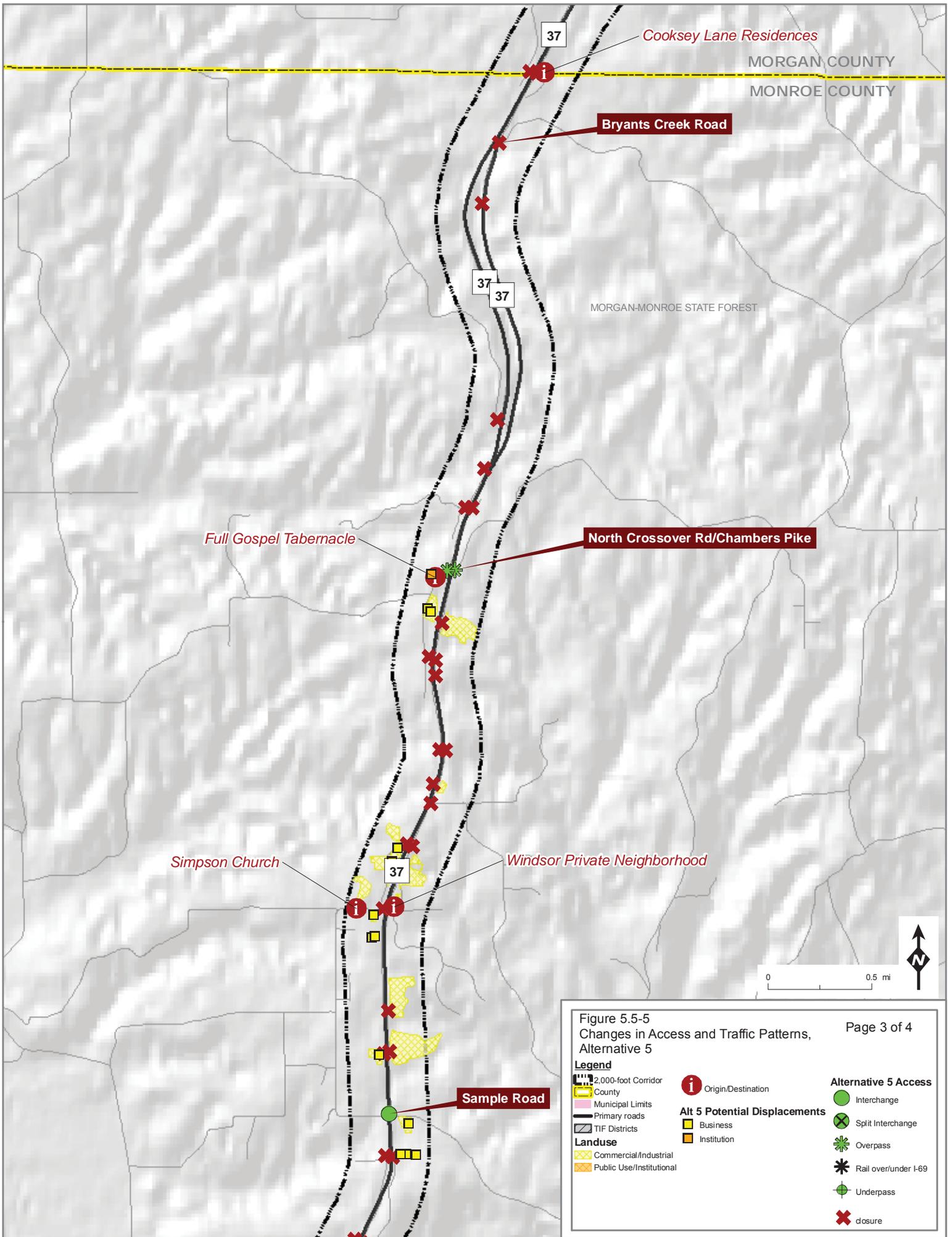
Figure 5.5-5
 Changes in Access and Traffic Patterns,
 Alternative 5

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Legend

2,000-foot Corridor	Origin/Destination	Interchange
County	Business	Split Interchange
Municipal Limits	Institution	Overpass
Primary roads		Rail over/under I-69
TIF Districts		Underpass
Commercial/Industrial		closure
Public Use/Institutional		

Alt 5 Potential Displacements



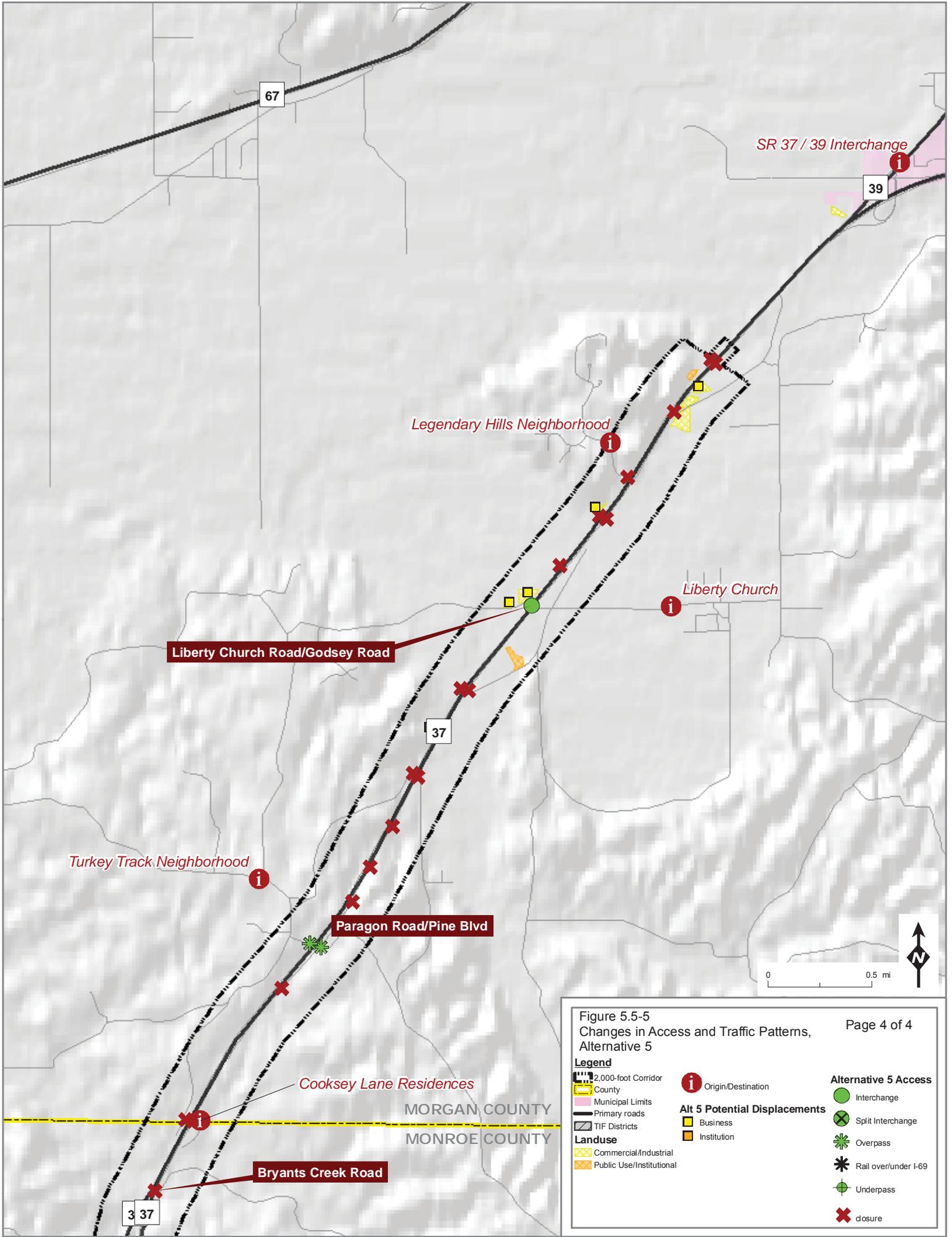


Figure 5.5-5
 Changes in Access and Traffic Patterns,
 Alternative 5

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Legend

2,000-foot Corridor	Origin/Destination	Interchange
County	Business	Split Interchange
Municipal Limits	Institution	Overpass
Primary roads		Rail over/under I-69
TIF Districts		Underpass
Commercial/Industrial		closure
Public Use/Institutional		

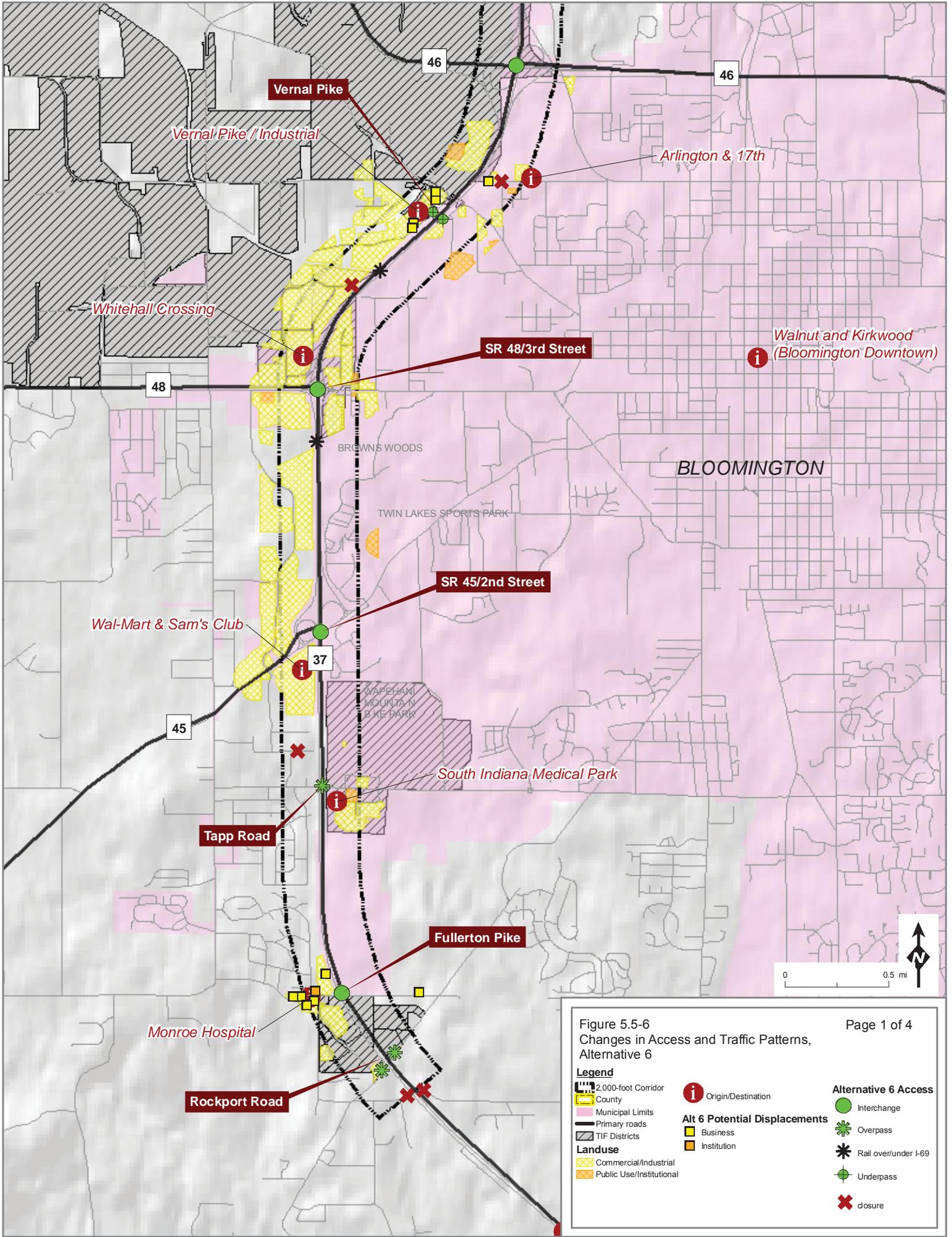


Figure 5.5-6
 Changes in Access and Traffic Patterns,
 Alternative 6

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Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Landuse**
- Commercial/Industrial
- Public Use/Institutional
- Origin/Destination
- Alt 6 Potential Displacements**
- Business
- Institution
- Alternative 6 Access**
- Interchange
- Overpass
- Rail over/under I-69
- Underpass
- closure

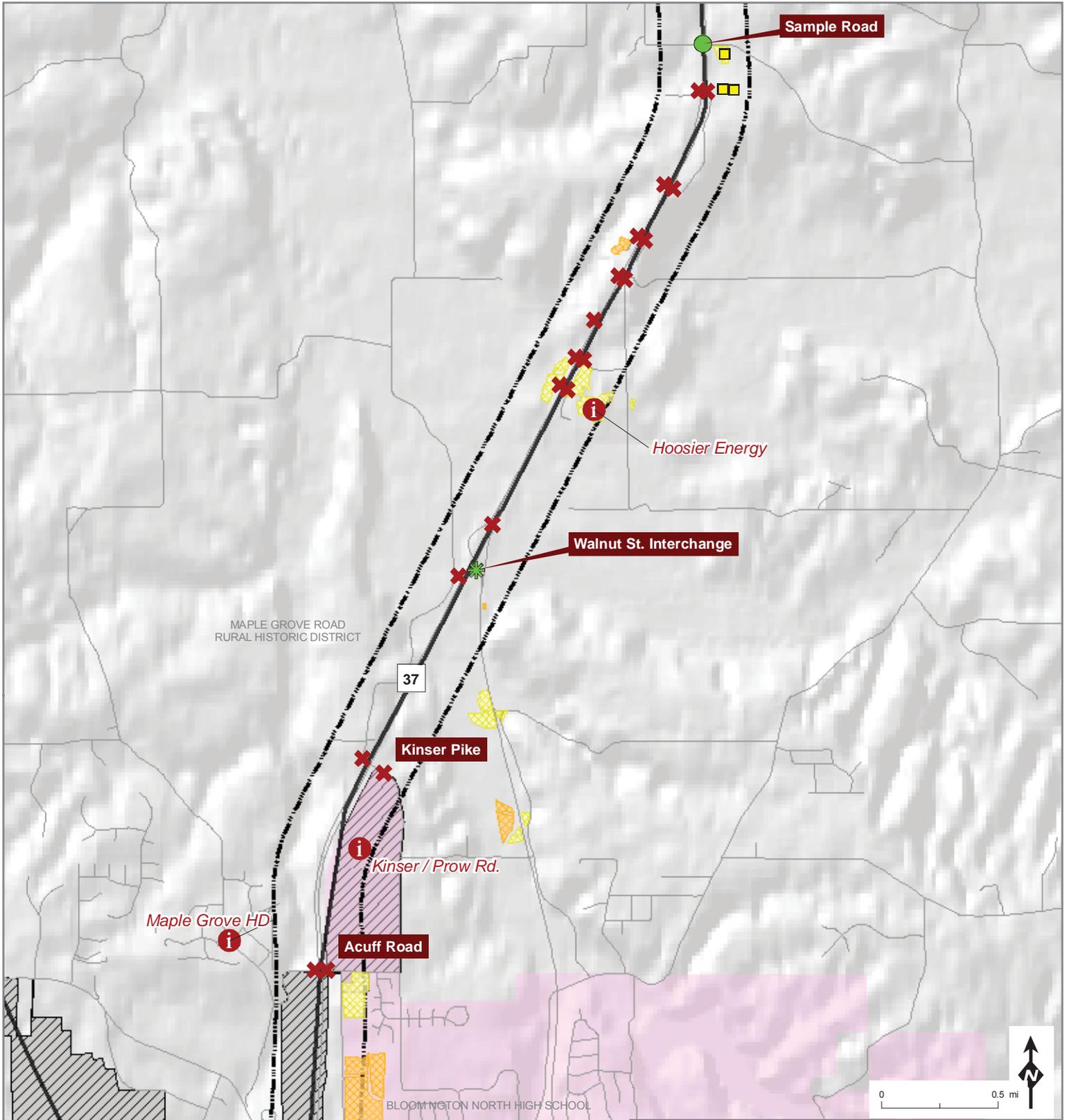


Figure 5.5-6
Changes in Access and Traffic Patterns,
Alternative 6

Page 2 of 4

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Commercial/Industrial
- Public Use/Institutional
- Origin/Destination
- Business
- Institution
- Interchange
- Overpass
- Rail over/under I-69
- Underpass
- closure

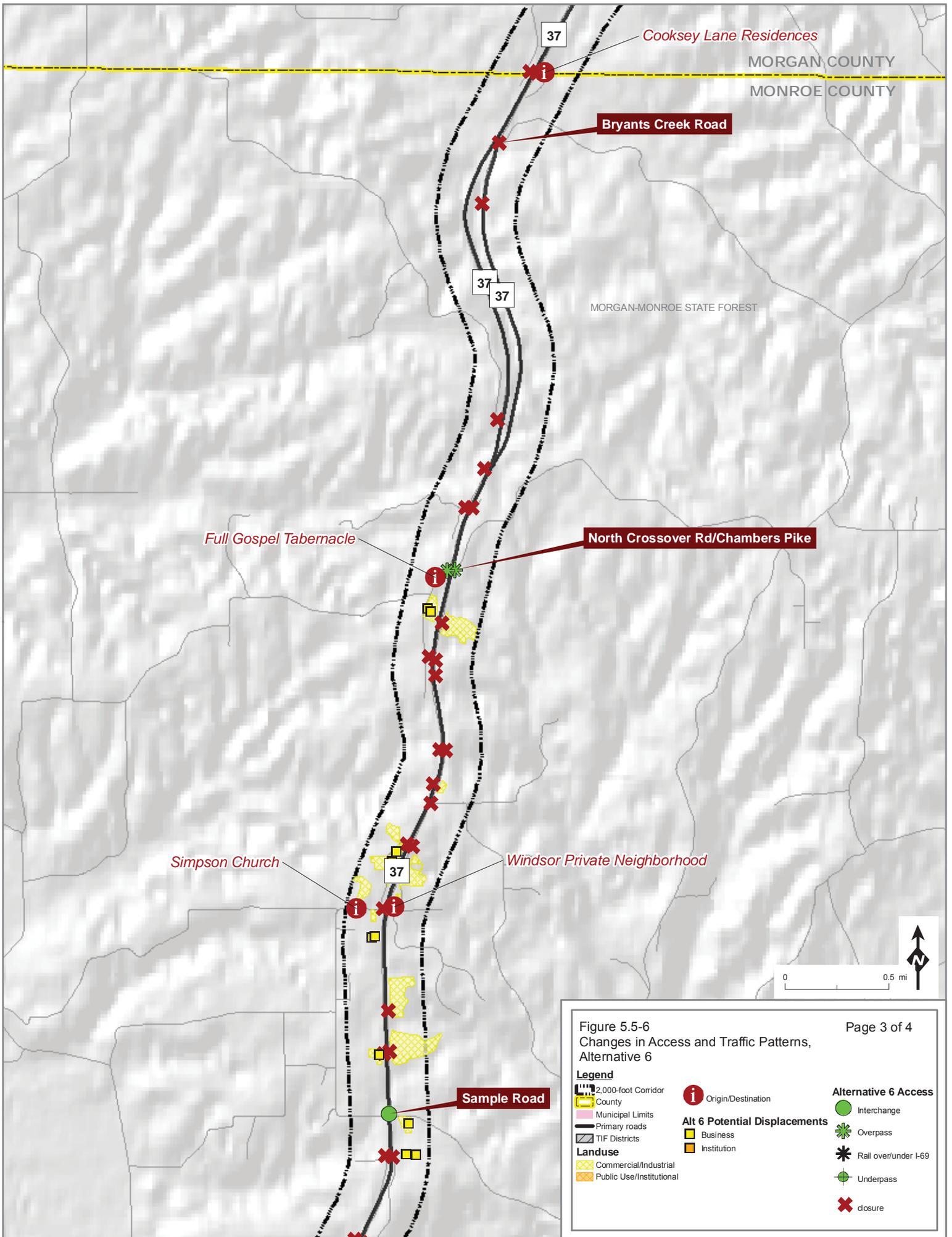


Figure 5.5-6
Changes in Access and Traffic Patterns,
Alternative 6

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Commercial/Industrial
- Public Use/Institutional
- Origin/Destination
- Business
- Institution
- Alternative 6 Access Interchange
- Alternative 6 Access Overpass
- Alternative 6 Access Rail over/under I-69
- Alternative 6 Access Underpass
- Alternative 6 Access closure

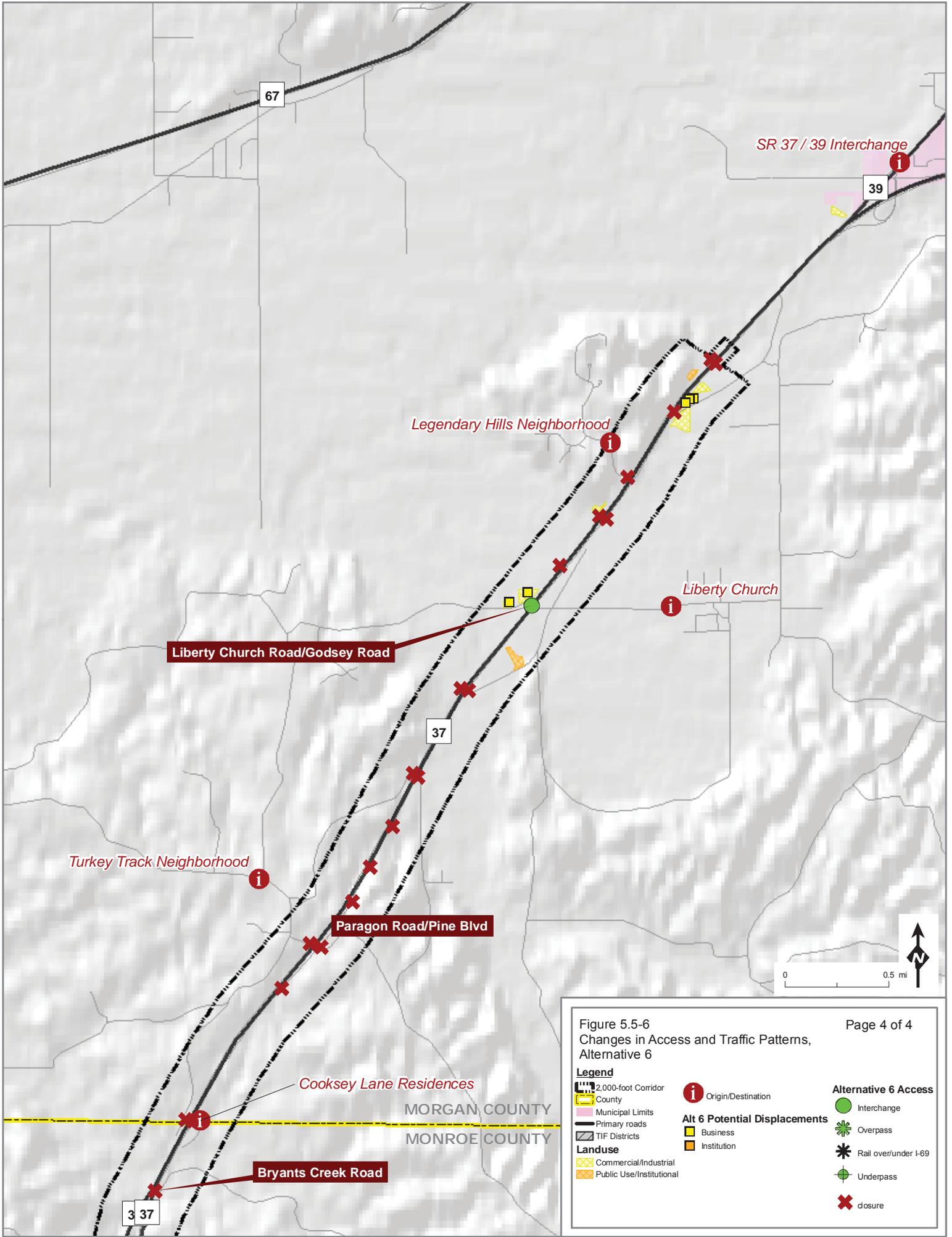


Figure 5.5-6
Changes in Access and Traffic Patterns,
Alternative 6

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Commercial/Industrial
- Public Use/Institutional

Alt 6 Potential Displacements

- Origin/Destination
- Business
- Institution

Alternative 6 Access

- Interchange
- Overpass
- Rail over/under I-69
- Underpass
- closure

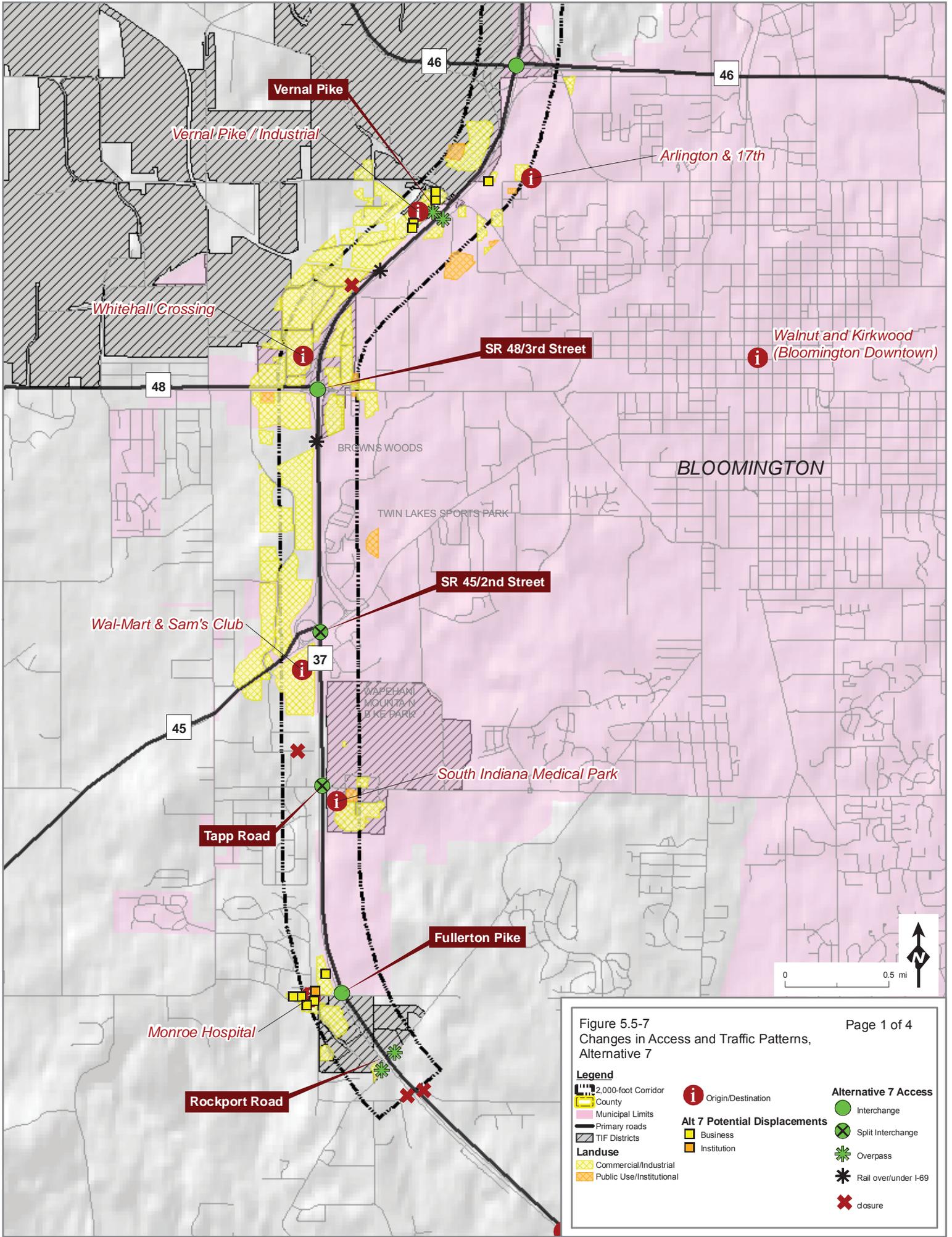


Figure 5.5-7
Changes in Access and Traffic Patterns,
Alternative 7

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts

Landuse

- Commercial/Industrial
- Public Use/Institutional

Alt 7 Potential Displacements

- Business
- Institution

Alternative 7 Access

- Interchange
- Split Interchange
- Overpass
- Rail over/under I-69
- closure

Origin/Destination

- Origin/Destination

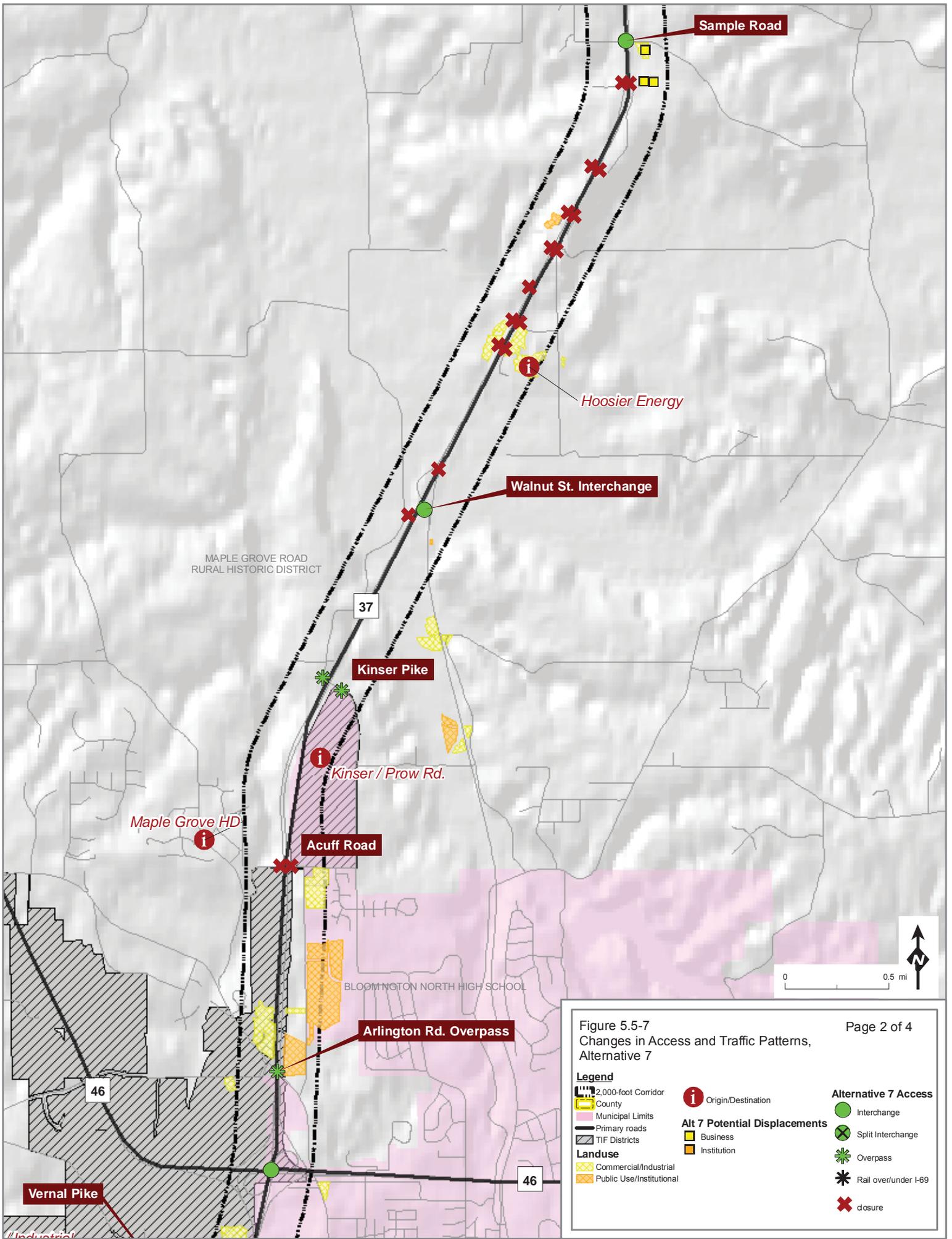


Figure 5.5-7
Changes in Access and Traffic Patterns,
Alternative 7

Legend

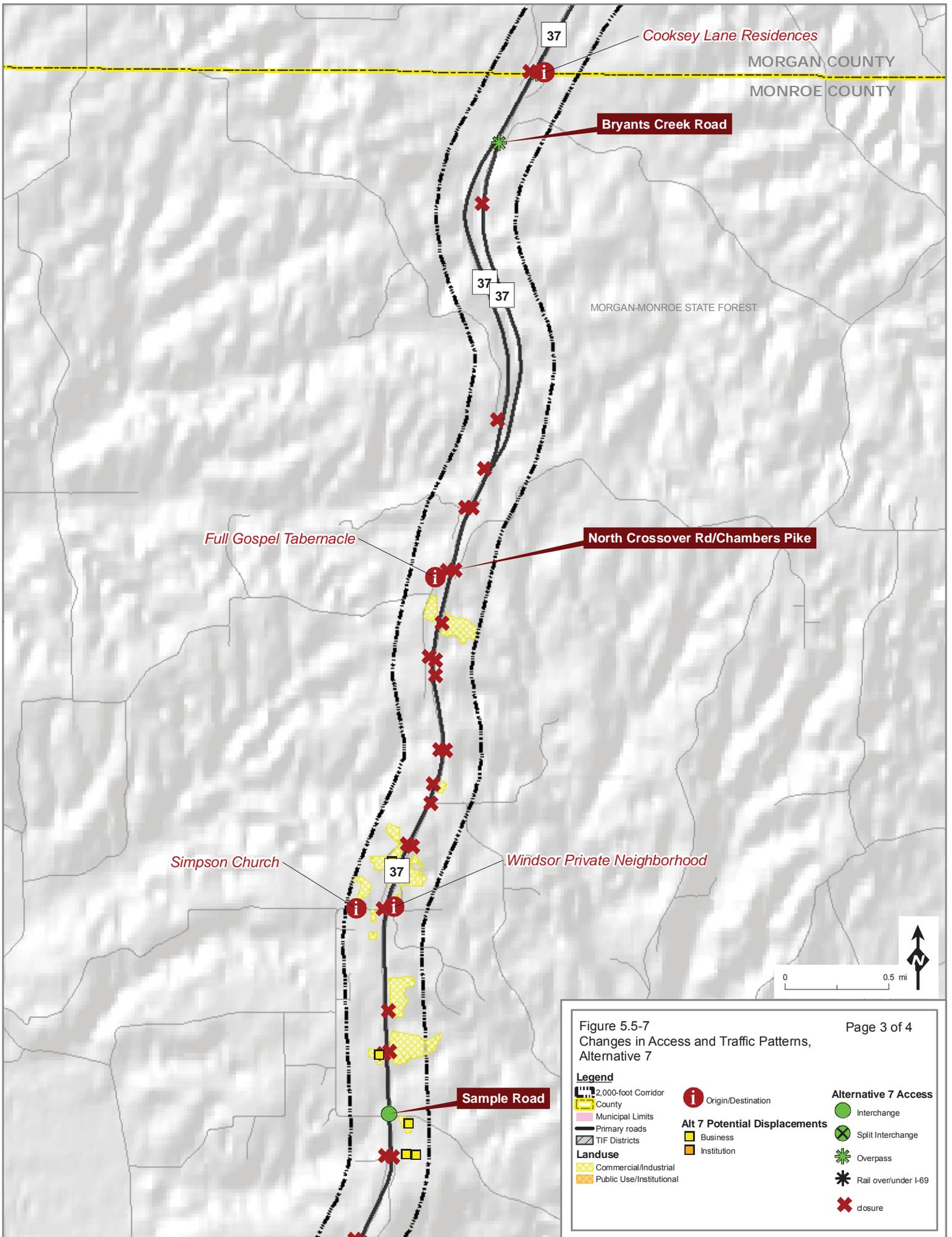
- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Landuse**
- Commercial/Industrial
- Public Use/Institutional

Alt 7 Potential Displacements

- Origin/Destination
- Business
- Institution

Alternative 7 Access

- Interchange
- Split Interchange
- Overpass
- Rail over/under I-69
- closure



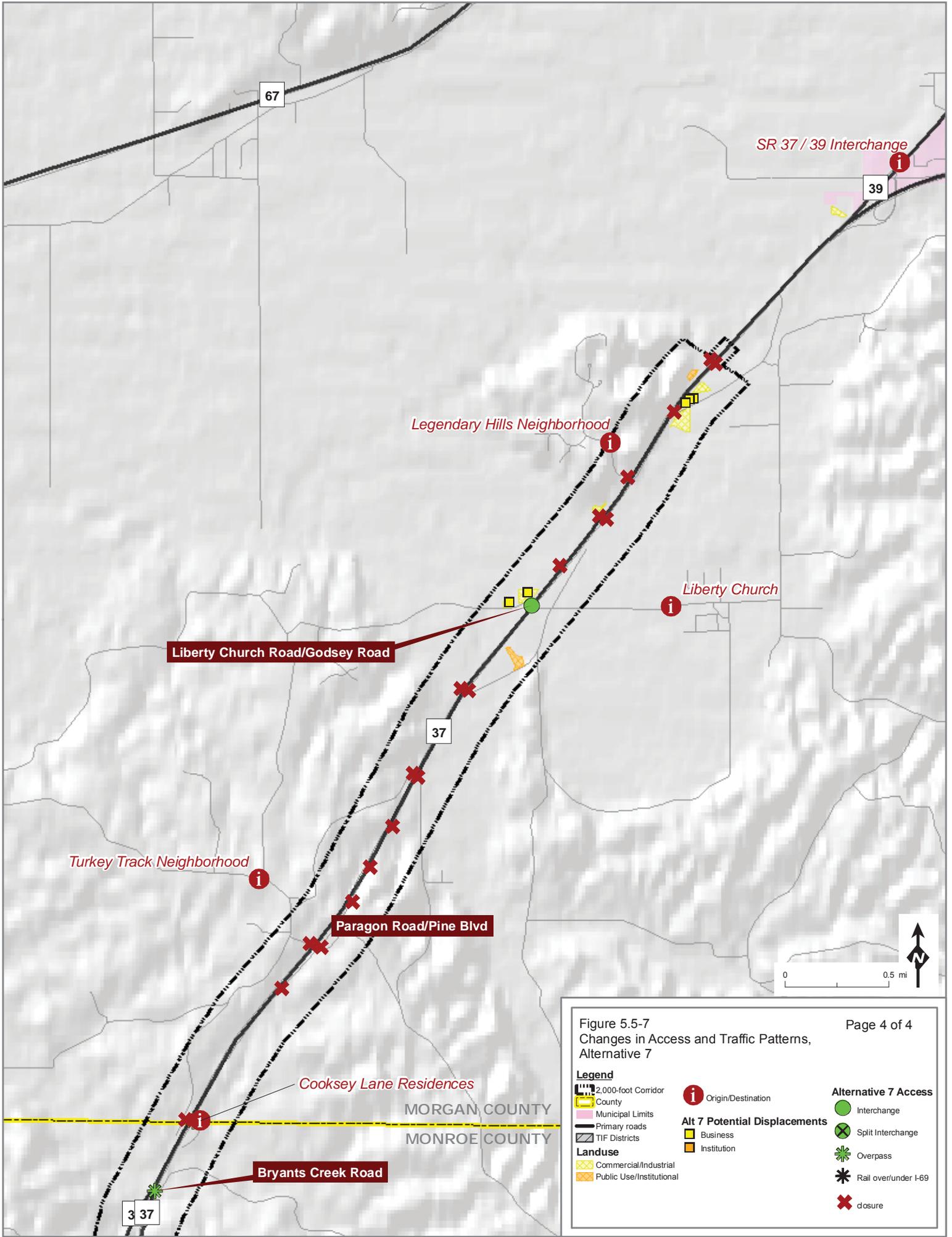


Figure 5.5-7
 Changes in Access and Traffic Patterns,
 Alternative 7

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Commercial/Industrial
- Public Use/Institutional

Alt 7 Potential Displacements

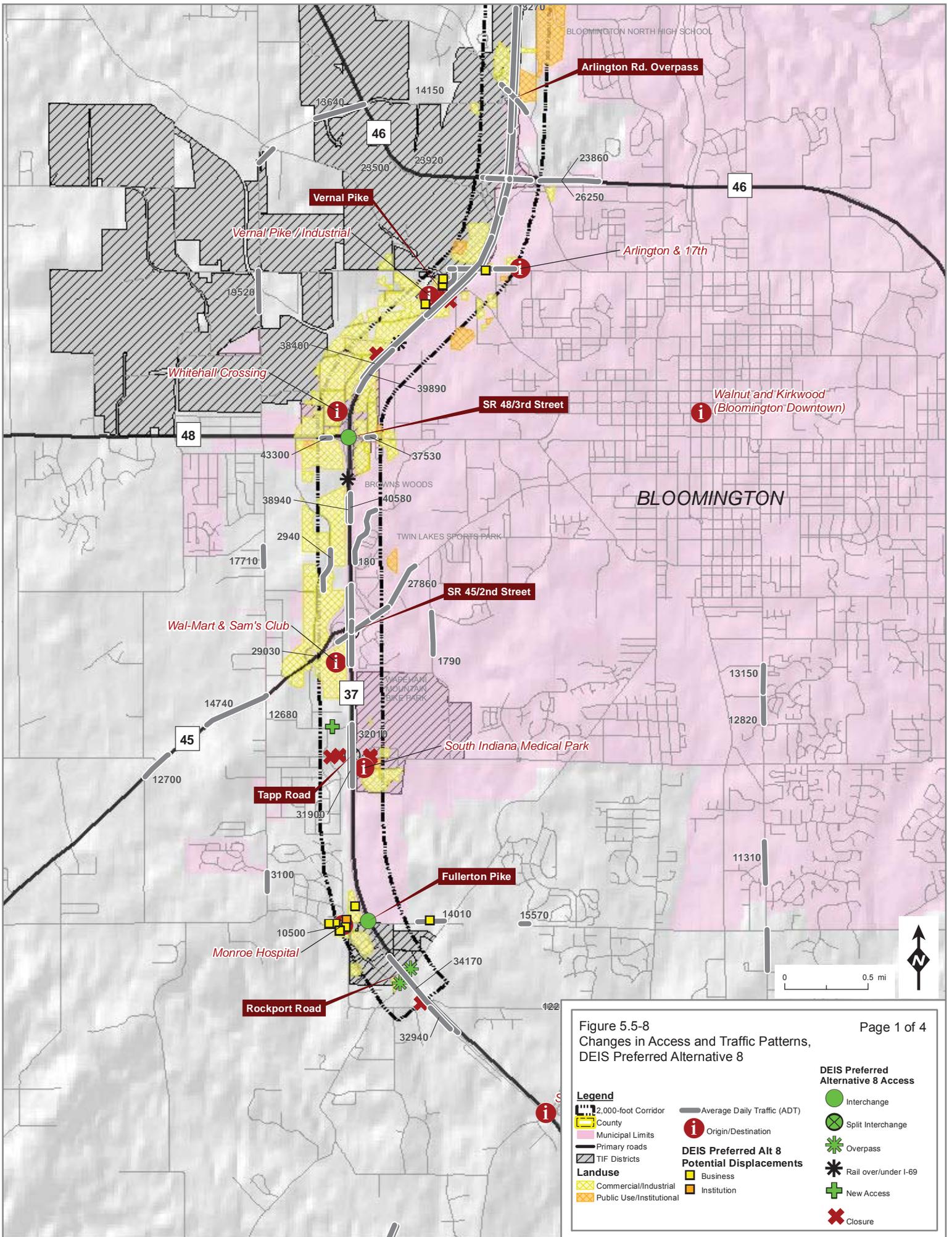
- Business
- Institution

Alternative 7 Access

- Interchange
- Split Interchange
- Overpass
- Rail over/under I-69
- closure

Origin/Destination

- Origin/Destination



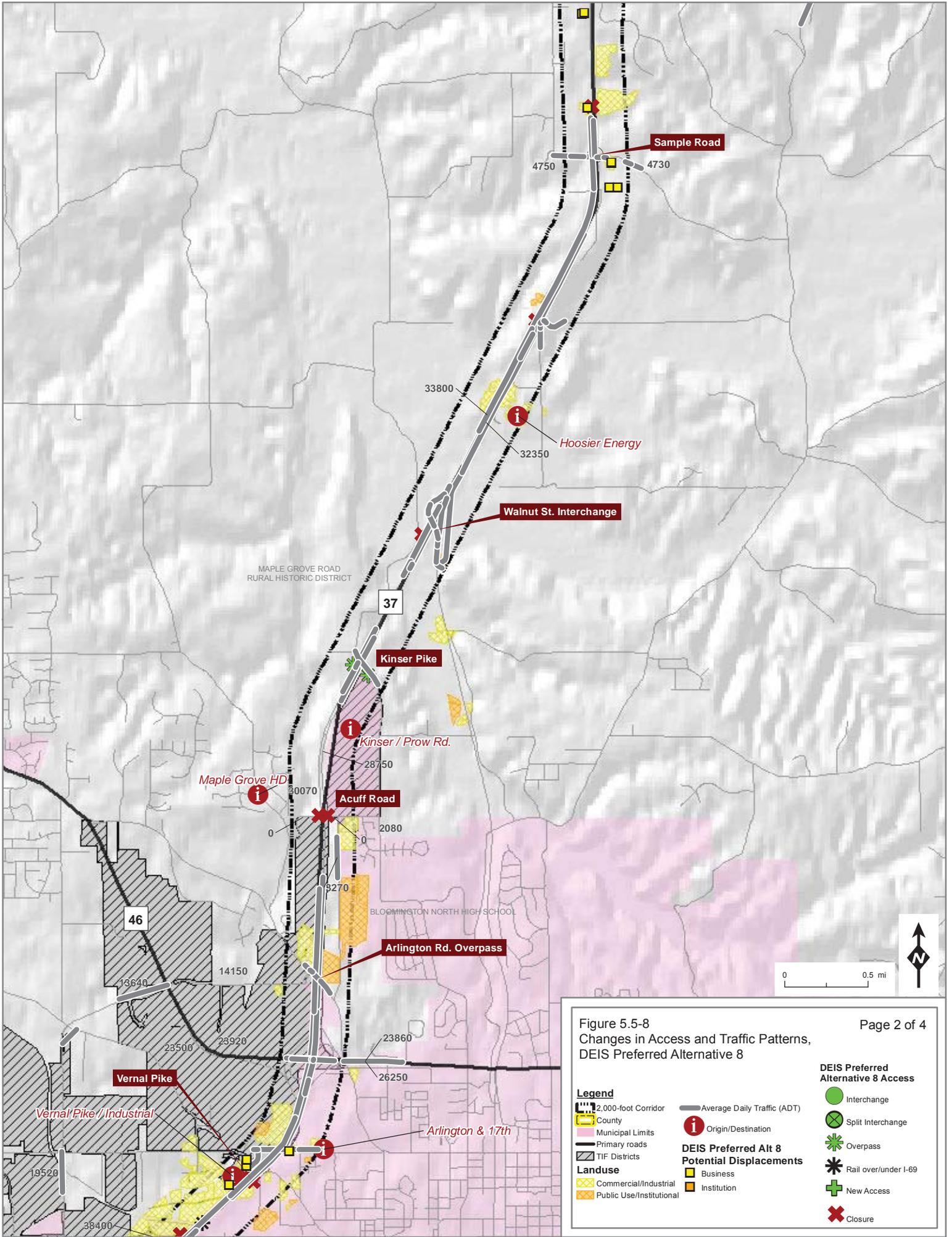


Figure 5.5-8
Changes in Access and Traffic Patterns,
DEIS Preferred Alternative 8

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Commercial/Industrial
- Public Use/Institutional
- Average Daily Traffic (ADT)
- Origin/Destination
- Business
- Institution

DEIS Preferred Alt 8 Potential Displacements

- Interchange
- Split Interchange
- Overpass
- Rail over/under I-69
- New Access
- Closure

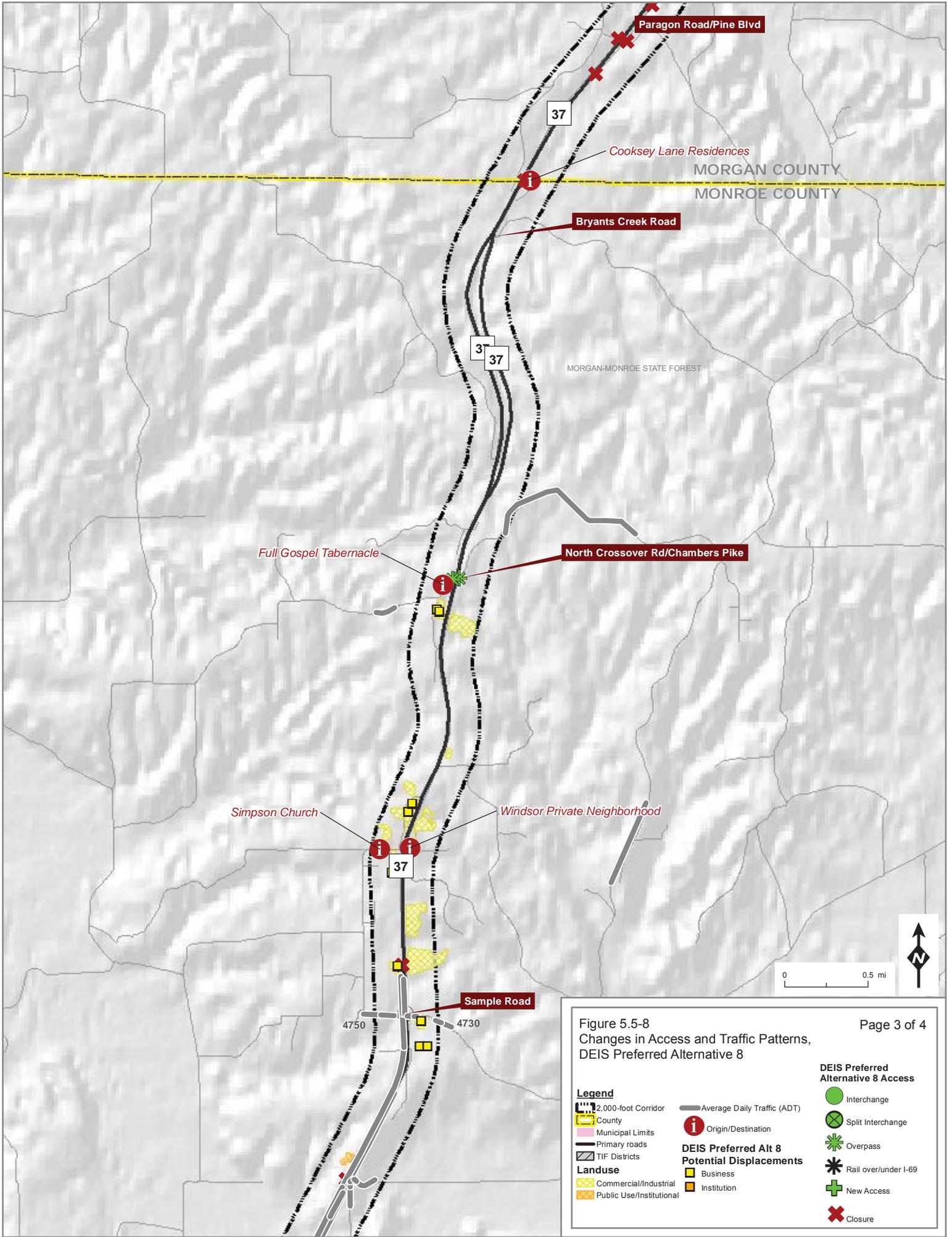


Figure 5.5-8
Changes in Access and Traffic Patterns,
DEIS Preferred Alternative 8

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts

Landuse

- Commercial/Industrial
- Public Use/Institutional

DEIS Preferred Alt 8 Potential Displacements

- Business
- Institution

DEIS Preferred Alternative 8 Access

- Interchange
- Split Interchange
- Overpass
- Rail over/under I-69
- New Access
- Closure

Other Symbols:

- Average Daily Traffic (ADT)
- Origin/Destination

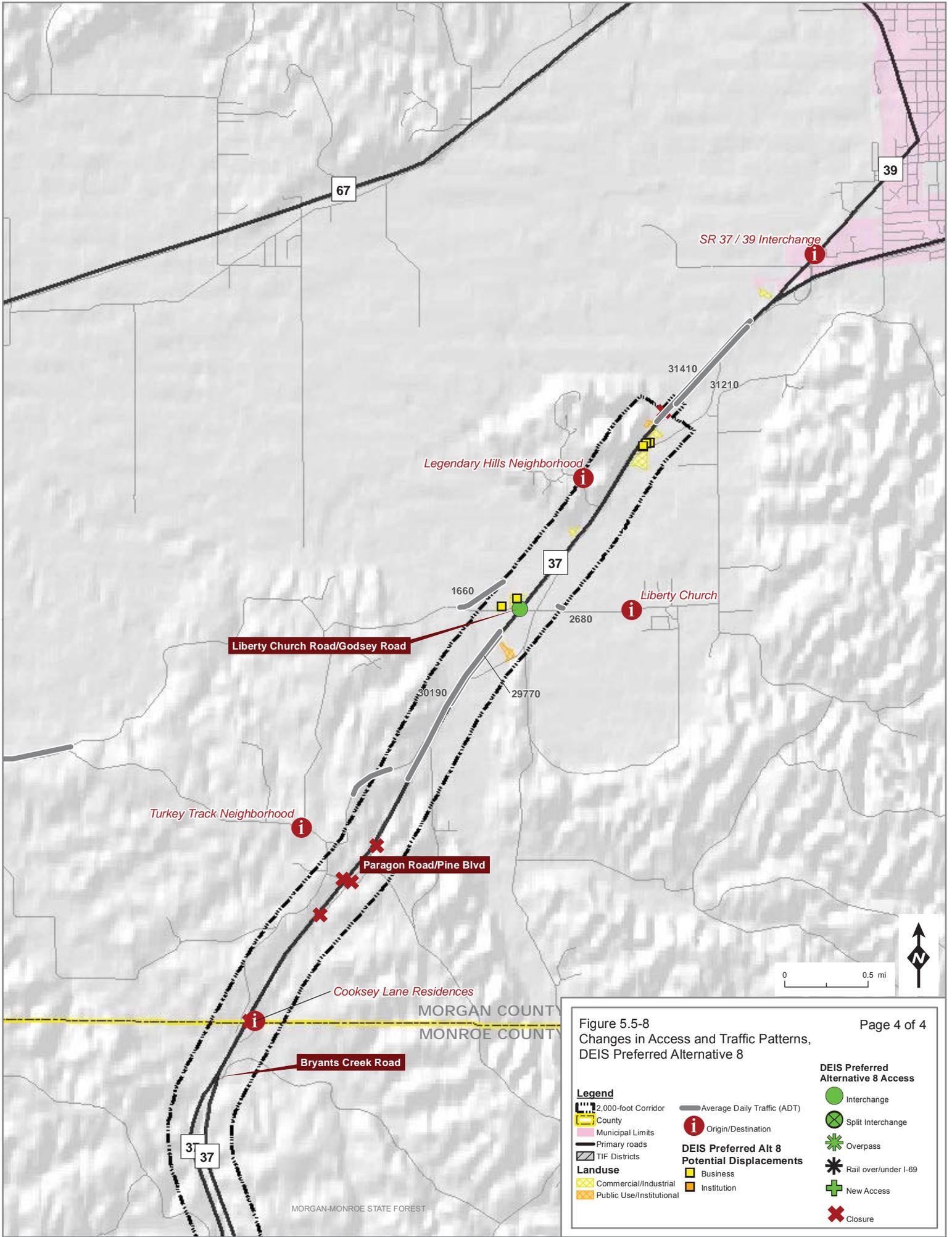


Figure 5.5-8
Changes in Access and Traffic Patterns,
DEIS Preferred Alternative 8

Legend		DEIS Preferred Alternative 8 Access	
2,000-foot Corridor	Average Daily Traffic (ADT)	Interchange	Split Interchange
County	Origin/Destination	Overpass	Rail over/under I-69
Municipal Limits	DEIS Preferred Alt 8 Potential Displacements	New Access	Closure
Primary roads	Business		
TIF Districts	Institution		
Landuse			
Commercial/Industrial			
Public Use/Institutional			

MORGAN-MONROE STATE FOREST

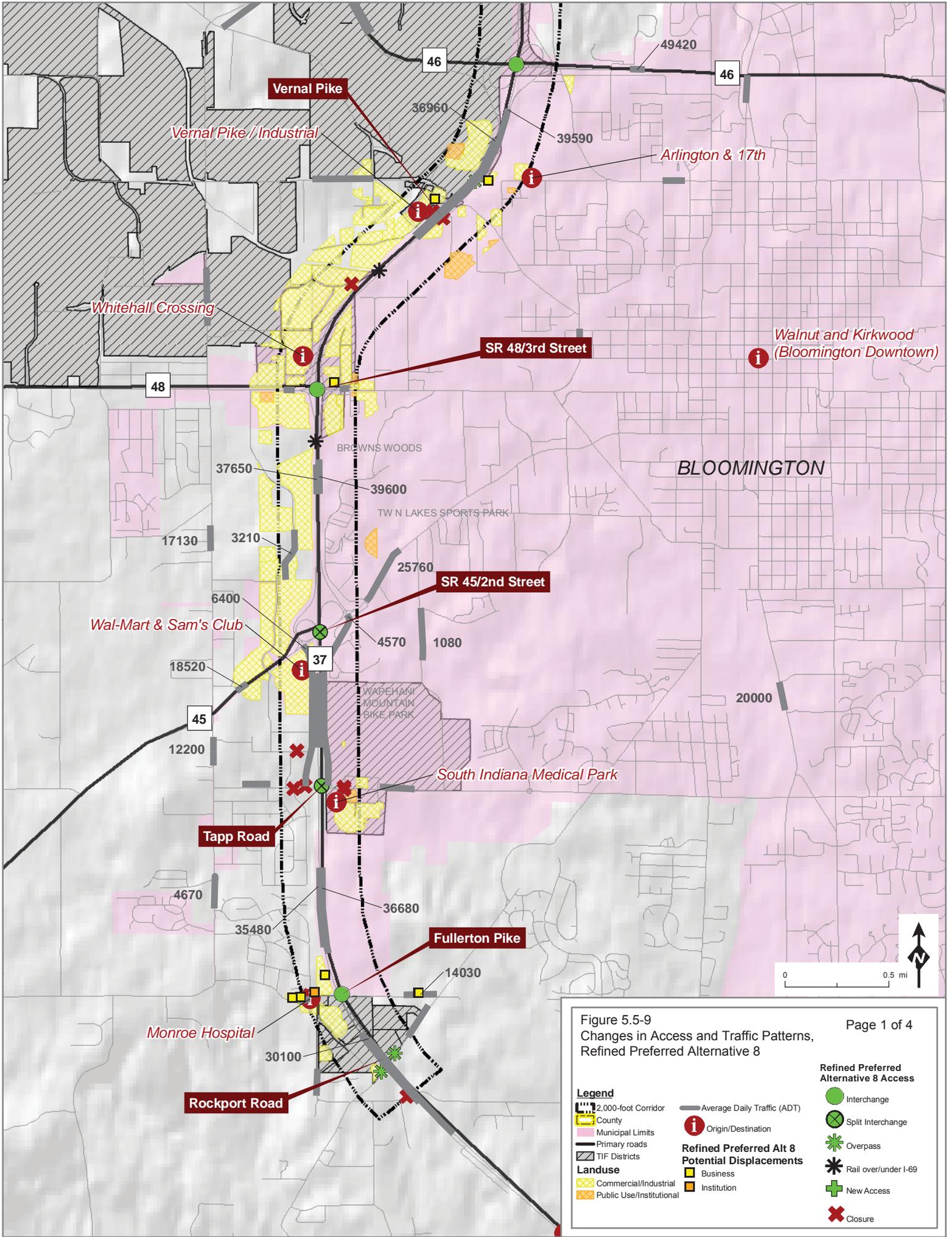


Figure 5.5-9
 Changes in Access and Traffic Patterns,
 Refined Preferred Alternative 8

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Landuse**
 - Commercial/Industrial
 - Public Use/Institutional
- Average Daily Traffic (ADT)
- Origin/Destination
- Refined Preferred Alt 8 Potential Displacements**
 - Business
 - Institution
- Refined Preferred Alternative 8 Access**
 - Interchange
 - Split Interchange
 - Overpass
 - Rail over/under I-69
 - New Access
 - Closure

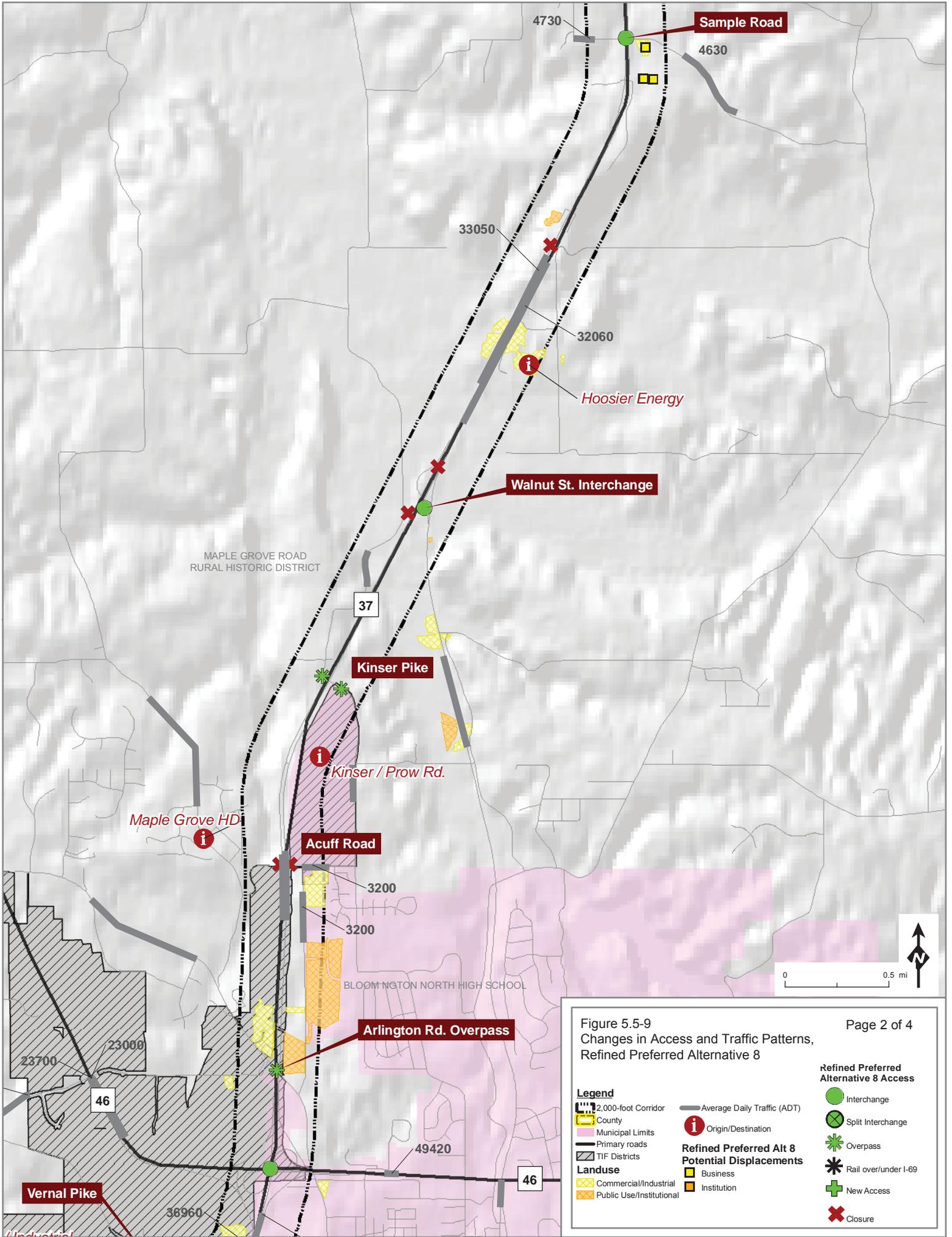


Figure 5.5-9
Changes in Access and Traffic Patterns,
Refined Preferred Alternative 8

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts

Landuse

- Commercial/Industrial
- Public Use/Institutional

Refined Preferred Alt 8 Potential Displacements

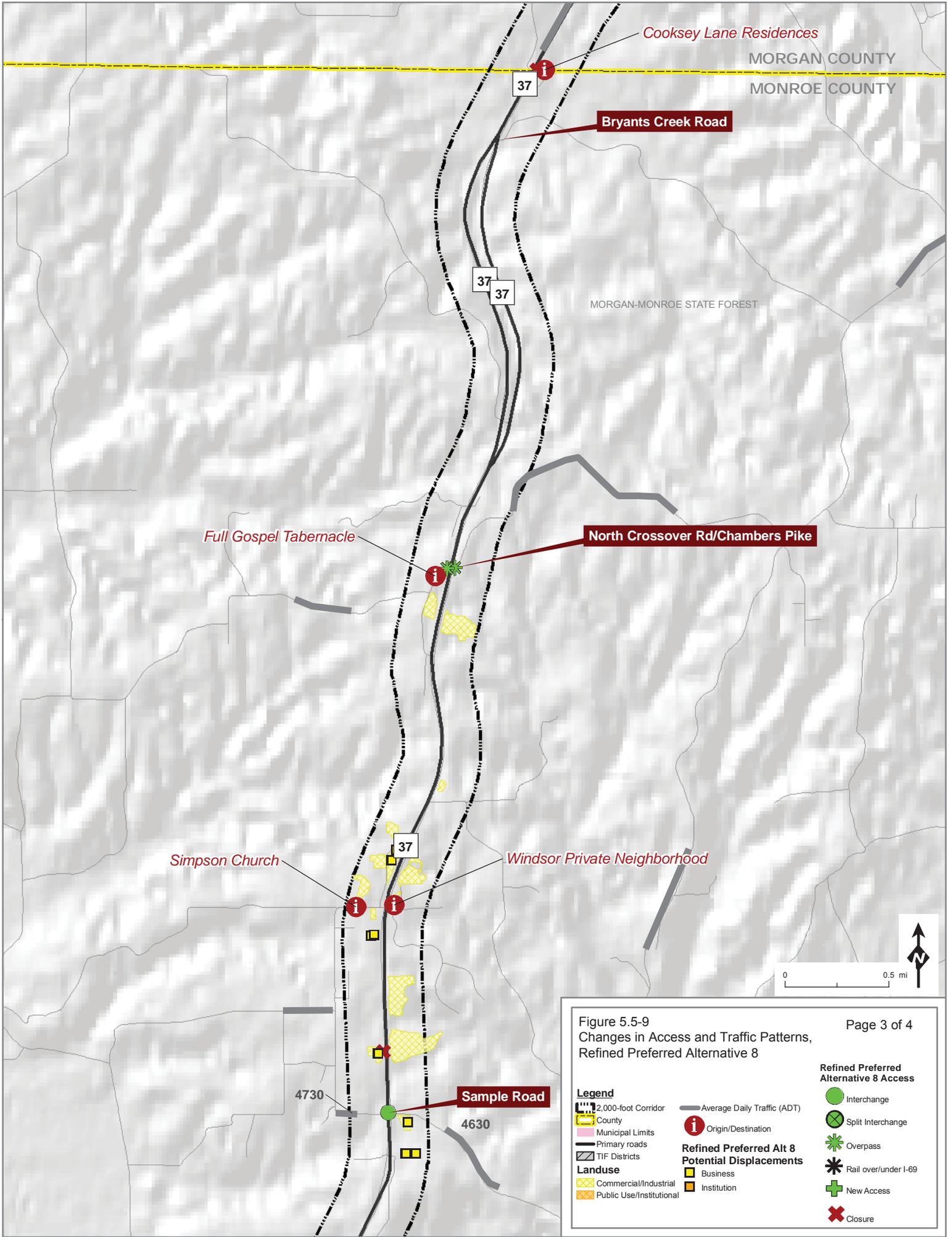
- Business
- Institution

Refined Preferred Alternative 8 Access

- Interchange
- Split Interchange
- Overpass
- Rail over/under I-69
- New Access
- Closure

Other Symbols:

- Average Daily Traffic (ADT)
- Origin/Destination



MORGAN COUNTY
MONROE COUNTY

Cooksey Lane Residences

Bryants Creek Road

MORGAN-MONROE STATE FOREST

Full Gospel Tabernacle

North Crossover Rd/Chambers Pike

Simpson Church

Windsor Private Neighborhood

Sample Road

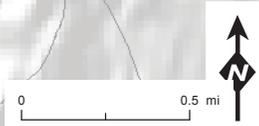


Figure 5.5-9
Changes in Access and Traffic Patterns,
Refined Preferred Alternative 8

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Landuse**
- Commercial/Industrial
- Public Use/Institutional
- Average Daily Traffic (ADT)
- Origin/Destination
- Refined Preferred Alt 8 Potential Displacements**
- Business
- Institution
- Refined Preferred Alternative 8 Access**
- Interchange
- Split Interchange
- Overpass
- Rail over/under I-69
- New Access
- Closure

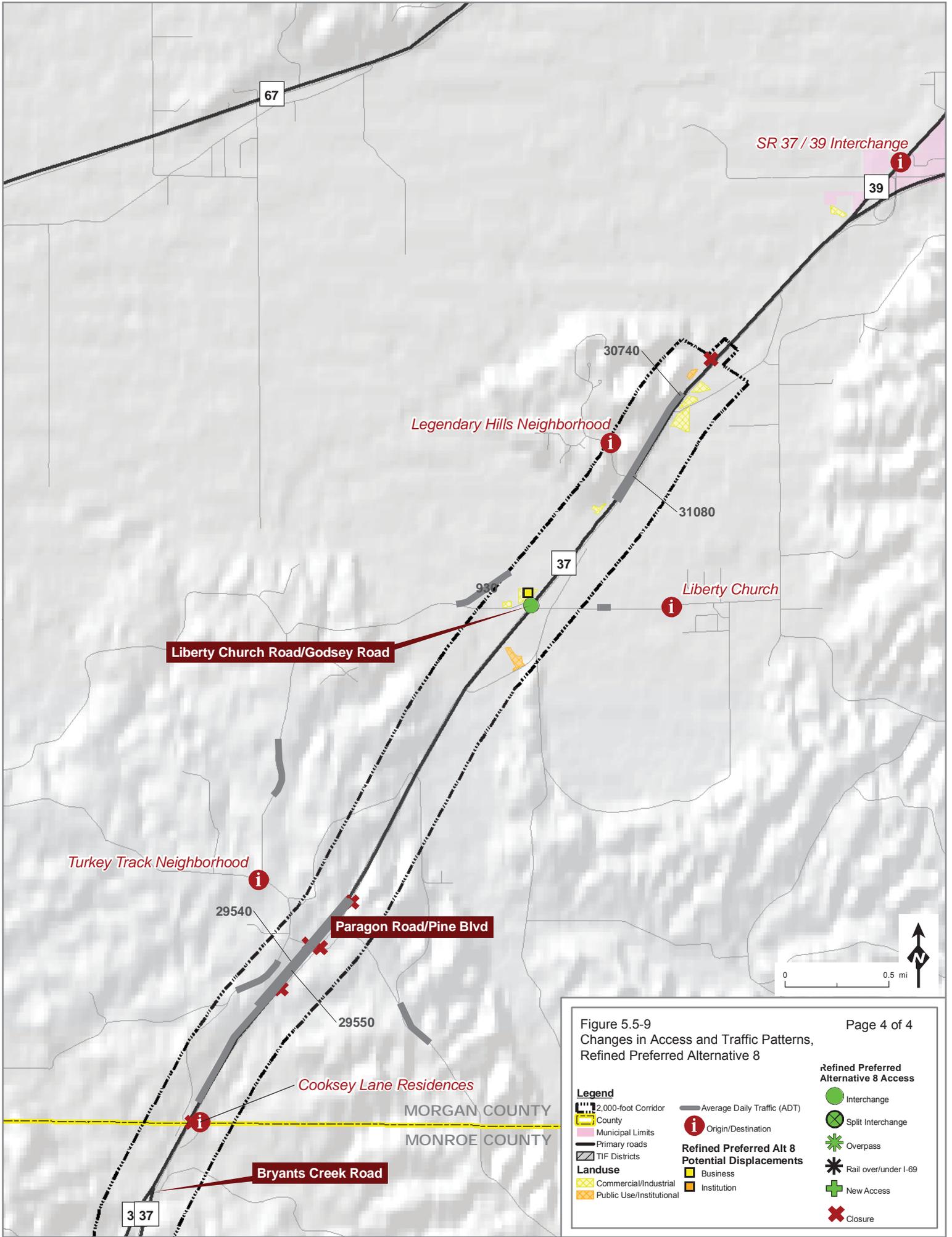


Figure 5.5-9
 Changes in Access and Traffic Patterns,
 Refined Preferred Alternative 8

Legend

- 2,000-foot Corridor
- County
- Municipal Limits
- Primary roads
- TIF Districts
- Landuse**
- Commercial/Industrial
- Public Use/Institutional
- Average Daily Traffic (ADT)
- Origin/Destination
- Refined Preferred Alt 8 Potential Displacements**
- Business
- Institution

Refined Preferred Alternative 8 Access

- Interchange
- Split Interchange
- Overpass
- Rail over/under I-69
- New Access
- Closure



5.6 Traffic Impacts

For purposes of this section, Preferred Alternative 8 that was identified in the Draft Environmental Impact Statement (DEIS) will be referred to as “Alternative 8.” The Preferred Alternative for the Final Environmental Impact Statement (FEIS) will be referred to as the “Refined Preferred Alternative 8.”

Since the publication of the DEIS, the following substantive changes have been made to this section:

- Traffic impacts (including interchanges, intersections, grade separations and road closures) for Refined Preferred Alternative 8 have been added.
- Analyses for all alternatives reflect the finalized updates from the ISTDm that were incorporated into the corridor model and updated 2035 forecast volumes that were generated. For additional information regarding traffic forecasting methodology, please refer to **Appendix GG**, *I-69 Corridor Model Documentation*.
- Key road links have been updated as shown in Section 5.6.3.1 to those that either cross SR 37/I-69 or are adjacent parallel roads that will feed traffic to and from the interchanges that access I-69. Other key road links include parallel roads that provide local traffic an alternative to using SR 37/I-69.

5.6.1 Introduction

This section examines the traffic impacts of the build alternatives. Traffic impacts are defined as undesirable increases in traffic on roadways, when compared to the No Build condition, that result in congestion. For example, if a road would operate in uncongested conditions in the “No Build” scenario, but becomes congested in the build scenario because traffic going to and from I-69 uses it, that congestion is considered a traffic impact of I-69.

Level of Service (LOS) is a commonly used measure of congestion by the transportation industry. As defined in the Highway Capacity Manual, “Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience”.¹ LOS is not just a function of traffic volumes. The geometrics of a roadway, the amount of access provided, and the operations of traffic signals can also affect LOS. For example, a two-lane roadway with narrow travel lanes (less than 12 feet and no shoulders) could have a lower LOS than another roadway with the same volume that has ideal travel lanes (12

¹ Highway Capacity Manual, Chapter 5 Glossary



Section 5—Final Environmental Impact Statement

feet) and adequate shoulders. A nother example is that when SR 37 is converted to I-69 (a limited access facility) it will have more capacity and can serve higher traffic volumes at the same LOS as existing SR 37. This is the result of eliminating access points and signalized intersections from the roadway that delay and reduce travel speeds. It should also be noted that different roadway functional classifications can have different LOS criteria.

Based on INDOT design criteria, traffic flow is considered to operate at an unacceptable LOS below LOS “C” for rural freeways, arterials and collectors and below LOS “D” for urban freeways, arterials, and collectors². For the analysis in this section, roadways are determined to be congested if they are expected to operate at an unacceptable LOS.

This section summarizes and documents traffic impacts associated with each of the Build Alternatives when compared to the No Build Alternative. The traffic impacts analysis includes roadways within the study corridor that are part of the proposed Build Alternatives as well as non-project roadways that are expected to have changes in traffic volume due to the construction of the Build Alternatives. A comparison of the access provided by each Build Alternative is also provided in this section. Additional information on the performance of the alternatives for the build condition relative to “congestion” and “safety” measures may be found in **Section 3.3.1, Transportation Performance Indicators**.

5.6.2 Methodology

5.6.2.1 General

As described in **Section 3.1.2, Traffic Modeling**, the traffic impacts of each alternative for the build conditions were determined by modeling alternative roadway networks (and alternative land use patterns, if appropriate) in the I-69 Corridor Travel Demand Model. This corridor model has a much more detailed highway network than the Indiana Statewide Travel Demand Model (ISTDM) used in the Tier 1 study. The corridor model predicts future 2035 daily traffic volumes for the alternative roadway networks, including the mainline, interchanges and major intersections. These traffic volumes are translated into level of service (LOS) designations for comparison of the alternatives using postprocessors from the corridor model. The 2035 forecast traffic volumes used in this analysis are the best available at the publication of this FEIS. The ISTDM has been recently updated. Finalized updates from the ISTDM were incorporated into the corridor model and updated 2035 forecast volumes were generated. A microsimulation

² Indiana Design Manual Part 5 Road Design Volume II, Tables 53-1 through 53-9 specifies design criteria for rural and urban roads. The minimum acceptable level of service for rural freeways, arterials, and collectors is “C” with a desirable level of service of “B,” and for freeways, arterials, and collectors in urban areas the minimum acceptable level of service is “D” with a desirable level of service of “C.”



model, TransModeler³ was also used in the urban area of Bloomington near I-69 interchanges. For additional information regarding traffic forecasting methodology, please refer to **Appendix GG**, *I-69 Corridor Model Documentation* and **Appendix SS**, *Traffic Simulation Modeling Summary*.

5.6.2.2 Future No Build Condition

The future No Build (No-Action) Condition is represented by the existing roadway network plus programmed “capacity expansion” projects (i.e., new roadways, added through travel lanes, and new interchanges) as set forth in the 2013 - 2035 Future Transportation Needs Report, (pursuant to 23 CFR 135 §450.200), and the most recent metropolitan Long-Range Transportation Plans (i.e., Indianapolis, Bloomington and Evansville Metropolitan Planning Organizations pursuant to 23 CFR 135 §450.300).

The future No Build Condition assumes the following: the first four Tier 2 sections (Sections 1 through 4) are completed for I-69 between Evansville and Bloomington and the section of I-69 from Henderson, Kentucky, to Evansville, Indiana (SIU #4 of the National I-69 project) is completed. The future No Build Condition does not upgrade SR 37 between Bloomington and Indianapolis to a freeway and only assumes routine maintenance projects along SR 37.

5.6.2.3 Build Condition

The Build Condition Alternatives for I-69 Section 5 include upgrading SR 37 to an interstate facility. This involves removing all at grade intersections and individual parcel access from SR 37. Grade separation interchanges will be constructed at key cross roads along the corridor. Access from businesses and residential properties will be provided via access roads connecting to the interchanges.

The forecasted traffic volumes for the Build Alternatives assume the following: all of the six Tier 2 sections are completed for I-69 between Evansville and Indianapolis; and the I-69 project between Henderson, Kentucky and Evansville, Indiana is completed, including an additional Ohio River bridge in Evansville.

³ TransModeler was run for Refined Preferred Alternative 8. Levels of service (LOS) which it calculated were used at locations in and near the SR 46, SR 48, SR 45 and Tapp Road interchanges. The TransModeler LOS calculations from Refined Preferred Alternative 8 were applied to other alternatives where interchange volumes were similar to those in Refined Preferred Alternative 8.



5.6.3 Analysis

5.6.3.1 Traffic Conditions

Future 2035 traffic conditions were analyzed for the six build alternatives, including the Refined Preferred Alternative 8. Daily 2035 forecast volumes for each of the build alternatives were compared to existing 2010 base year volumes and 2035 No Build traffic volumes. A percent variance or change is also calculated between the 2035 No Build and 2035 Build volumes. A positive percent variance represents a growth in volume on the roadway link for the Build Condition over the No Build Condition while a negative variance represents a decrease in volume. Build and No Build LOS was also compared for each alternative. These comparisons are shown in **Tables 5.6-1 through 5.6-6**. Each table shows the 2010, 2035 No Build and 2035 Build Condition traffic volumes and LOS for key cross road and parallel roads along Section 5 of the SR 37/I-69 corridor. The roads analyzed include:

- Leonard Springs Road
- Prow Road
- That Road
- Weimer Road
- Rockport Road
- Adams Street
- Arlington Road
- Chambers Pike
- Turkey Track Road
- Old SR 37
- Liberty Drive
- Walnut Street
- SR 48/3rd Street
- Liberty Church Road
- SR 37/I-69 SB
- Curry Pike
- Acuff Road
- Fullerton Pike
- Tapp Road
- Vernal Pike
- 17th Street
- Simpson Chapel Road
- Cramer Road
- Dittmore Road
- Maple Grove Road
- SR 45/2nd Street
- SR 46
- Kinser Pike
- Sample Road
- SR 37/I-69 NB

The roadways chosen to be included in this analysis are the ones that are expected to be the ones with the most change in volume and thus the most likely to be impacted by the build alternatives. Most of the road links chosen either cross SR 37/I-69 or are adjacent parallel roads that will feed traffic to and from the interchanges that access I-69. Others include parallel roads that provide local traffic an alternative to using SR 37/I-69.

Table 5.6-1 compares the aforementioned cross and parallel roads for Build Alternative 4 versus the No Build Conditions.



I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

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Table 5.6-1: Road Volumes and LOS – Base Year, No Build, and Alternative 4

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 4 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 4 2035 LOS
That Rd	SR 37	Rodgers St	3,864	1,508	1,046	-31%	A	A
	Rockport Rd	Fullerton Pike	206	1,337	301	-77%	A	A
Rockport Rd	SR 37/I-69	Fullerton Pike	365	7,544	6,428	-15%	A	A
Leonard Springs Rd	Fullerton Pike	Tapp Rd	1,716	4,133	5,453	32%	A	A
	Tapp Rd	SR 45	10,564	14,791	14,552	-2%	A	A
Fullerton Pike	West of SR 37/I-69	Leonard Springs Rd	5,563	7,932	10,850	37%	A	A
	East of SR 37/I-69	Rockport Rd	1,200	7,134	18,066	153%	A	A
Tapp Rd	West of SR 37/I-69	Leonard Springs Rd	8,481	17,595	13,483	-23%	A	A
	East of SR 37/I-69	Weimer Rd	15,086	20,545	15,185	-26%	A	A
SR 45	Liberty Dr	Curry Pike	19,201	22,286	21,887	-2%	A	A
	Basswood Dr	Weimer Rd	18,409	20,737	29,424	42%	A	A
Weimer Rd	Tapp Rd	SR 45	434	955	3,260	241%	B	B
Walnut St	Winslow Rd	Hillside Dr	19,027	20,522	19,535	-5%	B	B
Curry Pike	SR 45	SR 48	11,548	18,952	19,228	1%	A	A
	SR 48	Vernal Pike	10,505	14,847	17,828	20%	A	A
	Vernal Pike	SR 46	4,413	10,075	12,488	24%	B	B
Liberty Dr	SR 45	SR 48	1,820	1,969	3,546	80%	B	B
SR 48	West of SR 37/I-69	Liberty Dr	32,732	38,403	42,430	10%	C	C
	East of SR 37/I-69	Franklin Rd	17,137	30,448	35,754	17%	B	B
Vernal Pike	Industrial Dr	Curry Pike	4,717	8,780	11,387	30%	A	A
17th St	Monroe St	Madison St	12,089	18,092	20,286	12%	A	A
Adams St	5th St	Vernal Pike	4,945	10,998	8,133	-26%	A	A
Walnut St	College Ave	SR 46	14,993	17,917	15,693	-12%	B	B
Walnut St	East of SR 37/I-69	Bayles Rd	9,239	13,073	3,694	-72%	A	A
SR 46	West of SR 37/I-69	Curry Pike	21,867	39,907	46,395	16%	A	A
	East of SR 37/I-69	Madison St	29,426	42,375	48,907	15%	B	C
Arlington Rd	West of SR 37/I-69	SR 46	7,039	6,490	5,958	-8%	A	A
Maple Grove Rd	Acuff Rd	Lost Mans Ln	3,126	2,935	1,259	-57%	A	A
Prow Rd	Arlington Rd	Acuff Rd	934	1,019	3,047	199%	A	A
Acuff Rd	Prow Rd	Kinser Pike	3,011	4,119	1,906	-54%	B	B
Kinser Pike	East of SR 37/I-69	Acuff Rd	746	1,084	5,057	366%	A	A
	West of SR 37/I-69	Bottom Rd	22	25	153	512%	A	A
Sample Rd	West of SR 37/I-69	Simpson Chapel Rd	384	754	3,978	428%	A	C
	East of SR 37/I-69	Old SR 37	1,781	1,722	4,125	140%	A	C
Simpson Chapel Rd	Sample Rd	Williams Rd	508	1,018	1,415	39%	A	A
Old SR 37	Fox Hollow Rd	Chambers Pike	86	147	101	-31%	A	A
	Chambers Pike	Paragon Rd	152	349	324	-7%	A	A



Table 5.6-1: Road Volumes and LOS – Base Year, No Build, and Alternative 4

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 4 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 4 2035 LOS
Chambers P ke	East of SR 37/I-69	Old SR 37	100	145	172	19%	A	A
Dittemore Rd	Crossover Rd	Tilford Rd	557	1,159	231	-80%	A	A
Turkey Track Rd	Bryants Creek Rd	Pine Blvd	94	104	169	63%	A	A
Pine Blvd	East of SR 37/I-69	Old SR 37	116	228	610	168%	A	A
Paragon Road	West of SR 37/I-69	Ivan Trail	1,217	1,446	1,652	14%	A	B
Cramer Rd	Paragon Rd	Godsey Rd	37	44	85	93%	A	A
Liberty Church Rd	West of SR 37/I-69	Cramer Rd	90	113	140	24%	A	A
	East of SR 37/I-69	Old SR 37	498	653	446	-32%	A	A
SR 37/I-69 SB	SR 39	Liberty Church Rd / Paragon Rd	11,371	19,796	29,555	49%	C	C
	L berty Church Rd / Paragon Rd	Sample Rd	11,595	20,041	30,044	50%	C	C
	Sample Rd	Kinser P ke / Walnut St	13,575	22,735	32,122	41%	C	B
	Kinser Pike / Walnut St	SR 46	10,271	17,830	33,702	89%	B	B
	SR 46	SR 48 / 3rd St	18,509	26,921	35,489	32%	E	B
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,610	30,770	34,935	14%	C	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	17,489	29,063	35,377	22%	D	C
	Tapp Rd	Fullerton Pike	13,921	29,007	35,377	22%	D	C
SR 37/I-69 NB	Fullerton Pike	SR 37	11,905	25,302	31,196	23%	C	A
	SR 39	Liberty Church Rd / Paragon Rd	11,438	19,760	29,745	51%	C	C
	L berty Church Rd / Paragon Rd	Sample Rd	11,504	21,070	29,831	42%	C	C
	Sample Rd	Kinser P ke / Walnut St	13,002	22,553	31,815	41%	C	B
	Kinser Pike / Walnut St	SR 46	9,308	17,063	29,784	75%	B	B
	SR 46	SR 48 / 3rd St	19,443	29,525	38,899	32%	D	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,364	30,581	37,637	23%	C	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	15,885	27,420	36,231	32%	D	C
	Tapp Rd	Fullerton Pike	13,375	27,380	36,231	32%	D	C
Fullerton Pike	SR 37	12,008	26,597	32,739	23%	D	B	

The traffic data for Build Alternative 4 shows several improvements in the LOS on SR 37/I-69, as well as multiple crossroads and parallel facilities when compared to the No Build scenario. The LOS improved on the following roadways:

- Southbound SR 37/I-69 from Sample Road to Kinser Pike/Walnut Street; improves from LOS C to LOS B as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS E to LOS B as the Build Alternative includes an additional lane.



- Southbound SR 37/I-69 from SR 48 /3rd Street to SR 45/2nd Street; improves from LOS C to LOS B as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS C to LOS A as the Build Alternative includes two additional lanes.
- Northbound SR 37/I-69 from Sample Road to Kinser Pike/ Walnut Street; improves from LOS C to LOS B as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 48/3rd Street to SR 45/ 2nd Street; improves from LOS C to LOS B as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS C.
- Northbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS D to LOS B as the Build Alternative includes two additional lanes.

Four roadway segments are expected to see a lower LOS for Alternative 4 when compared to the No Build scenario due to an increase in traffic volumes in the Build Condition without an increase in capacity.

- SR 46 east of SR 37/I-69; reduces from LOS B to LOS C.
- Sample Road west of SR 37/I-69; reduces from LOS A to LOS C.
- Sample Road east of SR 37/I-69; reduces from LOS A to LOS C.
- Paragon Road west of SR 37/I-69; reduces from LOS A to LOS B.

Although these four segments experience a lower LOS than the No Build condition, none exceed LOS C which is an acceptable LOS for both rural and urban roadways. Therefore, there are no traffic congestion impacts associated with Alternative 4.

Table 5.6-2 analyzes the volumes and LOS of parallel facilities and crossroads between the No Build and Alternative 5.



Table 5.6-2: Road Volumes and LOS – Base Year, No Build, and Alternative 5

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 5 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 5 2035 LOS
That Rd	SR 37	Rodgers St	3,864	1,508	933	-38%	A	A
	Rockport Rd	Fullerton Pike	206	1,337	202	-85%	A	A
Rockport Rd	SR 37/I-69	Fullerton Pike	365	7,544	6,320	-16%	A	A
Leonard Springs Rd	Fullerton Pike	Tapp Rd	1,716	4,133	5,510	33%	A	A
	Tapp Rd	SR 45	10,564	14,791	12,759	-14%	A	A
Fullerton Pike	West of SR 37/I-69	Leonard Springs Rd	5,563	7,932	10,530	33%	A	A
	East of SR 37/I-69	Rockport Rd	1,200	7,134	18,538	160%	A	A
Tapp Rd	West of SR 37/I-69	Leonard Springs Rd	8,481	17,595	10,561	-40%	A	A
	East of SR 37/I-69	Weimer Rd	15,086	20,545	13,991	-32%	A	A
SR 45	Liberty Dr	Curry Pike	19,201	22,286	20,827	-7%	A	A
	Basswood Dr	Weimer Rd	18,409	20,737	25,387	22%	A	A
Weimer Rd	Tapp Rd	SR 45	434	955	1,635	71%	B	B
Walnut St	Winslow Rd	Hillside Dr	19,027	20,522	19,262	-6%	B	B
Curry Pike	SR 45	SR 48	11,548	18,952	17,155	-9%	A	A
	SR 48	Vernal Pike	10,505	14,847	16,750	13%	A	A
	Vernal Pike	SR 46	4,413	10,075	10,364	3%	B	B
Liberty Dr	SR 45	SR 48	1,820	1,969	3,547	80%	B	B
SR 48	West of SR 37/I-69	Liberty Dr	32,732	38,403	49,641	29%	C	F
	East of SR 37/I-69	Franklin Rd	17,137	30,448	42,681	40%	B	E
Vernal Pike	Industrial Dr	Curry Pike	4,717	8,780	12,242	39%	A	A
17th St	Monroe St	Madison St	12,089	18,092	17,849	-1%	A	A
Adams St	5th St	Vernal Pike	4,945	10,998	7,999	-27%	A	A
Walnut St	College Ave	SR 46	14,993	17,917	18,144	1%	B	B
Walnut St	East of SR 37/I-69	Bayles Rd	9,239	13,073	14,422	10%	A	A
SR 46	West of SR 37/I-69	Curry Pike	21,867	39,907	49,035	35%	A	A
	East of SR 37/I-69	Madison St	29,426	42,375	46,305	9%	B	B
Arlington Rd	West of SR 37/I-69	SR 46	7,039	6,490	5,500	-15%	A	A
Maple Grove Rd	Acuff Rd	Lost Mans Ln	3,126	2,935	1,059	-64%	A	A
Prow Rd	Arlington Rd	Acuff Rd	934	1,019	2,751	170%	A	A
Acuff Rd	Prow Rd	Kinser Pike	3,011	4,119	2,751	-33%	B	B
Kinser Pike	East of SR 37/I-69	Acuff Rd	746	1,084	3,096	186%	A	A
	West of SR 37/I-69	Bottom Rd	22	25	531	2024%	A	A
Sample Rd	West of SR 37/I-69	Simpson Chapel Rd	384	754	1,675	122%	A	B
	East of SR 37/I-69	Old SR 37	1,781	1,722	3,398	97%	A	B
Simpson Chapel Rd	Sample Rd	Williams Rd	508	1,018	733	-28%	A	A



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Table 5.6-2: Road Volumes and LOS – Base Year, No Build, and Alternative 5

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 5 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 5 2035 LOS
Old SR 37	Fox Hollow Rd	Chambers Pike	86	147	153	4%	A	A
	Chambers Pike	Paragon Rd	152	349	298	-15%	A	A
Chambers Pike	East of SR 37/I-69	Old SR 37	100	145	147	1%	A	A
Dittmore Rd	Crossover Rd	Tilford Rd	557	1,159	173	-85%	A	A
Turkey Track Rd	Bryants Creek Rd	Pine Blvd	94	104	154	48%	A	A
Pine Blvd	East of SR 37/I-69	Old SR 37	116	228	288	26%	A	A
Paragon Road	West of SR 37/I-69	Ivan Trail	1,217	1,446	155	-89%	A	A
Cramer Rd	Paragon Rd	Godsey Rd	37	44	14	-68%	A	A
Liberty Church Rd	West of SR 37/I-69	Cramer Rd	90	113	3,896	3348%	A	C
	East of SR 37/I-69	Old SR 37	498	653	1,799	175%	A	B
SR 37/I-69 SB	SR 39	Liberty Church Rd / Paragon Rd	11,371	19,796	30,868	56%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,595	20,041	29,642	48%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,575	22,735	31,728	40%	C	B
	Kinser Pike / Walnut St	SR 46	10,271	17,830	28,874	62%	B	B
	SR 46	SR 48 / 3rd St	18,509	26,921	39,514	47%	E	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,610	30,770	37,308	21%	C	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	17,489	29,063	30,437	5%	D	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (cd lanes)	N/A	N/A	6,354	N/A	N/A	A
	Tapp Rd	Fullerton Pike	13,921	29,007	35,702	23%	D	C
	Fullerton Pike	SR 37	11,905	25,302	31,099	23%	C	A
SR 37/I-69 NB	SR 39	Liberty Church Rd / Paragon Rd	11,438	19,760	31,2356	58%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,504	21,070	29,778	48%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,002	22,553	31,804	41%	C	C
	Kinser Pike / Walnut St	SR 46	9,308	17,063	26,612	56%	B	B
	SR 46	SR 48 / 3rd St	19,443	29,525	40,159	36%	D	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,364	30,581	41,141	35%	C	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	15,885	27,420	32,493	19%	D	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (cd lanes)	N/A	N/A	5,463	N/A	N/A	A
	Tapp Rd	Fullerton Pike	13,375	27,380	37,676	38%	D	C
	Fullerton Pike	SR 37	12,008	26,597	32,933	24%	D	B

The traffic data for Build Alternative 5 shows several improvements in the LOS on SR 37/I-69, as well as multiple crossroads and parallel facilities when compared to the No Build scenario. The LOS improved on:



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- Southbound SR 37/I-69 from Sample Road to Kinser Pike/Walnut Street; improves from LOS C to LOS B as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS E to LOS C as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 48/ 3rd Street to SR 45/ 2nd Street; improves from LOS C to LOS B as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 45/ 2nd Street to Tapp Road; improves from LOS D to LOS B as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS C to LOS A as the Build Alternative includes two additional lanes.
- Northbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 48/ 3rd Street to SR 45/ 2nd Street; improves from LOS C to LOS B as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS C, as the build alternative includes an additional lane.
- Northbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS D to LOS B as the Build Alternative includes two additional lanes.

The LOS regressed on six roads due to an increase in traffic volumes in the Build Condition without an increase in capacity:

- SR 48 west of SR 37/I-69; reduces from LOS C to LOS F.
- SR 48 east of SR 37/I-69; reduces from LOS B to LOS E.
- Sample Road west of SR 37/I-69; reduces from LOS A to LOS B.
- Sample Road east of SR 37/I-69; reduces from LOS A to LOS B.
- Liberty Church Road west of SR 37/I69; reduces from LOS A to LOS C.
- Liberty Church Road east of SR 37/I69; reduces from LOS A to LOS B.

While six of these road segments experience a lower LOS in Build Alternative 5, only two roadway links (SR 48 east and west of SR 37/I-69) fall below LOS C or LOS D, the acceptable LOS for rural and urban roads, respectively.

Table 5.6-3 compares the volumes and LOS of the No Build and Build Alternative 6.



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Table 5.6-3: Road Volumes and LOS – Base Year, No Build, and Alternative 6

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 6 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 6 2035 LOS
That Rd	SR 37	Rodgers St	3,864	1,508	1,301	-14%	A	A
	Rockport Rd	Fullerton Pike	206	1,337	4,014	200%	A	A
Rockport Rd	SR 37/I-69	Fullerton Pike	365	7,544	5,149	-32%	A	A
Leonard Springs Rd	Fullerton Pike	Tapp Rd	1,716	4,133	4,479	8%	A	A
	Tapp Rd	SR 45	10,564	14,791	13,236	-11%	A	A
Fullerton Pike	West of SR 37/I-69	Leonard Springs Rd	5,563	7,932	10,816	36%	A	A
	East of SR 37/I-69	Rockport Rd	1,200	7,134	13,669	92%	A	A
Tapp Rd	West of SR 37/I-69	Leonard Springs Rd	8,481	17,595	12,173	-31%	A	A
	East of SR 37/I-69	Weimer Rd	15,086	20,545	14,456	-30%	A	A
SR 45	Liberty Dr	Curry P ke	19,201	22,286	21,763	-2%	A	A
	Basswood Dr	Weimer Rd	18,409	20,737	30,462	47%	A	A
Weimer Rd	Tapp Rd	SR 45	434	955	1,683	76%	B	B
Walnut St	Winslow Rd	Hillside Dr	19,027	20,522	19,378	-6%	B	B
Curry Pike	SR 45	SR 48	11,548	18,952	18,363	-3%	A	A
	SR 48	Vernal Pike	10,505	14,847	19,755	33%	A	A
	Vernal Pike	SR 46	4,413	10,075	12,681	26%	B	B
Liberty Dr	SR 45	SR 48	1,820	1,969	2,265	15%	B	B
SR 48	West of SR 37/I-69	Liberty Dr	32,732	38,403	42,686	11%	C	E
	East of SR 37/I-69	Franklin Rd	17,137	30,448	35,946	18%	B	C
Vernal Pike	Industrial Dr	Curry P ke	4,717	8,780	11,944	36%	A	A
17th St	Monroe St	Madison St	12,089	18,092	20,996	16%	A	A
Adams St	5th St	Vernal Pike	4,945	10,998	8,265	-25%	A	A
Walnut St	College Ave	SR 46	14,993	17,917	15,552	-13%	B	B
Walnut St	East of SR 37/I-69	Bayles Rd	9,239	13,073	7,576	-42%	A	A
SR 46	West of SR 37/I-69	Curry P ke	21,867	39,907	46,076	15%	A	A
	East of SR 37/I-69	Madison St	29,426	42,375	51,008	20%	B	C
Arlington Rd	West of SR 37/I-69	SR 46	7,039	6,490	5,802	-11%	A	A
Maple Grove Rd	Acuff Rd	Lost Mans Ln	3,126	2,935	1,137	-61%	A	A
Prow Rd	Arlington Rd	Acuff Rd	934	1,019	3,199	214%	A	A
Acuff Rd	Prow Rd	Kinser Pike	3,011	4,119	3,199	-22%	B	B
Kinser Pike	East of SR 37/I-69	Acuff Rd	746	1,084	1,633	51%	A	A
	West of SR 37/I-69	Bottom Rd	22	25	107	328%	A	A
Sample Rd	West of SR 37/I-69	Simpson Chapel Rd	384	754	3,395	350%	A	B
	East of SR 37/I-69	Old SR 37	1,781	1,722	4,721	174%	A	D
Simpson Chapel Rd	Sample Rd	Williams Rd	508	1,018	1,548	52%	A	A



Table 5.6-3: Road Volumes and LOS – Base Year, No Build, and Alternative 6

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 6 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 6 2035 LOS
Old SR 37	Fox Hollow Rd	Chambers Pike	86	147	158	7%	A	A
	Chambers Pike	Paragon Rd	152	349	213	-39%	A	A
Chambers Pike	East of SR 37/I-69	Old SR 37	100	145	128	-12%	A	A
Dittemore Rd	Crossover Rd	Tilford Rd	557	1,159	157	-86%	A	A
Turkey Track Rd	Bryants Creek Rd	Pine Blvd	94	104	148	42%	A	A
Pine Blvd	East of SR 37/I-69	Old SR 37	116	228	116	-49%	A	A
Paragon Road	West of SR 37/I-69	Ivan Trail	1,217	1,446	52	-96%	A	A
Cramer Rd	Paragon Rd	Godsey Rd	37	44	9	-80%	A	A
Liberty Church Rd	West of SR 37/I-69	Cramer Rd	90	113	12	-89%	A	A
	East of SR 37/I-69	Old SR 37	498	653	1,349	107%	A	A
SR 37/I-69 SB	SR 39	Liberty Church Rd / Paragon Rd	11,371	19,796	30,264	53%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,595	20,041	29,518	47%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,575	22,735	31,287	38%	C	B
	Kinser Pike / Walnut St	SR 46	10,271	17,830	31,287	75%	B	B
	SR 46	SR 48 / 3rd St	18,509	26,921	36,421	35%	E	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,610	30,770	35,668	16%	C	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	17,489	29,063	35,758	23%	D	C
	Tapp Rd	Fullerton Pike	13,921	29,007	35,758	23%	D	C
	Fullerton Pike	SR 37	11,905	25,302	30,653	21%	C	C
SR 37/I-69 NB	SR 39	Liberty Church Rd / Paragon Rd	11,438	19,760	30,678	55%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,504	21,070	29,405	40%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,002	22,553	30,088	33%	C	C
	Kinser Pike / Walnut St	SR 46	9,308	17,063	30,088	76%	B	B
	SR 46	SR 48 / 3rd St	19,443	29,525	38,760	31%	D	B
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,364	30,581	38,374	25%	C	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	15,885	27,420	36,559	33%	D	C
	Tapp Rd	Fullerton Pike	13,375	27,380	36,559	34%	D	C
	Fullerton Pike	SR 37	12,008	26,597	32,826	23%	D	C



Under Alternative 6, the LOS improved on eight road segments when compared to the No Build Scenario:

- Southbound SR 37/I-69 from Sample Road to Kinser Pike/Walnut Street; improves from LOS C to LOS B as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS E to LOS C as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 45/ 2nd Street to Tapp Road; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS C, as the build alternative includes an additional lane.
- Northbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS D to LOS C as the Build Alternative includes an additional lane.

Five roadway segments are expected to see increased congestion for Alternative 6 when compared to the No Build scenario due to an increase in traffic volumes in the Build Condition without an increase in capacity:

- SR 46 east of SR 37/I-69; reduces from LOS B to LOS C.
- SR 48 west of SR 37/I-69; reduces from LOS C to LOS E.
- SR 48 east of SR 37/I-69; reduces from LOS B to LOS C.
- Sample Road west of SR 37/I-69; reduces from LOS A to LOS B.
- Sample Road east of SR 37/I-69; reduces from LOS A to LOS D.

Although these segments experience a lower LOS than the No Build condition, all but two roadway segment (Sample Road east of SR 37/I-69 and SR 48 west of SR 37/I-69) falls within the acceptable LOS threshold of LOS D for urban roadways and LOS C for rural roadways.

Table 5.6-4 analyzes the LOS and the volume between the No Build and Build Alternative 7.



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Table 5.6-4: Road Volumes and LOS – Base Year, No Build, and Alternative 7

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 7 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 7 2035 LOS
That Rd	SR 37	Rodgers St	3,864	1,508	1,227	-19%	A	A
	Rockport Rd	Fullerton Pike	206	1,337	3,815	185%	A	A
Rockport Rd	SR 37/I-69	Fullerton Pike	365	7,544	5,182	-31%	A	A
Leonard Springs Rd	Fullerton Pike	Tapp Rd	1,716	4,133	4,752	15%	A	A
	Tapp Rd	SR 45	10,564	14,791	12,812	-13%	A	A
Fullerton Pike	West of SR 37/I-69	Leonard Springs Rd	5,563	7,932	10,106	27%	A	A
	East of SR 37/I-69	Rockport Rd	1,200	7,134	14,009	96%	A	A
Tapp Rd	West of SR 37/I-69	Leonard Springs Rd	8,481	17,595	11,020	-37%	A	A
	East of SR 37/I-69	Weimer Rd	15,086	20,545	13,697	-33%	A	A
SR 45	Liberty Dr	Curry P ke	19,201	22,286	22,024	-1%	A	A
	Basswood Dr	Weimer Rd	18,409	20,737	28,082	35%	A	A
Weimer Rd	Tapp Rd	SR 45	434	955	985	3%	B	B
Walnut St	Winslow Rd	Hillside Dr	19,027	20,522	19,888	-3%	B	B
Curry Pike	SR 45	SR 48	11,548	18,952	17,709	-7%	A	A
	SR 48	Vernal Pike	10,505	14,847	19,363	30%	A	A
	Vernal Pike	SR 46	4,413	10,075	11,773	17%	B	B
Liberty Dr	SR 45	SR 48	1,820	1,969	3,146	60%	B	B
SR 48	West of SR 37/I-69	Liberty Dr	32,732	38,403	42,782	11%	C	E
	East of SR 37/I-69	Franklin Rd	17,137	30,448	36,971	21%	B	C
Vernal Pike	Industrial Dr	Curry P ke	4,717	8,780	11,934	36%	A	A
17th St	Monroe St	Madison St	12,089	18,092	20,944	16%	A	A
Adams St	5th St	Vernal Pike	4,945	10,998	8,348	-24%	A	A
Walnut St	College Ave	SR 46	14,993	17,917	16,026	-11%	B	B
Walnut St	East of SR 37/I-69	Bayles Rd	9,239	13,073	8,798	-33%	A	A
SR 46	West of SR 37/I-69	Curry P ke	21,867	39,907	46,856	17%	A	A
	East of SR 37/I-69	Madison St	29,426	42,375	49,338	16%	B	B
Arlington Rd	West of SR 37/I-69	SR 46	7,039	6,490	5,960	-8%	A	A
Maple Grove Rd	Acuff Rd	Lost Mans Ln	3,126	2,935	1,394	-53%	A	A
Prow Rd	Arlington Rd	Acuff Rd	934	1,019	3,200	214%	A	A
Acuff Rd	Prow Rd	Kinser Pike	3,011	4,119	3,200	-22%	B	B
Kinser Pike	East of SR 37/I-69	Acuff Rd	746	1,084	3,681	240%	A	A
	West of SR 37/I-69	Bottom Rd	22	25	455	1718%	A	A
Sample Rd	West of SR 37/I-69	Simpson Chapel Rd	384	754	5,074	573%	A	D
	East of SR 37/I-69	Old SR 37	1,781	1,722	4,552	164%	A	D
Simpson Chapel Rd	Sample Rd	Williams Rd	508	1,018	3,718	265%	A	B



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Table 5.6-4: Road Volumes and LOS – Base Year, No Build, and Alternative 7

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 7 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 7 2035 LOS
Old SR 37	Fox Hollow Rd	Chambers Pike	86	147	186	27%	A	A
	Chambers Pike	Paragon Rd	152	349	198	-43%	A	A
Chambers Pike	East of SR 37/I-69	Old SR 37	100	145	72	-50%	A	A
Dittemore Rd	Crossover Rd	Tilford Rd	557	1,159	19	-98%	A	A
Turkey Track Rd	Bryants Creek Rd	Pine Blvd	94	104	161	55%	A	A
Pine Blvd	East of SR 37/I-69	Old SR 37	116	228	121	-47%	A	A
Paragon Road	West of SR 37/I-69	Ivan Trail	1,217	1,446	78	-95%	A	A
Cramer Rd	Paragon Rd	Godsey Rd	37	44	12	-73%	A	A
Liberty Church Rd	West of SR 37/I-69	Cramer Rd	90	113	853	655%	A	B
	East of SR 37/I-69	Old SR 37	498	653	1,682	158%	A	B
SR 37/I-69 SB	SR 39	Liberty Church Rd / Paragon Rd	11,371	19,796	30,693	55%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,595	20,041	29,450	47%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,575	22,735	32,923	45%	C	C
	Kinser Pike / Walnut St	SR 46	10,271	17,830	29,354	65%	B	B
	SR 46	SR 48 / 3rd St	18,509	26,921	37,165	38%	E	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,610	30,770	37,087	21%	C	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	17,489	29,063	29,805	3%	D	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (cd lanes)	N/A	N/A	6,131	N/A	N/A	A
	Tapp Rd	Fullerton Pike	13,921	29,007	35,130	21%	D	C
	Fullerton Pike	SR 37	11,905	25,302	30,279	20%	C	B
SR 37/I-69 NB	SR 39	Liberty Church Rd / Paragon Rd	11,438	19,760	30,900	56%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,504	21,070	29,456	40%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,002	22,553	32,126	42%	C	C
	Kinser Pike / Walnut St	SR 46	9,308	17,063	28,679	68%	B	B
	SR 46	SR 48 / 3rd St	19,443	29,525	39,493	34%	D	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,364	30,581	39,609	30%	C	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	15,885	27,420	30,990	13%	D	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (cd lanes)	N/A	N/A	4,414	N/A	N/A	A
	Tapp Rd	Fullerton Pike	13,375	27,380	36,928	35%	D	C
	Fullerton Pike	SR 37	12,008	26,597	32,575	22%	D	C

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In Alternative 7, eight road segments saw an improved LOS compared to the no build alternative. Roads that improved LOS in Alternative 7 are:

- Southbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS E to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 45/ 2nd Street to Tapp Road; improves from LOS D to LOS B as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 Fullerton Pike to SR 37; improves from LOS C to LOS B as the Build Alternative includes an additional lane. Northbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 Fullerton Pike to SR 37; improves from LOS D to LOS C as the Build Alternative includes an additional lane.

However, seven roads had increased congestion in Alternative 7 compared to the No Build scenario due to an increase in traffic volumes in the Build Condition without an increase in capacity. The roads with a reduced LOS in Alternative 7 are:

- SR 48 west of SR 37/I-69; reduces from LOS C to LOS E.
- SR 48 east of SR 37/I-69; reduces from LOS B to LOS C.
- Sample Road west of SR 37; reduces from LOS A to LOS D
- Sample Road east of SR 37; reduces from LOS A to LOS D
- Simpson Chapel Road between Sample Road and Williams Road; reduces from LOS A to LOS B.
- Liberty Church Road west of SR 37/I-69; reduces from LOS A to LOS B.
- Liberty Church Road east of SR 37/I-69; reduces from LOS A to LOS B.

Although these segments experience a lower LOS than the No Build condition, all but three roadway segments (Sample Road east and west of SR 37/I-69 and SR 48 west of SR 37/I-69) fall within the acceptable LOS threshold of LOS C in rural areas or LOS D in urban areas.

Table 5.6-5 compares Alternative 8 (Preferred Alternative from the DEIS) and the future No Build LOS and volumes.



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Table 5.6-5: Road Volumes and LOS – Base Year, No Build, and Alternative 8

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 8 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 8 2035 LOS
That Rd	SR 37	Rodgers St	3,864	1,508	1,223	-19%	A	A
	Rockport Rd	Fullerton Pike	206	1,337	3,825	186%	A	A
Rockport Rd	SR 37/I-69	Fullerton Pike	365	7,544	5,242	-31%	A	A
Leonard Springs Rd	Fullerton Pike	Tapp Rd	1,716	4,133	4,682	13%	A	A
	Tapp Rd	SR 45	10,564	14,791	12,106	-18%	A	A
Fullerton Pike	West of SR 37/I-69	Leonard Springs Rd	5,563	7,932	10,948	38%	A	A
	East of SR 37/I-69	Rockport Rd	1,200	7,134	14,131	98%	A	A
Tapp Rd	West of SR 37/I-69	Leonard Springs Rd	8,481	17,595	11,041	-37%	A	A
	East of SR 37/I-69	Weimer Rd	15,086	20,545	14,403	-30%	A	A
SR 45	Liberty Dr	Curry Pike	19,201	22,286	18,520	-17%	A	B
	Basswood Dr	Weimer Rd	18,409	20,737	25,592	23%	A	B
Weimer Rd	Tapp Rd	SR 45	434	955	1,021	7%	B	B
Walnut St	Winslow Rd	Hillside Dr	19,027	20,522	19,916	-3%	B	B
Curry Pike	SR 45	SR 48	11,548	18,952	16,969	-10%	A	A
	SR 48	Vernal Pike	10,505	14,847	18,998	28%	A	A
	Vernal Pike	SR 46	4,413	10,075	12,260	22%	B	B
Liberty Dr	SR 45	SR 48	1,820	1,969	3,229	64%	B	B
SR 48	West of SR 37/I-69	Liberty Dr	32,732	38,403	42,664	11%	C	E
	East of SR 37/I-69	Franklin Rd	17,137	30,448	33,927	11%	B	B
Vernal Pike	Industrial Dr	Curry Pike	4,717	8,780	11,620	32%	A	A
17th St	Monroe St	Madison St	12,089	18,092	20,480	13%	A	A
Adams St	5th St	Vernal Pike	4,945	10,998	8,187	-26%	A	A
Walnut St	College Ave	SR 46	14,993	17,917	17,589	-2%	B	B
Walnut St	East of SR 37/I-69	Bayles Rd	9,239	13,073	15,235	17%	A	A
SR 46	West of SR 37/I-69	Curry Pike	21,867	39,907	47,556	19%	A	A
	East of SR 37/I-69	Madison St	29,426	42,375	45,285	7%	B	C
Arlington Rd	West of SR 37/I-69	SR 46	7,039	6,490	5,864	-10%	A	A
Maple Grove Rd	Acuff Rd	Lost Mans Ln	3,126	2,935	1,157	-61%	A	A
Prow Rd	Arlington Rd	Acuff Rd	934	1,019	2,788	174%	A	B
Acuff Rd	Prow Rd	Kinser Pike	3,011	4,119	2,788	-32%	B	B
Kinser Pike	East of SR 37/I-69	Acuff Rd	746	1,084	3,088	185%	A	A
	West of SR 37/I-69	Bottom Rd	22	25	241	864%	A	A
Sample Rd	West of SR 37/I-69	Simpson Chapel Rd	384	754	1,784	137%	A	B
	East of SR 37/I-69	Old SR 37	1,781	1,722	3,647	112%	A	B
Simpson Chapel Rd	Sample Rd	Williams Rd	508	1,018	851	-16%	A	A



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Table 5.6-5: Road Volumes and LOS – Base Year, No Build, and Alternative 8

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Alt. 8 2035 ADT	Percent Variance	No Build 2035 LOS	Alt. 8 2035 LOS
Old SR 37	Fox Hollow Rd	Chambers Pike	86	147	149	1%	A	A
	Chambers Pike	Paragon Rd	152	349	209	-40%	A	A
Chambers P ke	East of SR 37/I-69	Old SR 37	100	145	121	-17%	A	A
Dittemore Rd	Crossover Rd	Tilford Rd	557	1,159	130	-89%	A	A
Turkey Track Rd	Bryants Creek Rd	Pine Blvd	94	104	147	41%	A	A
Pine Blvd	East of SR 37/I-69	Old SR 37	116	228	165	-27%	A	A
Paragon Road	West of SR 37/I-69	Ivan Trail	1,217	1,446	65	-96%	A	A
Cramer Rd	Paragon Rd	Godsey Rd	37	44	10	-77%	A	A
Liberty Church Rd	West of SR 37/I-69	Cramer Rd	90	113	852	654%	A	A
	East of SR 37/I-69	Old SR 37	498	653	1,688	158%	A	B
SR 37/I-69 SB	SR 39	Liberty Church Rd / Paragon Rd	11,371	19,796	30,881	56%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,595	20,041	29,710	48%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,575	22,735	32,037	41%	C	B
	Kinser Pike / Walnut St	SR 46	10,271	17,830	28,507	60%	B	B
	SR 46	SR 48 / 3rd St	18,509	26,921	37,872	41%	E	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,610	30,770	38,099	24%	C	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	17,489	29,063	30,462	5%	D	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (cd lanes)	N/A	N/A	6,472	N/A	N/A	A
	Tapp Rd	Fullerton Pike	13,921	29,007	35,706	23%	D	C
	Fullerton Pike	SR 37	11,905	25,302	30,187	19%	C	B
SR 37/I-69 NB	SR 39	Liberty Church Rd / Paragon Rd	11,438	19,760	31,855	61%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,504	21,070	29,819	42%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,002	22,553	31,855	41%	C	C
	Kinser Pike / Walnut St	SR 46	9,308	17,063	26,485	55%	B	B
	SR 46	SR 48 / 3rd St	19,443	29,525	40,234	36%	D	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,364	30,581	39,855	30%	C	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	15,885	27,420	30,986	13%	D	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (cd lanes)	N/A	N/A	4,517	N/A	N/A	B
	Tapp Rd	Fullerton Pike	13,375	27,380	36,870	35%	D	C
	Fullerton Pike	SR 37	12,008	26,597	32,531	22%	D	C



Alternative 8 has nine roads with an improved LOS. Roads that improved LOS include:

- Southbound SR 37/I-69 from Sample Road to Kinser Pike/Walnut; improves from LOS C to LOS B, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS E to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS C to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS D to LOS C.
- Northbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.

Seven roads had a lower LOS due to an increase in traffic volumes in the Build Condition without an increase in capacity. These roads are:

- SR 45 between Liberty Drive and Curry Pike; reduces from LOS A to LOS B.
- SR 45 between Basswood Drive and Weimer Road; reduces from LOS A to LOS B.
- SR 48 west of SR 37/I-69; reduces from LOS C to LOS E.
- SR 46 east of SR 37/I-69; reduces from LOS B to LOS C.
- Prow Road between Arlington Road and Acuff Road; reduces from LOS A to LOS B.
- Sample Road west of SR 37/I-69; reduces from LOS A to LOS B.
- Sample Road east of SR 37/I-69; reduces from LOS A to LOS B.
- Liberty Church Road east of SR 37/I-69; reduces from LOS A to LOS B.

Although these segments experience a lower LOS than the No Build condition, only one (SR 48 west of SR 37/I-69) exceed LOS C which is an acceptable LOS for both rural and urban roadways.

Table 5.6-6 compares Refined Preferred Alternative 8 and the future No Build LOS and volumes.



Table 5.6-6: Road Volumes and LOS – Base Year, No Build, and Refined Preferred Alternative 8

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Ref. Pref. Alt. 8 2035 ADT	Percent Variance	No Build 2035 LOS	Ref. Pref. Alt. 8 2035 LOS
That Rd	SR 37	Rodgers St	3,864	1,508	1,225	-19%	A	A
	Rockport Rd	Fullerton P ke	206	1,337	3,837	187%	A	A
Rockport Rd	SR 37/I-69	Fullerton P ke	365	7,544	5,282	-30%	A	A
Leonard Springs Rd	Fullerton Pike	Tapp Rd	1,716	4,133	4,668	13%	A	A
	Tapp Rd	SR 45	10,564	14,791	12,201	-18%	A	A
Fullerton Pike	West of SR 37/I-69	Leonard Springs Rd	5,563	7,932	10,880	37%	A	A
	East of SR 37/I-69	Rockport Rd	1,200	7,134	14,027	97%	A	A
Tapp Rd	West of SR 37/I-69	Leonard Springs Rd	8,481	17,595	11,108	-37%	A	A
	East of SR 37/I-69	Weimer Rd	15,086	20,545	14,474	-30%	A	A
SR 45	Liberty Dr	Curry Pike	19,201	22,286	18,517	-17%	A	B
	Basswood Dr	Weimer Rd	18,409	20,737	25,758	24%	A	B
Weimer Rd	Tapp Rd	SR 45	434	955	1,027	8%	B	B
Walnut St	Winslow Rd	Hillside Dr	19,027	20,522	19,997	-3%	B	B
Curry Pike	SR 45	SR 48	11,548	18,952	17,129	-10%	A	A
	SR 48	Vernal P ke	10,505	14,847	19,608	32%	A	A
	Vernal Pike	SR 46	4,413	10,075	11,994	19%	B	B
Liberty Dr	SR 45	SR 48	1,820	1,969	3,209	63%	B	B
SR 48	West of SR 37/I-69	L berty Dr	32,732	38,403	42,239	10%	C	E
	East of SR 37/I-69	Franklin Rd	17,137	30,448	34,052	12%	B	B
Vernal Pike	Industrial Dr	Curry Pike	4,717	8,780	12,260	40%	A	A
17th St	Monroe St	Madison St	12,089	18,092	21,210	17%	A	A
Adams St	5th St	Vernal P ke	4,945	10,998	8,218	-25%	A	A
Walnut St	College Ave	SR 46	14,993	17,917	15,957	-11%	B	B
Walnut St	East of SR 37/I-69	Bayles Rd	9,239	13,073	9,312	-29%	A	A
SR 46	West of SR 37/I-69	Curry Pike	21,867	39,907	46,693	17%	A	A
	East of SR 37/I-69	Madison St	29,426	42,375	49,423	17%	B	B
Arlington Rd	West of SR 37/I-69	SR 46	7,039	6,490	6,043	-7%	A	A
Maple Grove Rd	Acuff Rd	Lost Mans Ln	3,126	2,935	1,361	-54%	A	A
Prow Rd	Arlington Rd	Acuff Rd	934	1,019	3,196	214%	A	A
Acuff Rd	Prow Rd	Kinser Pike	3,011	4,119	3,196	-22%	B	B
Kinser Pike	East of SR 37/I-69	Acuff Rd	746	1,084	3,598	232%	A	A
	West of SR 37/I-69	Bottom Rd	22	25	506	1924%	A	A
Sample Rd	West of SR 37/I-69	Simpson Chapel Rd	384	754	4,730	527%	A	D
	East of SR 37/I-69	Old SR 37	1,781	1,722	4,635	169%	A	D
Simpson Chapel Rd	Sample Rd	Williams Rd	508	1,018	3,540	248%	A	B



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Table 5.6-6: Road Volumes and LOS – Base Year, No Build, and Refined Preferred Alternative 8

Road	From	To	2010 Base year ADT	No Build 2035 ADT	Ref. Pref. Alt. 8 2035 ADT	Percent Variance	No Build 2035 LOS	Ref. Pref. Alt. 8 2035 LOS
Old SR 37	Fox Hollow Rd	Chambers P ke	86	147	150	2%	A	A
	Chambers Pike	Paragon Rd	152	349	209	-40%	A	A
Chambers Pike	East of SR 37/I-69	Old SR 37	100	145	121	-17%	A	A
Dittmore Rd	Crossover Rd	Tilford Rd	557	1,159	137	-88%	A	A
Turkey Track Rd	Bryants Creek Rd	Pine Blvd	94	104	147	41%	A	A
Pine Blvd	East of SR 37/I-69	Old SR 37	116	228	122	-46%	A	A
Paragon Road	West of SR 37/I-69	Ivan Trail	1,217	1,446	73	-95%	A	A
Cramer Rd	Paragon Rd	Godsey Rd	37	44	10	-77%	A	A
Liberty Church Rd	West of SR 37/I-69	Cramer Rd	90	113	870	670%	A	B
	East of SR 37/I-69	Old SR 37	498	653	1,765	170%	A	B
SR 37/I-69 SB	SR 39	Liberty Church Rd / Paragon Rd	11,371	19,796	30,736	55%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,595	20,041	29,543	47%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,575	22,735	33,045	45%	C	C
	Kinser Pike / Walnut St	SR 46	10,271	17,830	29,183	64%	B	B
	SR 46	SR 48 / 3rd St	18,509	26,921	36,961	37%	E	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,610	30,770	37,651	22%	C	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	17,489	29,063	30,230	4%	D	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (cd lanes)	N/A	N/A	4,565	N/A	N/A	A
	Tapp Rd	Fullerton P ke	13,921	29,007	35,485	22%	D	C
	Fullerton Pike	SR 37	11,905	25,302	30,099	57%	C	B
SR 37/I-69 NB	SR 39	Liberty Church Rd / Paragon Rd	11,438	19,760	31,078	56%	C	C
	Liberty Church Rd / Paragon Rd	Sample Rd	11,504	21,070	29,550	40%	C	C
	Sample Rd	Kinser Pike / Walnut St	13,002	22,553	32,055	42%	C	C
	Kinser Pike / Walnut St	SR 46	9,308	17,063	28,350	66%	B	B
	SR 46	SR 48 / 3rd St	19,443	29,525	39,586	34%	D	C
	SR 48 / 3rd St	SR 45 / Bloomfield Rd / 2nd St	20,364	30,581	39,603	30%	C	C
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (mainline)	15,885	27,420	30,804	12%	D	B
	SR 45 / Bloomfield Rd / 2nd St	Tapp Rd (cd lanes)	N/A	N/A	6,397	N/A	N/A	B
	Tapp Rd	Fullerton P ke	13,375	27,380	36,680	34%	D	C
	Fullerton Pike	SR 37	12,008	26,597	32,419	22%	D	C

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Preferred Alternative 8 has eight roads with an improved LOS. The greatest improvement was SR 37/I-69 between SR 46 and SR 48/3rd Street, which improved from LOS E to LOS C. Roads that improved LOS include:

- Southbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS E to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS C to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS D to LOS C.
- Northbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.

Eight roads had a lower LOS due to an increase in traffic volumes in the Build Condition without an increase in capacity. These roads are:

- SR 45 from Liberty Drive to Curry Pike; reduces from LOS A to LOS B.
- SR 45 from Basswood Drive to Weimer Road; reduces from LOS A to LOS B
- SR 48 west of SR 37/I-69; reduces from LOS C to LOS E.
- Sample Road west of SR 37; reduces from LOS A to LOS D
- Sample Road east of SR 37; reduces from LOS A to LOS D
- Simpson Chapel Road from Sample Road to Williams Road; reduces from LOS A to LOS B.
- Liberty Church Road east of SR 37/I-69; reduces from LOS A to LOS B.
- Liberty Church Road east of SR 37/I-69; reduces from LOS A to LOS B.

Although these segments experience a lower LOS than the No Build condition, all but three roadway segments (Sample Road east and west of SR 37/I-69 and SR 48 west of SR 37/I-69) fall within the acceptable LOS threshold of LOS C in rural areas or LOS D in urban areas.



5.6.3.2 Access

Throughout the Tier 2 Section 5 public involvement process, accessibility has been one of the topics most often raised by local government officials, business owners, and residents. Access to the interstate highway and maintaining access to land within the Section 5 corridor have been highlighted as key factors to be considered in choosing the final alignment for I-69 Section 5.

The location of possible interchanges and the treatment (grade separation, relocation, or closing) of local roads that currently have access to SR 37, but may not have access to the new facility, could affect land use through changes in local travel patterns and accessibility. Interchanges and travel patterns/local public road connectivity are discussed below, including changes for the alternatives that may have occurred as previously proposed by the Tier 1 study and/or as previously presented/discussed with the public during Tier 2 project development for Section 5.

The ability to access parcels severed (split into more than one piece) by the new road is also a consideration when determining local accessibility. Because Section 5 involves conversion of existing SR 37, severed parcel impacts are minimal compared with new terrain I-69 sections. I-69 is a fully-controlled access facility; therefore, the only access will be at interchanges. While access to most severed parcels would be available via adjacent roads/access roads, etc., some parcels would be landlocked. The decision whether to provide access to or acquire landlocked parcels, uneconomic remnants,⁴ and/or severed parcels may not be addressed until after the Record of Decision (ROD) during final design of this project. Changes in access can also directly affect local land use plans for planned and approved development. It is assumed that full access will support planned development, while less direct access is not as supportive of local development plans.

5.6.3.2.1 Interchange Access

Tier 1 FEIS Volume III shows potential interchanges for consideration in the Tier 2 studies. In the Tier 1 ROD, Sections 2.1.6 and 2.3.4 state that interchange locations are a Tier 2 decision. At the same time, potential interchanges from Tier 1 represent a logical starting point for Tier 2 interchange analysis. The Tier 1 Section 5 interchange locations studied in Tier 2 include: Fullerton Pike, SR 45/2nd Street, SR 48/3rd Street, SR 46, Kinser Pike, Walnut Street, Sample Road, and Pine Blvd./Paragon Road.

Existing SR 37 interchanges were afforded preference due to the substantial disruption to local travel patterns, as well as increased impacts and costs if excluded from the Section 5 alternatives. These include the interchanges at SR 45/2nd Street, SR 48/3rd Street, SR 46, and Walnut Street (partial); however, alternatives were considered which modified existing interchange designs.

⁴ Uneconomic remnants include point rows, i.e., the formation of an acute angle along the edges of fields that limits or restricts the ability of farm equipment to access the area for farming purposes and strips of land along an edge of a field that are too narrow to farm productively.



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Potential alternative interchanges to the Tier 1 referenced locations were included based upon forecasted traffic volumes from the I-69 corridor model and input from participating agencies and other local government representatives, ELUP, CACs, and public comments. Tapp Road, Vernal Pike, Chambers Pike, and Liberty Church Road are examples of such alternative locations.

The Tier 2 preliminary alternatives and the preliminary recommendations for alternatives, as discussed with the Section 5 CACs and presented to the public at the July 20, 2005 public information meetings, included three initial alternatives (Alternatives 1, 2, and 3) with various combinations of interchanges and grade separations. A series of local access roads parallel to I-69 were developed for each alternative between the interchanges. During the 2007 alternative screening process, the elements that remained under consideration following the screening process were grouped into two alternatives (Alternatives 4 and 5).

Since the 2007 alternatives development process, INDOT reviewed these alternatives to consider design features which could lessen impacts to the natural and human environment. INDOT included these design features in two minimal impact alternatives (Alternatives 6 and 7). Alternatives 4, 5, 6, and 7 were presented at the April 24, 2012 public information meeting. The DEIS included evaluation of Alternatives 4, 5, 6, 7, and 8 (the DEIS Preferred Alternative). Alternative 8 was developed as a hybrid alternative to balance the project's needs with anticipated impacts.

Following publication of the DEIS, further refinements to access have been incorporated into the Refined Preferred Alternative 8 as part of the development of the FEIS and in response to DEIS comments. See **Section 3.2, Alternative Development Process (Table 3-1)**.

Figure 5.3-5 to Figure 5.3-10 (the tabbed maps following **Section 5.3, Land Use and Community Impacts**) show the interchange locations for the six build alternatives in relation to community resources. An index map showing the associated page number for each interchange is included in **Figure 5.3-1** in **Section 5.3, Land Use and Community Impacts**.

All six build alternatives include an interchange at Fullerton Pike.

Alternatives 4 and 6 propose an overpass at Tapp Road, while the Refined Preferred Alternative 8 and Alternatives 5, 7, and 8 propose a split-diamond interchange between Tapp Road and SR 45/2nd Street. Alternative 4 includes a tight diamond interchange at SR 45/2nd Street, and Alternative 6 uses the existing interchange.

At the SR 48/3rd Street interchange, Alternative 4 includes a tight diamond interchange and Alternative 5 includes a single-point interchange. Alternatives 6, 7, 8, and Refined Preferred Alternative 8 include reuse of the existing interchange. Additionally, the Refined Preferred Alternative 8 includes construction of additional lanes along exit ramps to improve operational performance of this interchange.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8 use the existing SR 46 interchange.



Alternative 4 includes an interchange at Kinser Pike. Alternatives 5, 7, 8, and Refined Preferred Alternative 8 include an overpass at Kinser Pike. Alternative 6 has neither an interchange nor an overpass at Kinser Pike, and calls for closure of Kinser Pike access at I-69.

Alternatives 4 and 6 include an overpass at Walnut Street. Alternatives 5 and 8 include a new interchange at Walnut Street with redesigned structures/approaches to reduce the skew and avoid impacts to historic Monroe County Bridge 913. Refined Preferred Alternative 8 and Alternative 7 use the existing partial interchange.

All six build alternatives include an interchange at Sample Road.

The Refined Preferred Alternative 8 and Alternatives 4, 5, 6, and 8 include a Chambers Pike overpass, while Alternative 7 includes closure of highway access at Chambers Pike.

Alternative 4 includes an interchange at Paragon Road and eliminates Liberty Church Road direct access to I-69. Alternative 5 includes a Liberty Church interchange and Paragon Road overpass. Alternatives 6, 7, 8 and Refined Preferred Alternative 8 include a Liberty Church interchange and eliminates Paragon Road direct access at I-69.

All build alternatives include eastern and western local access roads.

For the design year 2035, I-69 in Section 5 is projected to operate at an acceptable Level of Service (LOS), which is LOS D or better in the urban areas and LOS C or better in the rural areas. Refer to **Section 5.6.3.1, *Traffic Conditions***, for more information.

A brief discussion on interchange options follows. Interchanges are described per alternative at each specific location. These interchanges are not interchangeable between alternatives and locations. **Section 5.3.4.2, *Travel Patterns and Local Road Connectivity***, provides additional detail regarding impacts and community concerns associated with interchange and local access changes.

SR 37 Interchange (in Section 4)

Providing direct access between I-69 and the residential areas (in Section 5) immediately northeast of the SR 37 interchange was considered during the preliminary development of alternatives in Section 5. However, the SR 37 interchange (part of the Section 4 project) would become too complex if a fourth (northeasterly) leg were added. Providing an interchange at That Road was also considered but would be too close to the SR 37 interchange per FHWA interchange spacing guidance.

Fullerton Pike Interchange

An interchange is proposed at Fullerton Pike to provide access to southern areas of Bloomington, which will integrate with the *Monroe County Thoroughfare Plan* that includes a southern bypass of Bloomington. The interchange also provides linkage to Monroe County's Fullerton Pike/Gordon Pike/Rhorer Road project, included in the Bloomington Monroe County Metropolitan Planning Organization's (BMCMPPO) 2030 Long Range Transportation Plan and



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the 2012-2015 Transportation Improvement Program. An interchange at Fullerton Pike would also provide access to the Monroe Hospital, as well as the Fullerton Tax Increment Fund (TIF) District.

The interchange is located at the existing Fullerton Pike and SR 37 signalized intersection and would include construction of additional lanes and shoulders along I-69, a bridge structure, approach ramps, and additional right-of-way. During the initial Tier 2 Study, the proposed interchange at Fullerton Pike included a mainline shift to the east of existing SR 37 in order to minimize impacts to the Monroe Hospital, reduce residential and karst impacts, and allow Fullerton Pike to return to existing grade before the Fullerton Cemetery, which is near the Fullerton House. While this mainline shift to the east of I-69 would be maintained in both Alternatives 4 and 5, the Section 5 mainline has been reconfigured at the southern terminus to match final design of the Section 4 mainline and SR 37 interchange to the south.

In contrast, in the vicinity of the Fullerton Pike interchange, Alternatives 6, 7, 8, and Refined Preferred Alternative 8 generally stay within the existing SR 37 right-of-way. The use of existing SR 37 alignment, pavement, right-of way and folded approach ramps, reduced the aerial extent of the interchange. The interchange layout is expected to consist of a folded diamond interchange with I-69 entrance ramp loops on the northwest and southeast quadrants. This design was preferred because mainline traffic would be less likely to experience delays from merging with reduced speed on-ramp traffic than by deceleration for a reduced speed off-ramp. As part of Alternative 7, Fullerton Pike interchange on the east side of I-69 would be shifted southward to reduce impacts to quarry operations and to North Clear Creek Historic Landscape District located on the north side of Fullerton Pike. Please refer to **Figure 5.3-5** to **Figure 5.3-10** (Page 1 of each figure).

Tapp Road Interchange

Based upon input from the City of Bloomington, the ELUP, and Monroe County, an option for access at Tapp Road was incorporated into the preliminary alternatives at the existing Tapp Road and SR 37 signalized intersection. Providing a full interchange would require collector distributor (CD) roads on I-69 through the urban section of Bloomington, due to traffic merging and FHWA interchange spacing guidelines. The initial alternative screening process had recommended eliminating a proposed single-point interchange at Tapp Road (as part of a CD system) and instead considered a split-diamond interchange at this location. Alternatives 4 and 6 propose an overpass at Tapp Road. Alternatives 5, 7, 8, and Refined Preferred Alternative 8 propose a split-diamond interchange between Tapp Road and SR 45/2nd Street. The interchange construction would include additional lanes and shoulders along I-69, a bridge structure at Tapp Road, use or replacement of an existing bridge structure at SR 45/2nd Street, approach and access ramps, and additional right-of-way.

The split-diamond interchange at Tapp Road and SR 45/2nd Street would be designed to maintain access to I-69 while avoiding weave issues associated with closely spaced interchange access points. There would be limited access unidirectional (one way travel only) access roads carrying traffic between Tapp Road and SR 45/2nd Street on both sides of I-69. The split-diamond interchange maintains the development potential on eastern Tapp Road with access to I-69,



spreads traffic loads with additional access to southwest Bloomington, and reduces traffic volumes on Leonard Springs Road and Tapp Road west of I-69. The split-diamond interchange would also reduce travel through western neighborhoods and provide an additional access point to reduce traffic volumes on SR 45/2nd Street. The split-diamond interchange would increase traffic volumes on Tapp Road east of I-69, but would reduce historically congested volumes on SR 45/2nd Street. Refer to **Figure 5.3-5** to **Figure 5.3-10** (Page 2 of each figure).

SR 45/2nd Street Interchange

Because SR 45/2nd Street is a state highway with significant traffic volumes, an interchange was maintained at this location in all six alternatives. The alternative screening process recommended three different interchange designs for the existing SR 37 interchange. Alternative 4 uses a tight diamond interchange at SR 45/2nd Street, Alternative 6 uses the existing folded diamond interchange (with loop ramps on the north side of SR 45/2nd Street), and Alternatives 5, 7, 8, and Refined Preferred Alternative 8 use a split-diamond interchange at Tapp Road and SR 45/2nd Street (as discussed above). These recommendations were based on knowledge that exit ramps used with folded diamond interchanges (such as the existing interchange) have potential to cause backups from ramp traffic onto the mainline; significant right-of-way impacts and cost could be reduced with reuse of the existing interchange; a significant amount of INDOT-owned right-of-way is available to accommodate various urban interchange configurations; and right-of-way costs and business impacts could be further reduced. A single-point interchange would require realigning SR 45/2nd Street to reduce the skew across I-69. Refer to **Figure 5.3-5** to **Figure 5.3-10** (Page 2 of each figure).

SR 48/3rd Street Interchange

Because SR 48/3rd Street is a state highway with significant traffic volumes, an interchange was maintained at this location in all six alternatives. The alternative screening process has included various interchange designs to improve the existing SR 37 interchange. Alternative 4 uses a new tight diamond interchange, Alternative 5 uses a single-point interchange, and Alternatives 6, 7 and 8 use the existing tight diamond interchange (with potential additional turning ramps depending on traffic forecasts). The Refined Preferred Alternative 8 uses the existing tight diamond interchange, with inclusion of additional lanes along exit ramps. A tight diamond interchange lowers bridge costs compared to a single-point interchange. The interchange construction would include additional lanes and shoulders along I-69, the use or replacement of the existing bridge structure, approach and access ramps at SR 48/3rd Street, and additional right-of-way.

The City of Bloomington initially stated a preference for a single-point interchange design for SR 48/3rd Street, with the assumption that it would minimize impacts. However, the City would also consider alternate interchange types which would meet the operational needs at this interchange. Monroe County did not specify a preferred layout for this interchange. Refer to **Figure 5.3-5** to **Figure 5.3-10** (Page 2 of each figure).

**Section 5—Final Environmental Impact Statement****Vernal Pike/17th Street Interchange, Underpass, or Overpass**

Monroe County stated a preference for interchange access at Vernal Pike. However, a Vernal Pike interchange would exceed the FHWA minimum interstate interchange spacing guidelines relative to the SR 46 interchange. In order to address this spacing, a CD system and reconstruction of the SR 46 interchange (to accommodate the CD roads) would be required to meet the Monroe County recommendation for an interchange at Vernal Pike; therefore, an interchange at Vernal Pike is not included in the Refined Preferred Alternative 8 or other alternatives addressed in the FEIS.

If an interchange were not included, then both the City of Bloomington and Monroe County recommended that a grade separation with I-69 be considered at this location. While this would eliminate the existing SR 37 signalized intersection at Vernal Pike, a grade separation would maintain connectivity across I-69 and maintain access to the industrial areas west of I-69. The grade separation is consistent with the 17th Street project included in the Bloomington Monroe County Metropolitan Planning Organization's (BMCMPPO) 2030 Long Range Transportation Plan.

SR 46 Interchange

Because SR 46 is a state highway with significant traffic volumes, an interchange was maintained at this location in all six alternatives. The use of the existing folded-diamond interchange reduces impacts to adjoining historic districts, forest, streams, infrastructure, and a local Superfund site. Under all six alternatives, including the Refined Preferred Alternative 8, the existing interchange can remain with minor improvements to ramp termini. Refer to **Figure 5.3-5** to **Figure 5.3-10** (Page 4 of each figure).

Kinser Pike Interchange

An interchange was considered at this location as an alternative to an interchange at Walnut Street. A Kinser Pike interchange would include construction of an extension from the existing SR 37 and Kinser Pike intersection down to the Walnut Street and Bayles Road intersection. During initial coordination, the City of Bloomington indicated their preference for a Kinser Pike interchange in support of their TIF district, but have since withdrawn this support in favor of other locations. While a Kinser Pike interchange would reduce impacts in the Beanblossom Valley, the Kinser Pike location is along a karst terrain ridge that would overlook the Maple Grove Road Rural Historic District (MGRRH) to the west of I-69. Both the neighborhood association and the State Historic Preservation Office (SHPO) commented on potentially increased noise and visual impacts to the MGRRH related to both the interchange itself and the increased potential for induced growth to the west of I-69.

Recommendations from the screening process for Alternative 4 included an interchange at Kinser Pike and an overpass at Walnut Street, while Alternative 5 provided an overpass at Kinser Pike and an interchange at Walnut Street. Alternative 4 now includes a "T" intersection and closer tie-in with existing Kinser Pike on the west to reduce costs, right-of-way, and impacts to karst and farmland. Refer to **Figure 5.3-5** (Page 6 of the figure). The Refined Preferred Alternative 8 and Alternatives 5, 7, and 8 include an overpass at Kinser Pike and use existing



Kinser Pike west as an access road to connect with either a Walnut Street interchange or overpass. Alternative 6 provides neither access nor an overpass at Kinser Pike, but provides access for the properties west of I-69 via a new local access road paralleling the I-69 mainline across to either a Walnut Street overpass or Sample Road interchange. Refer to **Figure 5.3-5** to **Figure 5.3-10** (Page 6 of each figure).

Walnut Street Interchange

An interchange at this location is recommended based upon its listing in the Tier 1 ROD and because this interchange is historically the “gateway” into Bloomington. This interchange also incorporates the reuse of historic bridge Monroe No. 913 as part of a local access road across Beanblossom Valley. While there is an existing interchange at SR 37 and Walnut Street, it is a “partial” interchange with only a southbound exit ramp and bridge and a northbound entrance ramp. Either an interchange or overpass was included in all of the alternatives at Walnut Street. Alternatives 4 and 6 include an overpass at Walnut Street. Alternative 5 would incorporate a new interchange at Walnut Street, and Alternative 7 would use the existing partial interchange and would require special authorization from FHWA to retain this feature. Alternative 8 included two options at Walnut Street:

- Option A would include a single-point interchange with construction of additional lanes and shoulders along I-69; replacement of existing bridge structures at I-69, (Griffy Creek, Beanblossom, and Beanblossom “overflow”), approach and access ramps; and additional right-of-way. The interchange would serve all four turning movements to comply with FHWA guidelines for construction of a fully-directional interchange on new facilities.
- Option B would also include additional lanes and shoulders along I-69, but would use the existing bridge structures at I-69, Griffy Creek, Beanblossom, and Beanblossom “overflow”; approach; and access ramps. While Option B would reduce impacts in Beanblossom Valley, reduce costs, and was supported in comments from resource agencies, this option would require FHWA approval since does not comply with FHWA guidelines for construction of a fully-directional interchange on new facilities.

Monroe County and the City of Bloomington have indicated their preference for a Walnut Street interchange and have also expressed a desire for treatments which would highlight this location as a “Gateway to Bloomington.” Walnut Street provides a popular ingress and egress route into Bloomington and Indiana University (IU). Since the Walnut Street interchange diverts traffic headed to downtown Bloomington from other interchanges such as SR 46 and 3rd Street, alternatives that include the Walnut Street interchange are expected to have better traffic distribution. Refer to **Figure 5.3-5** to **Figure 5.3-10** (Page 6 of each figure).

The Refined Preferred Alternative 8 includes reuse of the existing partial interchange as described above for Alternative 8 (Option B). FHWA has approved the use of the partial interchange at this location (see **Appendix RR**, *Walnut Street Interchange Selection Report*).



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Sample Road/Chambers Pike Interchange

An interchange at this location is based upon the listing in the Tier 1 ROD, topographic and cemetery avoidance constraints, and the ability to provide access to a cluster of churches, residences, and commercial parcels between Beanblossom Valley and the Morgan-Monroe State Forest. An interchange at the I-69 and Sample Road intersection was included in all except one of the preliminary alternatives. Year 2035 traffic forecasts showed that interchanges at both Sample Road and Chambers Pike are not warranted (the combined total is less than 10,000 VPD) and an interchange at Sample Road would serve twice the traffic of an interchange at Chambers Pike (see **Section 5.6.3.1, Traffic Conditions**).

Therefore, an interchange at Sample Road is proposed for all six build alternatives, and an overpass at Chambers Pike is being advanced for the Refined Preferred Alternative 8 and Alternatives 4, 5, 6, and 8. The interchange construction would include additional lanes and shoulders along I-69, a bridge structure, approach ramps, and additional right-of-way. The interchange layout is expected to consist of a single-fold interchange with a loop in the northwest quadrant. This design was allowed because mainline traffic would be less likely to experience delays from merging with traffic entering at a reduced speed than by traffic decelerating to exit or traffic from off-ramps backing up onto the mainline. The inclusion of folded approach ramps reduces the footprint of the interchange and would result in fewer impacts to a deep valley in the southwest quadrant. Alternative 7 would have access roads on both the eastern and western sides of I-69 and would eliminate both the Chambers Pike interchange and overpass. Refer to **Figure 5.3-5** to **Figure 5.3-10** (Pages 8 to 10 of each figure).

If both interchange locations were proposed, it would not comply with the FHWA three-mile minimum interstate interchange spacing for rural areas. Monroe County originally stated support for both interchange locations; however, if only one were to be built, the county stated a preference for the Sample Road interchange. The County remains supportive of the Sample Road interchange with an overpass at Chambers Pike Overpass.

An interchange at Sample Road is based upon the listing in the Tier 1 ROD, topographic and cemetery avoidance constraints, and the ability to provide access to a cluster of churches, residences, and commercial parcels between Beanblossom Valley and the Morgan-Monroe State Forest. Year 2035 traffic forecasts showed that interchanges at both Sample Road and Chambers Pike are not warranted (the combined total is less than 10,000 vehicles per day [VPD]) and an interchange at Sample Road would serve twice the traffic of an interchange at Chambers Pike (see **Section 5.6.3.1, Traffic Conditions**).

Paragon Road/Liberty Church Road Interchange

A potential interchange at Paragon Road was included in Tier 1 and was retained as an access to the nearby Morgan-Monroe State Forest. An alternative interchange location at Liberty Church Road was included based upon support of Morgan County and the City of Martinsville and local economic development, utilities, and City expansion plans.

The Indiana Department of Natural Resources (IDNR) has indicated that access via the Liberty Church location was preferable to Paragon Road due to the reduced impacts to the Morgan-



Monroe State Forest. Through this portion of I-69, all Section 5 alternatives would affect Morgan-Monroe State Forest. Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8 would require acquisition of 7.64, 5.71, 1.22, 0.07, 0.10, or 0.38 acre(s) of managed lands for right-of-way, respectively. Additional information about Morgan-Monroe State Forest is provided in **Section 5.22**, *Managed Lands and Natural Areas*.

The City of Martinsville has extended utilities and is in the process of annexing east of existing SR 37, including Jordon Road to the east and Liberty Church Road to the south. The area west of I-69 at Liberty Church Road (which has significant amounts of floodplains) has limited development potential and is a potential location for a municipal well field (see **Section 11.3.1**, *Outreach Activities*).

Alternative 4 includes the Paragon Road interchange and Liberty Church Road overpass. Alternative 5 includes the Paragon Road overpass and Liberty Church Road interchange. These alternatives would also include a western access road using Turkey Track Road north from Paragon Road running parallel to I-69 to Liberty Church Road; and an east side access road that would connect portions of Old SR 37 north to the Liberty Church Road interchange/overpass, with no access road to the south. Refer to **Figure 5.3-5**, **Figure 5.3-6**, and **Figure 5.3-10** (Pages 12 and 13 of each figure).

The Refined Preferred Alternative 8 and Alternatives 6, 7, and 8 include a Liberty Church Road interchange with either a folded diamond or narrow diamond interchange and would eliminate the Paragon Road interchange or overpass, requiring closure of Paragon Road access to I-69. The Refined Preferred Alternative 8 includes a diamond interchange at Liberty Church Road, shifted slightly to the north to minimize impacts to the adjacent floodway on the west side of the highway. This change at Paragon Road would reduce construction costs and residential impacts and would maintain local access patterns. Access to Paragon Road/Pine Boulevard would be provided by a western access road using reconnected portions of Turkey Track Road. Access to the Morgan-Monroe State Forest would be provided by an eastern access road using reconnected portions of Old SR 37. The City of Martinsville and Morgan County preferred a grade separation at Paragon Road if there were an interchange at Liberty Church Road and indicated strong support for an interchange at Liberty Church Road. Refer to **Figure 5.3-7** and **Figure 5.3-8** (Pages 12 and 13 of each figure).

Year 2035 traffic forecasts showed that the Paragon/Pine interchange would serve about 600 VPD less than the Liberty Church/Godsey interchange (see **Section 5.6.3.1**, *Traffic Conditions*). When combined with the input from the ELUP, IDNR, City of Martinsville, and Morgan County, the Paragon/Pine interchange was only included in Alternative 4 while the Liberty Church/Godsey interchange was included in Alternatives 4, 5, 6, 7, 8, and the Refined Preferred Alternative 8. The interchange construction for either location would include reconstructed lanes and shoulders along I-69, a bridge structure, approach ramps, and additional right-of-way.

5.6.3.2.2 Travel Patterns and Local Public Road Connectivity

The need to control access to interstate systems can result in the severance and closure of local public roads, requiring motorists to change established routes and adjust to new travel patterns to



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familiar destinations. This adjustment could have negative impacts on emergency responders, school bus routes, home service deliveries, businesses, residents, community facilities, and farmers in the project area. The change in travel patterns related to road closings could produce longer trips and slower response times for emergency responders. Businesses, residents, and community facilities may lose direct access to the corridor, resulting in longer trips. Farm operators, many of whom must access widely scattered fields with large, slow-moving farming equipment, would incur added distances which would result in lost time, reduced productivity, and higher costs.

Conversely, the ability of emergency responders to reach major medical centers, such as Bloomington, Indianapolis, and Evansville, employees and residents to reach regional commercial and employment centers, and farmers to reach regional markets would be improved because I-69 would provide a substantial travel time savings (see **Section 3.3**, *Screening of Alternatives*). Additionally, limited access along I-69 reduces the potential for conflict points, provides for more uniform travel speeds, and improves safety for all corridor users. Community related impacts, including beneficial and adverse impacts, are discussed in **Section 5.3.5**, *Community Facilities and Services*.

The Tier 1 study identified potential grade separations at many locations along the Section 5 corridor in order to maintain travel patterns and local public road connectivity. These grade separations and accessibility to land uses were discussed throughout the Tier 2 Section 5 public involvement process, including Section 5 C AC meetings and the July 20, 2005 public information meeting. Grade separations for most local roads, as recommended by the Tier 1 study, generally would be implemented under the various alternatives. The treatments of some local roads, however, have changed from the Tier 1 study recommendations or during the Tier 2 study, including additional assessment performed during detailed development of the alternatives. Proposed interstate and local access is shown on **Figure 5.3-5** to **Figure 5.3-10** (the tabbed maps following **Section 5.3**, *Land Use and Community Impacts*). Changes at the crossings of these roads, as discussed below, may adversely alter some local travel patterns and public road connectivity.

Currently there are approximately 76 streets, ramps, roads, or driveways with access to existing SR 37 in Section 5. With construction of I-69 as a limited access facility, many local roads would be severed by the new right-of-way and closed, relocated, or have a grade separation (overpass or underpass structure) to go over or under the new roadway. It would also be necessary, in certain locations, to construct short segments of roadway to provide access to properties whose access would otherwise be cut off by I-69. Some access roads may not be necessary based on final land acquisition analysis. It may be more cost-effective and appropriate to landlock a parcel and acquire the entire property than to provide an access road. Final decisions concerning access roads and grade separations will be made during the detailed design and right-of-way acquisition phase.

The following pages discuss treatment of the local road access in the Section 5 corridor. **Figure 5.3-5** to **Figure 5.3-10** show the right-of-way for the proposed alternatives. These figures include the proposed locations of interchanges, grade separations, access roads, and road



closures associated with each alternative. Additionally, interchange operations are discussed in **Section 5.6.3.2.1, *Interchange Access***.

Grade separations would be constructed at various locations where I-69 would cross existing state highways and local roads. At some locations, local roads may be closed, realigned, or relocated using an access road. **Table 5.6-7** summarizes state highway and local road access (overpasses, interchanges, road relocations, and road closures) for each of the alternatives.

Some local access differs from the local access identified in the Tier 1 study (see **Table 3-26**). Decisions on the local access described below and shown in **Table 5.6-7** were made based upon detailed engineering development of the highway, traffic volumes, travel patterns, comments and input from the public (including school bus and emergency vehicle access), resource agency comments, local participating agency comments, potential impacts, and costs. The Refined Preferred Alternative 8 is a compilation of improved access with minimal impacts.

Changes in travel patterns and right-of-way acquisitions and/or displacements are direct impacts that are very specific to each residence, business, and community facility for each alternative. During INDOT's on-going coordination with potentially affected residents, businesses, and community facility providers, individuals generally supported alternatives that avoided property acquisition and provided maintenance or improvement of their existing access. Conversely, individuals expressed concern with specific impacts to their property or increased travel distances.

These concerns and preferences have been evaluated and considered throughout refinement of the alternatives. The Refined Preferred Alternative 8 represents incorporation of these issues to meet the purpose of the project, including local needs of reducing traffic congestion, improving traffic safety, and supporting local economic development initiatives while avoiding and minimizing impacts to the community as a whole. Specific community preferences and concerns have been incorporated throughout the alternative development process and are detailed in:

- **Chapter 3, *Alternatives***
- **Chapter 6, *Comparison of Alternatives***
- **Chapter 11, *Comments Coordination and Public Involvement***
- **Appendix A, *Business Needs Survey***
- **Appendix B, *Participating Agency Meeting Summaries***
- **Appendix C, *Agency Coordination Correspondence***
- **Appendix E, *Expert Land Use Panel Meeting Notes***
- **Appendix G, *Survey of Churches***
- **Appendix I, *Survey of Schools***
- **Appendix P, *Correspondence – Government Other than Resource Agencies***
- **Appendix Z, *Emergency Responder Coordination***



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- **Appendix CC**, *CAC and Public Information Meeting Summaries*
- **Appendix RR**, *Walnut Street Interchange Selection Report*

Table 5.6-7 summarizes access changes at all interchanges, intersections, vehicle grade crossings, and driveways along I-69. **Table 5.6-8** summarizes the access roads used in each alternative to maintain connectivity with the proposed changes in access. **Figure 5.3-5** to **Figure 5.3-10** illustrate changes in access, as well as adjacent land uses and potential displacements. **Appendix JJ**, *Local Travel Accessibility Analysis*, includes travel time calculations from various origin and destination points within the Section 5 Study Area.

The following descriptions also generally identify land uses affected at each access point and if displacements would occur. Travel paths and distances noted represent the most direct route from the access point shown on **Figure 5.3-5** to **Figure 5.3-10** to the closest I-69 interchange location. In many cases, especially in the Bloomington area, alternate travel paths are available and individuals may select an alternate route depending on that trip's destination. The following access discussion also notes if displacements would occur related to the change in access associated with the mainline, interchange, grade separation, or access road improvement. This is not an inclusive discussion of displacement impacts, but rather is intended to provide context on the direct community impact associated with each alternative. Refer to **Section 5.2**, *Social Impacts*, for specific details on the number and type of displacements and relocations.

The discussion below, and **Figure 5.3-5** to **Figure 5.3-10**, provide a comparison between alternatives for community impacts associated with changes in travel patterns. Major land uses, community facilities, and displacements are also shown and discussed to provide context for the local community impact. These impacts are also discussed in more detail in **Section 5.2**, *Social Impacts* and **Section 5.5**, *Economic Impacts*. Generally, residents, business owners, and community facility representatives preferred to maintain or improve their existing access and to avoid property acquisition. They were additionally supportive of the overall safety and travel time benefits associated with this limited access facility. A summary of the state highway and local access is as follows.

- **That Road:** That Road is an at-grade crossing of SR 37. That Road provides direct access to residences including the Bailey West neighborhood to the east and Stansifer neighborhood to the west. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: That Road would have a closure at I-69. New access road S1 would connect Tapp Road to Rockport Road to the Fullerton Pike interchange, approximately one mile to the north.
- West side: That Road would have a closure at I-69. Access would be provided along That Road to the Fullerton Pike interchange, one mile to the north.



- **Rockport Road:** Rockport Road is an at-grade crossing of SR 37 providing access into Bloomington and to areas southwest of Bloomington. Rockport Road provides direct access to residences (Stansifer neighborhood) to the west and Fullerton Pike TIF to the east. Direct access to I-69 will be eliminated at this location in all alternatives, but an overpass would extend Rockport Road over I-69 to maintain east/west connectivity.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Rockport Road would have an overpass. Access to I-69 would be provided along improved Rockport Road to Fullerton Pike interchange, approximately 0.8 mile north. The Rockport Road overpass would result in residential and business displacements. Refined Preferred Alternative 8 would potentially displace six residences.
 - West side: Rockport Road would have an overpass. Access to I-69 would be provided along Rockport Road to That Road to the Fullerton Pike interchange, approximately one mile north. The Rockport Road and Fullerton Pike roadway improvements would result in residential and business displacements. Refined Preferred Alternative 8 would potentially displace two residences.
- **Judd Avenue (Garden Acres):** Judd Avenue is a street in the Garden Acres neighborhood west of SR 37 that provides access to Fullerton Pike and SR 37. Judd Avenue is closed in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8: Judd Avenue would have a closure at Fullerton Pike. Access to I-69 would be provided along Jeffery Drive to Sharon Drive to the Fullerton Pike interchange, approximately 0.7 mile to the west and south.

- **Fullerton Pike:** Fullerton Pike is a signalized intersection with SR 37 providing access to Garden Acres and Woodhaven Estates neighborhoods, businesses, Rural/Metro Ambulance, Bloomington Holiness Church, and Monroe Hospital. An interchange will be provided at Fullerton Pike in all alternatives, providing direct access to I-69.

Alternatives 4 and 5: Fullerton Pike would have a folded diamond interchange. Interchange ramps and access would result in business and institutional displacements on the western side, including Monroe Hospital Administration, Professional Golfcar, Rural/Metro Ambulance, Bloomington Holiness Church, and others. On the east side, associated with upgrades to Fullerton Pike and Rockport Road, over 20 residential displacements and 14 business displacements would occur. Access road S2 would provide access to a currently undeveloped parcel in the northeast quadrant of the interchange area.

Alternatives 6, 7, 8, and Refined Preferred Alternative 8: Fullerton Pike would be a double folded interchange. Interchange ramps and access would result in residential, business, and institutional displacements. Refined Preferred Alternative 8 would displace



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eight residences, one institution (Bloomington Holiness Church) and four businesses (Rural/Metro Ambulance, Scientia, LLC, Professional Golfcart Company, and C&H Stone Company).

- **Yonkers Street (Van Buren Park):** Yonkers Street is a street in the Van Buren Park neighborhood west of SR 37 that provides access to Tapp Road and SR 37. Yonkers Street would be closed in Alternatives 4, 5, 7, 8 and Refined Preferred Alternative 8 and would be maintained in Alternative 6.

Alternative 4: Yonkers Street would have a closure at Tapp Road. Access to I-69 would be provided along Indian Creek Drive to Fairington Drive to Rayle Place to Leonard Springs Road and the SR 45/2nd Street interchange, approximately 1.7 miles to the west and north.

Alternatives 5, 7, 8, and Refined Preferred Alternative 8: Yonkers Street would have a closure at Tapp Road. Access to I-69 would be provided along Indian Creek Drive to Fairington Drive to Rayle Place to the Tapp Road interchange, approximately 0.6 mile to the west and north.

Alternative 6 would maintain the existing connection to Tapp Road.

- **Rex Grossman Boulevard:** Rex Grossman Boulevard is a street east of SR 37 that provides a second/western access to the Southwestern Medical complex access at Tapp Road and SR 37. Rex Grossman Boulevard is also sometimes referred to as South Tech Park Boulevard, particularly on the north side of Tapp Road. Rex Grossman Boulevard would be closed in all six alternatives.

Alternatives 4 and 6 (which have no access to I-69 at Tapp Rd.): Rex Grossman Boulevard would have a closure at Tapp Road. Access would be provided from the south side to Cota Drive or from the north side to Schmaltz Boulevard and then both continuing on to Deborah Drive to Tapp Road to Leonard Springs Road and the SR 45/2nd Street interchange (approximately 2.0 miles).

Alternatives 5, 7, 8 and Refined Preferred Alternative 8 (which have access to I-69 via a split diamond interchange): Rex Grossman Boulevard would have a closure at Tapp Road. Access would be provided from the south side to Cota Drive or from the north side to Schmaltz Boulevard and then both continuing on to Deborah Drive to Tapp Road and the Tapp Road interchange (approximately 0.5 mile).

- **Tapp Road:** Tapp Road is a signalized intersection with SR 37 providing access to Van Buren Park, Woodland Springs, Hickory Heights, and Poplar Hill neighborhoods, Southern Indiana Medical Center, and the Tapp Road TIF. Direct access to I-69 would be eliminated at this location in Alternatives 4 and 6, but both alternatives include an overpass to maintain connectivity. Alternatives 5, 7, 8, and Refined Preferred Alternative 8 include a split-diamond interchange with Tapp Road and SR 45/2nd Street.



Alternatives 4 and 6: Tapp Road would have an overpass to maintain east-west connectivity.

- East side: Access to I-69 would be provided along Tapp Road to Weimer Road to the SR 45/2nd Street interchange, approximately 2.5 miles north. The overpass would result in business displacements.
- West side: Access to I-69 would be provided along Tapp Road to Leonard Springs Road to the SR 45/2nd Street interchange, approximately 1.5 miles north. The overpass would result in residential displacements.

Alternatives 5, 7, 8, and Refined Preferred Alternative 8: Tapp Road would have a split-diamond interchange with SR 45/2nd Street. The split-diamond interchange provides limited access unidirectional (one way travel only) access roads carrying traffic between Tapp Road and SR 45/2nd Street, with northbound traffic on the east side of I-69 and southbound traffic on the west side.

- East side: Access would be provided at Tapp Road and along the new unidirectional access road to the SR 45/2nd Street interchange, approximately 0.75 mile north.
 - West side: Access would be provided at Tapp Road and along the new unidirectional access road to the SR 45/2nd Street interchange, approximately 0.75 mile north. The access road and Tapp Road improvements would result in residential displacements. Refined Preferred Alternative 8 would displace over 20 residences.
- **Barger Lane (Hickory Heights):** Barger Lane is a street in the Hickory Heights neighborhood that provides access to Tapp Road and SR 37. Barger Lane is closed at Tapp Road in all alternatives.

Alternatives 4, 5, 6, 7, and Alternative 8: Barger Lane would have a closure at Tapp Road. Access to I-69 would be provided along access road S3-A to Maple Leaf Drive to Hickory Leaf Drive to the SR 45/2nd Street interchange, approximately 0.8 mile to the north.

Refined Preferred Alternative 8: Barger Lane will have closure at Tapp Road. During the DEIS Comment Period, a number of residents of the Leonard Springs neighborhood expressed concern with the additional traffic through their neighborhood. Increased travel time associated with re-routing Barger Lane traffic to Maple Leaf Drive was also noted as a concern. As a result, access to I-69 will be provided along access road S3-B to Danlyn Road to the Tapp Road interchange, reducing the additional miles of travel to 0.2 mile. This access point would result in one residential displacement; a mobile home within Hickory Heights.

- **SR 45/2nd Street/Bloomfield Road:** SR 45/2nd Street is an existing folded diamond interchange providing access to major retail and business establishments and



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neighborhoods (Leonard Springs and Westwood) on the west and multiple apartment complexes and recreational areas (Wapehani Mountain Bike Park and Twin Lakes Sports Park) on the east. An interchange will be provided at SR 45/2nd Street in all alternatives providing direct access to I-69.

Alternative 4: Access would be provided with a tight diamond interchange. Access road S4 would provide realigned access to Walmart and Sam's Club. Access road S5 would provide realigned access to Oakdale Square and Wapehani Hill Apartments. Access roads would result in business (Aldi, Bloomfield State Bank, Steak and Shake, A Touch of Grace, and Computer Clubhouse) and residential displacements.

Alternative 5: Access would be provided with a split-diamond interchange with Tapp Road. Access road S4 would provide realigned access to Walmart and Sam's Club. Access road S5 would provide realigned access to Oakdale Square and Wapehani Hill Apartments. Access roads would result in similar business and residential displacements as Alternative 4.

Alternative 6: Access would be provided with the existing folded diamond interchange and would not result in any displacements.

Alternatives 7, 8, and Refined Preferred Alternative 8: Access would be provided with a split-diamond interchange with Tapp Road and would not result in any displacements at SR 45/2nd Street.

- **SR 48/3rd Street:** SR 48/3rd Street is an existing diamond interchange providing access to major retail and services. SR 48/3rd Street to the west also provides access to Ivy Tech Community College and 3rd Street is a main access for downtown Bloomington and IU. An interchange will be provided at SR 48/3rd Street in all alternatives, providing direct access to I-69.

Alternative 4: Access would be provided with a tight diamond interchange. The interchange would result in business displacements, including Bob Evans, Outback Steakhouse, Monroe Co. Pizza, McDonalds, Arby's, and Cheddar's (previously the site of the Scottish Inn).

Alternative 5: Access would be provided with a single point urban interchange. The interchange would result in similar business displacements as Alternative 4.

Alternatives 6, 7, 8, and Refined Preferred Alternative 8: Access would be provided with the existing diamond interchange, thus reducing business displacements at this location. Refined Preferred Alternative 8 would potentially displace McDonald's to accommodate expanded bike/pedestrian facilities along 3rd Street in response to comments received on the DEIS.

- **Whitehall Crossing Blvd:** Whitehall Crossing Boulevard has right in/right out access on the west side of SR 37. Whitehall Crossing Boulevard provides access to major retail,



restaurants, and services in the Whitehall/West 3rd TIF. Direct access to I-69 would be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8: Whitehall Crossing Boulevard would have a closure at I-69. Access would be provided along Gates Drive to the SR 48/3rd Street interchange, approximately one mile south. The mainline improvements associated with Alternatives 4 and 5 would result in commercial displacements both east and west of I-69 near Whitehall Crossing Boulevard.

- **Vernal Pike:** Vernal Pike is a signalized intersection with SR 37. Vernal Pike provides east-west connectivity, but has severe curves and sight distance constraints on both sides of SR 37. Industrial, warehouse, and service businesses are located on the west and residences on the east. Direct access to I-69 would be eliminated at this location in all alternatives.

Alternatives 4, 5, 6: Vernal Pike would have a new underpass connecting to 17th Street on the east and Vernal Pike on the west. The grade of this underpass would require the closure of Crescent Road at 17th Street. Access road S6 would provide a realigned connection between Vernal Pike and Industrial Park Drive on the west side of I-69.

- East side: Access would be provided from Vernal Pike to 11th Street to Rogers Street/Kinser Pike to the existing SR 46 interchange, approximately 3.3 miles to the north. Access would also be provided from Vernal Pike to Adams Street to the SR 48/3rd Street interchange, approximately 2.4 miles to the south. The underpass would result in residential displacements.
- West side: Access would be from Vernal Pike to Curry Pike to the existing SR 46 interchange (3.8 miles to the north) or Vernal Pike to Curry Pike to SR 48/3rd Street (2.8 miles to the south). The underpass and access road realignment would result in residential and business displacements.

Alternatives 7, 8, and Refined Preferred Alternative 8: Vernal Pike would have a new overpass connecting 17th on the east and Vernal Pike on the west. Access road S6 would provide a realigned connection between Vernal Pike and Industrial Park Drive.

- East side: Access would be provided from Vernal Pike to Crescent Road to 17th Street to Kinser Pike, to the existing SR 46 interchange, approximately 3.0 miles to the north. The overpass would result in fewer residential displacements than the overpass option in Alternatives 4, 5, and 6. Refined Preferred Alternative 8 would displace two residences and a business (Dotlich Crane Service).
- West side: Access would be provided from Vernal Pike to Curry Pike to the existing SR 46 interchange to the north (3.8 miles) or from Vernal Pike to Curry Pike to the SR 48/3rd Street interchange to the south (2.8 miles). The overpass and access road realignment would result in residential and business displacements. Refined Preferred Alternative 8 would displace 12 residences and a business (Sturgis Garage and Wrecker Services).



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- **17th Street:** This road currently does not have direct access to SR 37. The I-69 project plans to construct a grade separated crossing (underpass or overpass) at this location as identified in the previous Vernal Pike discussion. The extension of 17th Street west across I-69 would then connect and provide access to Vernal Pike on the west side of I-69. Residents along 17th Street would have improved east-west access across I-69 in all alternatives.
- **Crescent Road:** Crescent Road does not currently have direct access to SR 37. Crescent Road is a residential street that turns to the east, transitioning into 17th Street. Crescent Road includes varied income housing opportunities including housing with reserved low income units at Crescent Pointe.

Alternatives 4, 5, 6: Closure will be accomplished with a cul-de-sac at the north end of Crescent Road to accommodate the underpass extension of 17th Street/Vernal Pike across I-69. Access to I-69 would be via Marquis Drive, Lismore Drive to 17th Street to Arlington Road to the SR 46 interchange.

Alternatives 7, 8, and Refined Preferred Alternative 8: Crescent Road continues to remain connected to 17th Street. Access to I-69 would be via Marquis Drive, Lismore Drive to 17th Street to Arlington Road to the SR 46 interchange.

- **SR 46:** SR 46 is an existing folded loop interchange connecting the Town of Ellettsville with downtown Bloomington. This interchange also provides direct access to the Bloomington TIF (or North Park TIF) located on the west side of SR 37. The current full interchange access would be maintained in all alternatives.
- **Arlington Road:** The existing Arlington Road currently has an overpass over SR 37 which provides east/west access. Major land uses along Arlington Road include industrial (quarry) operations, INDOT sub district, office buildings, and residences. In current conditions, residents and businesses access SR 37 by traveling north to the SR 46 interchange. All build alternatives provide an I-69 overpass at this location so that existing travel patterns are unaffected. In this location, the reconstructed overpass associated with Alternatives 6, 7, and 8, would result in a residential displacement. Alternatives 4 and 5 would result in both residential business displacements due to the reconstructed overpass and mainline widening. No relocations at this location are anticipated under Refined Preferred Alternative 8.
- **Acuff Road:** Acuff Road currently is an at-grade crossing with SR 37. Acuff Road provides access to residences in the MGRRH on the west. On the east, Acuff Road provides access to the Kinser Pike/Prow Road TIF, three churches (Northside Christian Church, Life Church, and Shepard of the Hills Wesleyan), Meadows Hospital, Bloomington North High School, neighborhoods, and businesses. Direct access to I-69 would be eliminated at this location in all alternatives.



Alternative 4:

- East side: Acuff Road would have a closure at I-69. Access to I-69 would be provided along Acuff Road to Kinser Pike to access road S9 to access road S8 to the Kinser Pike interchange, approximately 1.3 miles north. Additionally, access to I-69 would be provided along Acuff Road to Kinser Pike to existing SR 46, approximately 3.0 miles to the south.
- West side: Acuff Road would have a closure at I-69. Access to I-69 would be provided along Acuff Road to Maple Grove Road to Arlington Road to Hunter Lane to Hunter Valley Road to the existing SR 46 interchange, approximately 3.1 miles to the south.

Alternatives 5, 8, and Refined Preferred Alternative 8:

- East side: Acuff Road would have a closure at I-69. Access to I-69 would be provided along Acuff Road to Kinser Pike to Bayles Road to SR 37 Business to the Walnut interchange 2.7 miles north.
- West side: Acuff Road would have a closure at I-69. Access to I-69 would be provided along Acuff Road to Maple Grove Road to Arlington Road to Hunter Lane to Hunter Valley Road to the existing SR 46 interchange, approximately 3.1 miles to the south.

Alternatives 6 and 7:

- East side: Access to I-69 would occur via Acuff Road to Kinser Pike to the SR 46 interchange 3.1 miles south.
- West side: Access to I-69 would occur via Acuff Road to Maple Grove Road to Arlington Road to Hunter Lane to Hunter Valley Road to the existing SR 46 interchange, approximately 3.2 miles to the south.
- **Kinser Pike:** Kinser Pike currently is an at-grade crossing with SR 37. Kinser Pike provides access to residences, businesses, agriculture, and the Kinser Pike/Prow Road TIF.

Alternative 4: Kinser Pike would provide full access with a diamond interchange.

- East side: Full access would be provided with a new interchange at Kinser Pike. Access roads S8 and S9 would provide a realigned connection to Kinser Pike and Walnut Street. The interchange would result in four residential displacements.
- West side: Full access would be provided with a new interchange at Kinser Pike. The interchange would result in approximately nine residential displacements.



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Alternatives 5, 8, and Refined Preferred Alternative 8: Kinser Pike would have an overpass to maintain east-west connectivity.

- East side: Access to I-69 would be provided along Kinser Pike to Bayles Road to the new Walnut Street interchange, approximately 2.0 miles to the north. For southbound travel on I-69, access would be provided along Kinser Pike to the existing SR 46 interchange, approximately 3.7 miles south. The overpass and road connections would reduce residential displacements.
- West side: The new overpass connects Kinser Pike to North Kinser Pike, which transitions to Bottom Road and the new Walnut Street interchange, approximately 1.3 miles to the north. The overpass and road connections would result in residential displacements. Refined Preferred Alternative 8 would potentially displace two residences.

Alternative 6: Kinser Pike would be closed on the east and west side of I-69.

- East side: Access to I-69 would be provided along Kinser Pike to Bayles Road to Walnut Street to new access road C1 to the Sample Road interchange, approximately 4.7 miles to the north. For southbound travel on I-69, access would be provided along Kinser Pike to the existing SR 46 interchange, approximately 2.9 miles south.
- West side: Access to I-69 would be accommodated by a combination of North Kinser Pike, which transitions to Bottom Road to new access roads C2 to C4 to the Sample Road interchange, approximately 3.5 miles to the north. The overpass and road connections would result in one residential displacement.

Alternative 7: Kinser Pike would have an overpass to maintain east-west connectivity.

- East side: Access to I-69 would be provided along Kinser Pike to Bayles Road to the existing partial interchange at Walnut (for northbound Walnut Street to northbound I-69), approximately 2.2 miles to the north. For southbound travel on I-69, access would be provided along realigned Kinser Pike, to the existing SR 46 interchange, approximately 3.6 miles south.
- West side: The new overpass connects Kinser Pike to North Kinser Pike, which transitions to Bottom Road and provides access along new access roads to Sample Road interchange, approximately 3.6 miles north. The overpass and road connections would result in approximately 12 residential displacements.
- **Bottom Road:** Bottom Road is located on the west side of SR 37 and transitions into Kinser Pike to the south of this connection. It currently provides direct agricultural access. Direct access to I-69 would be eliminated at this location in all alternatives.



Alternative 4:

- East side: Not applicable.
- West side: Bottom road would connect with the new Walnut Street overpass. Access would be provided from Bottom Road to the Kinser Pike interchange, approximately 1.4 miles to the south.

Alternatives 5 and 8:

- East side: Not applicable.
- West side: Bottom Road would be closed at its current access point, but would connect to the full interchange at Walnut Street, approximately 0.4 mile to the north.

Alternatives 6 and 7:

- East side: Not applicable.
- West side: New access roads C2 and C3 would provide access at the Sample Road interchange, 2.8 miles to the north.

Refined Preferred Alternative 8:

- East side: Not applicable.
 - West side: Bottom Road would be closed at its current access point. For northbound travelers, I-69 access would occur along Bottom Road to Simpson Chapel Road to Sample Road to the Sample Road interchange, about 4.9 miles northward. For southbound travelers, I-69 access would occur along Bottom Road to Kinser Pike to the Kinser Pike overpass, to Acuff Road, to Prow Road, to Arlington Road, to the SR 46 interchange, approximately 3.9 miles southward.
- **SR 37 Business/Walnut Street:** Walnut Street is currently a partial interchange providing access from southbound SR 37 to southbound Walnut Street and northbound Walnut Street to northbound SR 37. Walnut Street, also known as “37 Business” provides direct access to residential and agricultural properties and serves as “gateway” access for downtown Bloomington and IU. The Bloomington Visitors Center is located on Walnut Street just south of the existing interchange. This interchange does not currently provide access to the west at Bottom Road.

Alternative 4:

- East side: No direct access would be provided and travelers on southbound I-69 would be required to continue south to the Kinser Pike interchange. A new overpass would connect Walnut Street with Bottom Road. From Bottom Road,

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Kinser Pike would provide access at the Kinser Pike interchange, approximately 1.6 miles to the south. Northbound travel to access I-69 would be accommodated by a combination of new access roads C1 and C3 to the Sample Road interchange, approximately 2.6 miles to the north, or by utilizing access road S8 from Walnut Street to the new Kinser Pike interchange. Residential displacements would occur along the new access roads.

- West side: No direct access would be provided. A new overpass would connect Bottom Road and Walnut Street. From Bottom Road, Kinser Pike would provide access at the Kinser Pike interchange, approximately 1.6 miles to the south.

Alternatives 5 and 8:

- East side: Access would be provided by a full interchange at Walnut Street. Realignment of Walnut Street would result in a residential displacement. An interchange at this location maintains the “gateway” access to Bloomington, IU, and the Bloomington Visitors Center on Walnut Street. Alternative 8 also includes an option that would maintain the existing partial interchange, but would require special authorization by FHWA to retain this feature (southbound I-69 to southbound Walnut Street and northbound Walnut Street to northbound I-69).
- West side: Access would be provided by a full interchange at Walnut Street.

Alternative 6:

- East side: No direct access would be provided. A new overpass would connect Walnut Street with Bottom Road and Kinser Pike. Access to I-69 would be accommodated by a combination of new access and local roads to the Sample Road interchange, approximately 2.6 miles to the north. Realignment of Walnut Street would result in a residential displacement.
- West side: No direct access would be provided. A new overpass would connect Bottom Road and Walnut Street. Access to I-69 would be accommodated by a combination of new access and local roads to the Sample Road interchange, approximately 2.6 miles to the north.

Alternative 7:

- East side: Alternative 7 would maintain the existing partial interchange, but would require special authorization by FHWA to retain this feature (southbound I-69 to southbound Walnut Street and northbound Walnut Street to northbound I-69). Additionally, northbound travel to access I-69 would be accommodated by a combination of new access and local roads to the Sample Road interchange, approximately 2.6 miles to the north.



- West side: Not applicable – There would be no direct connection to Bottom Road from I-69. New access road C2 and C4 would provide access at the Sample Road interchange, approximately 3 miles to the north.

Refined Preferred Alternative 8:

- For the Refined Preferred Alternative 8, INDOT has considered the opportunity to use the existing partial interchange at Walnut Street instead of a full interchange which provides entrance and exit movements for both northbound and southbound traffic. FHWA has approved the use of the partial interchange (**Appendix RR, Walnut Street Interchange Selection Report**).
- East side: FHWA has approved the use of a partial interchange retaining this existing feature (southbound I-69 to southbound Walnut Street and northbound Walnut Street to northbound I-69). The partial interchange at this location maintains the “gateway” access to Bloomington, IU, and the Bloomington Visitors Center on Walnut Street.
- West side: Not applicable – There would be no direct connection to Bottom Road from I-69. For northbound travelers, I-69 access would occur along Bottom Road to Simpson Chapel Road to Sample Road to the Sample Road interchange, about 4.9 miles northward. For southbound travelers, I-69 access would occur along Bottom Road to Kinser Pike to the Kinser Pike overpass, to Acuff Road, to Prow Road, to Arlington Road, to the SR 46 interchange, approximately 3.9 miles southward.
- **Connaught Road (driveway to Hoosier Energy)/Charlie Taylor Lane (Thompson’s Furniture):** The current at-grade crossing provides access to SR 37 for commercial and residential properties on both sides of the highway. Existing businesses include Thompson’s Furniture on the west and Hoosier Energy on the east. No direct I-69 access or crossing would be provided at this location.

Alternatives 4, 5, 6, 7, and 8:

- East side: Access to I-69 will be provided via new access roads (C1 and C3) to Sample Road interchange, resulting in approximately 2.0 miles of additional travel.
- West side: Access to I-69 will be provided via new access road (C4) to the Sample Road interchange, which results in approximately 1.7 miles of additional travel. The new access road results in residential and/or business displacements for Alternatives 4 through 7.



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Refined Preferred Alternative 8:

- East side: Access to I-69 will be provided via a new access road (C3) from Connaught Road to Sample Road interchange, resulting in approximately 3.7 miles of additional travel.
- West side: Access to I-69 would be provided via new access road (C4) to the Sample Road interchange, which results in approximately 1.7 miles of additional travel.
- **Ellis Road:** Ellis Road provides direct access to SR 37 for business and residential properties east and west of the highway. Existing businesses include Gibraltar Design on the west and Hoosier Energy on the east. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Access to I-69 would be provided via a new access road (C3) to the Sample Road interchange, resulting in approximately 1.5 miles of additional travel. The new access road will result in residential displacements. Refined Preferred Alternative 8 would result in one potential residential displacement north of Ellis Road.
- West side: Access to I-69 will be provided via a new access road (C4) to Sample Road interchange, resulting in approximately 1.5 miles of additional travel. The new access road results in residential displacements.
- **Griffith Cemetery Road:** This access on the west side of SR 37 provides direct access for a residence, agricultural land, and a community facility (Griffith Cemetery). Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable
- West side: Access to I-69 will be provided via a new access road (C4) to the Sample Road interchange, resulting in approximately 1.3 miles of additional travel. The new access road results in residential displacements. Refined Preferred Alternative 8 would result in two potential residential displacements north of Griffith Cemetery Road
- **Wylie Road/Showers Road:** This at-grade crossing has full access to SR 37 on the east side and provides access to residences and agricultural land. Direct access to I-69 will be eliminated at this location in all alternatives.



Alternatives 4 and 6:

- East side: Access to I-69 will be provided via a new access road (C4) to the Sample Road interchange, resulting in approximately 1.1 miles of additional travel. The new access road results in residential displacements.
- West side: Not applicable.

Alternatives 5, 7, 8, and Refined Preferred Alternative 8:

- East side: Access to I-69 will be via new the access road (C3), north to the Sample Road interchange, resulting in approximately 1.1 miles of additional travel. Access is also provided along a new access road (C3 to C1), south to the Walnut Street interchange, resulting in approximately 1.4 miles of additional travel. The new access roads result in residential displacements. Refined Preferred Alternative 8 would result in five potential residential displacements north of Wylie Road.
- West side: not applicable.
- **Unnamed driveway (west of Wylie Road):** This driveway provides direct access to a residential property on the west side of SR 37. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable
- West side: Access not provided and residential property displaced.
- **Stonebelt Drive/Purcell Drive:** These current at-grade crossings provide access to SR 37 for residential and community properties located east and west of the highway. Stonebelt Drive provides access to the Stone Belt Shrine Club and residences on the west and Purcell Drive provides access to residences on the east. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Access to I-69 is provided via new access road C3 to the Sample Road interchange, resulting in approximately 0.9 mile of additional travel. The new access road results in residential displacements. Refined Preferred Alternative 8 would result in two potential residential displacements north of Purcell Drive.
- West side: Residential and community access to I-69 is provided via new access road C4 to the Sample Road interchange, resulting in approximately 0.9 mile of additional travel. The new access road results in residential displacements.



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Refined Preferred Alternative 8 would result in two potential residential displacements north of Stonebelt Drive.

- **Unnamed local road (west of southern N. Wayport Road intersection):** This at-grade intersection currently has full access to SR 37 including residences and agriculture on the west and residences in the Wayport neighborhood and the Washington Township water pump station on the east. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Residential access to I-69 is provided via new access road C3 to the Sample Road interchange, resulting in approximately 0.7 mile of additional travel. The new access road results in residential displacements (depending on the alternative) and Washington Township water pump station displacement under all six alternatives.
- West side: Residential access to I-69 is provided via new access road C4 to the Sample Road interchange, resulting in approximately 0.6 mile of additional travel. The new access road results in residential displacements. Refined Preferred Alternative 8 would result in one potential residential displacement in this area.
- **Wayport Road:** Wayport Road is an at-grade crossing with SR 37 and has full access. Wayport Road provides direct access to residences on the west and businesses to the east. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Access to I-69 is provided via new access road C3 to the Sample Road interchange, resulting in approximately 0.3 mile of additional travel. Business displacements vary based on type of interchange provided at Sample Road. Under Refined Preferred Alternative 8, Nature's Way and Thompson's Furniture would potentially be displaced.
- West side: Residential access to I-69 is provided via new access road C4 to the Sample Road interchange, resulting in approximately 0.3 mile of additional travel.
- **Sample Road:** This at-grade intersection currently has full access to SR 37 on both sides of the road. Sample Road provides direct access to businesses and residences on the east of SR 37 and the Sample Road Neighborhood and Canyon Estates to the west. An interchange will be provided in all alternatives.

Alternatives 4 and 5:

- East and West side: A diamond interchange access will be provided along existing Sample Road. The new interchange results in approximately nine residential and one business displacement (Wylie Floor Covering).



Alternatives 6, 7, 8, and Refined Preferred Alternative 8:

- East side and West side: A folded urban interchange access will be provided along existing Sample Road. The interchange and access roads C3, C4 and C5 results in similar residential and business displacements as Alternatives 4 and 5. Refined Preferred Alternative 8 would potentially displace Wylie’s Floor Covering and seven residences.
- **Unnamed driveway to Bloomington Autoparts:** This driveway provides direct access to SR 37 for Bloomington Auto Parts on the east side. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Business access to I-69 will be provided via new access road C5 (converted from existing northbound SR 37) to the Sample Road interchange, resulting in approximately 0.4 miles of additional travel.
- West side: Not applicable.
- **Unnamed driveway to Wayport Kennels:** This driveway provides direct access to SR 37 for Wayport Kennels and a residence on the west side. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable.
- West side: Access to I-69 is not provided, and the business and residence are displaced at this location.
- **Unnamed driveway to Worm’s Way and residence:** This driveway provides direct access to SR 37 for Worm’s Way Nursery and Home Brewing Supply on the east side. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Business will access I-69 via new access road C5 (converted from existing northbound SR 37) south to Sample Road interchange, resulting in approximately 0.6 mile of additional travel.
- West side: Not applicable.
- **Simpson Chapel Road/ Duxberry Drive (includes Thames Dr. and Winery Rd.):** Simpson Chapel Road/Duxberry Drive is an intersection with full access east and west of SR 37. This intersection provides residential, business, and community access including Oliver Winery to the east and Scholar’s Inn Bakehouse, The Light Source, and Simpson



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Chapel Methodist Church to the west. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side (Winery Road): Oliver Winery and Windsor Estates will access I-69 via a new access road C5 (converted from existing northbound SR 37) to the Sample Road interchange to the south, resulting in approximately 1.1 miles of additional travel.
- West side (Simpson Chapel Road): Residential, business, and community access will be provided along existing Simpson Chapel Road to the Sample Road interchange, resulting in approximately 1.4 miles of additional travel. Mainline improvements would result in business displacements. Refined Preferred Alternative 8 would potentially relocate The Light Source and a neighboring vacant building.
- **Lee Paul Road:** This at-grade crossing has full access to SR 37 and provides business and residential access. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable
- West side: Residential and business access will be provided by new access road C6 to Simpson Chapel Road and then south to the Sample Road interchange, resulting in approximately 1.8 miles of additional travel.
- **Unnamed driveways (east of Lee Paul Rd):** This at-grade crossing has full access to SR 37 and provides residential access. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Residential access to I-69 will be via new access road C5 (converted from existing northbound SR 37) to the Sample Road interchange to the south, resulting in approximately 1.4 miles of additional travel. Access road and mainline improvements result in business displacements. Under Refined Preferred Alternative 8, one residence and two businesses (RWS Storage and TK Constructors) would potentially be displaced.
- West side: Not applicable
- **Fox Hollow Road:** Fox Hollow Road has access east of SR 37. Direct access to I-69 will be eliminated at this location in all alternatives.



Alternatives 4,5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Residential and community (Family Life Worship Center) access to I-69 will be provided via new access road C5 (converted from existing northbound SR 37) to the Sample Road interchange, resulting in approximately 1.7 miles of additional travel.
- West side: Not applicable
- **Unnamed driveway (north of Fox Hollow Road):** This unnamed driveway provides access to an undeveloped parcel west of SR 37. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable
- West side: Residential access to I-69 will be provided by new access road C6 to Simpson Chapel Road and then south to the Sample Road interchange, resulting in approximately 2.0 miles of additional travel.
- **Unnamed driveway 1 (south of S. Crossover Road – formerly Daisy Hill Farm):** This unnamed driveway provides access to agricultural parcels on the east side of SR 37. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Undeveloped parcel access would occur via new access road C5 (converted from existing northbound SR 37) to Sample Road interchange, resulting in approximately 2.0 miles of additional travel.
- West side: Residential access to I-69 will be provided by new access road C6 to Simpson Chapel Road and then south to the Sample Road interchange, resulting in approximately 2.3 miles of additional travel.
- **Unnamed driveway 2 (south of S. Crossover Road):** access to undeveloped parcels on east side of SR 37. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Undeveloped parcel access via a new access road C5 (converted from existing northbound SR 37) to Sample Road interchange, resulting in approximately 2.3 miles of additional travel.
- West side: Not applicable



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- **Unnamed Local Rd. (east of Norm Anderson Road/S. Crossover Road)/ Norm Anderson Rd./N. Crossover Road:** South Crossover Road is located on the west side of SR 37 and an unnamed access road is located on the east side. There is full access to SR 37 at this intersection; however, direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Undeveloped parcel access via new access road C5 (converted from existing northbound SR 37) to Sample Road interchange, resulting in approximately 2.4 miles of additional travel.
 - West side: Residential access to I-69 will be provided by new access road C6 to Simpson Chapel Road and then south to the Sample Road interchange, resulting in approximately 5 miles of additional travel.
- **Unnamed driveway (Poynter Sheet Metal):** This driveway provides direct access to SR 37 for Poynter Sheet Metal on the east side. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Poynter Sheet Metal and residential access provided via new access road C5 (converted from existing northbound SR 37) to Sample Road interchange, resulting in approximately 2.6 miles of additional travel.
 - West side: Not applicable
- **N. Crossover Road/E. Chambers Pike Road:** North Crossover Road is located on the west side of SR 37, and East Chambers Pike Road is located on the east side. There is full access to SR 37 at this intersection; however, direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4 and 5: A new overpass will provide east/west connectivity across I-69 connecting Chambers Pike Road to Dittmore Road.

- East side: New access road C5 will provide access south to the Sample Road interchange, resulting in approximately 3.4 miles of additional travel.
- West side: Residential access will be provided by new access road C6 to Simpson Chapel Road connecting to the Sample Road interchange, resulting in approximately 3.4 miles of additional travel.

Alternatives 6, 8, and Refined Preferred Alternative 8: A new overpass will provide east/west connectivity across I-69 connecting Chambers Pike Road to Crossover Road.



- East side: Residential access via new access road C5 (converted from existing northbound SR 37) to the Sample Road interchange, resulting in approximately 3.1 miles of additional travel. Refined Preferred Alternative 8 would potentially displace four residences.
- West side: Residential access will be provided by new access road C6 connecting to North Crossover Road, to Simpson Chapel Road to the Sample Road interchange, resulting in approximately 3.1 miles of additional travel. Refined Preferred Alternative 8 would potentially displace one residence and a four-unit multi-family residence.

Alternative 7: No direct I-69 access or crossing would be provided at this location. Rerouting to a local access road would be necessary.

- East side: Residential access to I-69 will be via new access road C5 (converted from existing northbound SR 37) to the Sample Road interchange, resulting in approximately 2.9 miles of additional travel.
- West side: Residential access will be provided by new access road C6 connecting to North Crossover Road, to Simpson Chapel Road and then south to the Sample Road interchange, resulting in approximately 3.1 miles of additional travel.
- **Sylvan Lane/Sparks Lane:** Sylvan Lane is located on the west side of SR 37 and Sparks Lane is on the east side. There is full access to SR 37 at this intersection; however, direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4 and 5:

- East side (Sparks Lane): Access not provided and approximately two residential properties will be acquired along Sparks Lane.
- West side (Sylvan Lane): Residential access will be provided by new access roads C6 and C8 to Simpson Chapel Road connecting to the Sample Road interchange, resulting in approximately 3.5 miles of additional travel.

Alternatives 6, 8, and Refined Preferred Alternative 8:

- East side (Sparks Lane): Residential access to I-69 via new access road C7 to Chambers Pike to access road C5 (converted from existing northbound SR 37) and then south to Sample Road interchange, resulting in approximately 3.2 miles of additional travel.
- West side (Sylvan Lane): Residential access to I-69 will be provided by new access roads C6 and C8 to Simpson Chapel Road, and then south to the Sample Road interchange, resulting in approximately 3.5 miles to the south. Refined Preferred Alternative 8 would potentially displace one residence north of Sylvan Lane.



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Alternative 7:

- East side (Sparks Lane): Residential access to I-69 will be provided by new access roads to Simpson Chapel Road, and then south to the Sample Road interchange, resulting in approximately 3.3 miles of additional travel.
- West side (Sylvan Lane): Residential access to I-69 will be provided by new access roads C6 and C8 to Simpson Chapel Road, and then south to the Sample Road interchange, resulting in approximately 3.5 miles of additional travel.
- **Unnamed driveway (north of Sylvan Lane):** This driveway provides direct access to SR 37 for residential properties on the west side. Direct access to I-69 will be eliminated at this location in all alternatives.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable
- West side: Residential access will be provided by new access roads C6 and C8 to Simpson Chapel Road, and then south to the Sample Road interchange, resulting in approximately 3.7 miles of additional travel.
- **Burma Road:** Burma Road is located on the west side of SR 37 and has full access. There will be no direct access to I-69 from Burma Road.

Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable
- West side: Residential access to I-69 will be provided by new access roads C6 and C8 to Simpson Chapel Road, and then south to the Sample Road interchange, resulting in approximately 3.9 miles of additional travel.
- **Unnamed at-grade access into Morgan-Monroe State Forest (south of Bryant's Creek Road):** This forest access road provides direct access to SR 37 on the eastside; however, at this location there will be no direct access to I-69 in any of the alternatives. In Alternatives 4, 5, 6, 7, 8, and Refined Preferred Alternative 8, forest access will be provided from Chambers Pike Road resulting in over 2.0 miles of additional travel.
- **Bryant's Creek Road:** Bryant's Creek Road currently has direct access to SR 37 on the east side; however, at this location there will be no direct access to I-69 in any of the alternatives.

Alternative 4:

- East side: Direct access to I-69 will not be provided, however residents will access I-69 by following Bryant's Creek Road to Old SR 37 and then to the



Paragon Road interchange, resulting in approximately 4.8 miles of additional travel.

- West side: Not applicable

Alternatives 5, 6, 8, and Refined Preferred Alternative 8:

- East side: Direct access to I-69 will not be provided; however, residents will access I-69 by following Bryant's Creek Road to Old SR 37 and then to the Liberty Church interchange, resulting in approximately 6.7 miles of additional travel. In this area, Washington Township Fire & Rescue has indicated it uses existing SR 37 for almost every response it makes. Development of I-69 and closure of Bryant's Creek Road access could affect response routes and times. Further details are included in **Section 5.3.5, *Community Facilities and Services***. Under Refined Preferred Alternative 8, two residences would be potentially displaced by loss of access based on I-69 development and floodplain conditions that could restrict access during flood events.
- West side: Not applicable

Alternative 7: A new overpass provides east/west connectivity to the southern terminus of Turkey Track Road on the west with Bryant's Creek Road on the east.

- East side: The overpass connects Bryant's Creek Road via proposed access road C9 to Turkey Track Road/Cooksey Lane and north on Turkey Track Road to the Liberty Church interchange, resulting in approximately 3.5 miles of additional travel. This alternative also results in residential displacements along Petro Lane due to construction of access road C9.
- West side: Not applicable
- **Turkey Track Road/Cooksey Lane/Petro Road:** Turkey Track Road is located on the west side of SR 37 and Cooksey Lane is on the east side of SR 37 along the Morgan/Monroe County Line. Petro Road currently accesses SR 37 from Cooksey Lane. This intersection has full access to SR 37; however, direct access to I-69 will be eliminated at this location.

Alternative 4:

- East side: Access to I-69 will not be provided and approximately 12 residential properties would be acquired on or near Petro Road.
- West side: Driveway access will be modified to connect to Turkey Track Road and to the Paragon Road interchange, resulting in approximately 1.3 miles of additional travel.



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Alternatives 5, 6, 8, and Refined Preferred Alternative 8:

- East side: Access to I-69 will not be provided, and approximately 12 residential properties would be acquired on or near Petro Road and Cooksey Lane.
- West side: Driveway access is modified to connect to Turkey Track Road and to the Liberty Church Road interchange, resulting in approximately 3.3 miles of additional travel.

Alternative 7: A new overpass provides east/west connectivity to the southern terminus of Turkey Track Road on the west with Cooksey Lane on the east. Proposed access road C9 then connects to Bryant’s Creek Road and Petro Road to the south.

- East side: The overpass connects Cooksey Lane to Turkey Track Road and to the Liberty Church interchange, resulting in approximately 3.5 miles of additional travel. Proposed access road C9 then connects to Bryant’s Creek Road and Petro Road to the south. This alternative also results in six residential displacements due to the construction of the mainline, access road, and overpass.
 - West side: Driveway access is modified to connect to Turkey Track Road and to the Liberty Church interchange, resulting in approximately 3.3 miles of additional travel.
- **Unnamed at-grade driveway (south of Pine Boulevard):** This driveway currently has full access to SR 37 on the east side of the road; however, at this location there will be no direct access to I-69 in any of the alternatives.

Alternative 4, 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: There will be no access to I-69 resulting in a residential displacement due to loss of access.
 - West side: Not applicable
- **Paragon Road/Pine Boulevard:** Existing at-grade intersection with SR 37 connecting to Pine Boulevard on the east and Paragon Road to the west.

Alternative 4: A Rural diamond interchange provides direct access to Pine Boulevard on the east and Paragon Road to the west. The interchange associated with Alternative 4 results in approximately 15 residential displacements, with a majority on the west side of I-69.

Alternative 5: Provides an overpass connecting Pine Boulevard on the east and Paragon Road to the west.



- East side: East/west access is provided with an overpass to Pine Boulevard which connects to Old SR 37, and then north to the Liberty Church Road interchange, resulting in approximately 3.0 miles of additional travel.
- West side: No direct access to I-69 is provided. East/west access is provided with an overpass to Paragon Road which connects to new access road N2, to Turkey Track Road, and then north to the Liberty Church interchange, resulting in approximately 2.0 miles of additional travel. Residential relocations would occur due to mainline widening, and access road/overpass construction.

Alternative 6, 7, 8, and Refined Preferred Alternative 8:

- East side: No direct access to I-69 and no east/west access are provided. Pine Boulevard connects to Old SR 37 and the Liberty Church Road interchange, resulting in approximately 3 miles of additional travel.
 - West side: No direct access to I-69 and no east/west access are provided. Paragon Road connects to Turkey Track Road and to the Liberty Church interchange, resulting in approximately 2.2 miles of additional travel. Residential relocations would occur due to mainline widening. Refined Preferred Alternative 8 would potentially displace two residences.
- **Unnamed at-grade driveway 1 (north of Pine Boulevard):** This driveway currently has full access to SR 37 on the east side of the road; however, at this location there will be no direct access to I-69 in any of the alternatives.

Alternative 4:

- East side: Residential displacement due to Paragon Road interchange.
- West side: Not applicable

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Residential displacement due to lost access.
 - West side: Not applicable
- **Unnamed at-grade driveway 2 (north of Pine Boulevard):** This driveway currently has full access to SR 37 on the east side of the road; however, at this location there will be no direct access to I-69 in any of the alternatives.



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Alternative 4:

- East side: Single parcel residential access to I-69 will be via new access road N1 and Old SR 37 to Paragon Road interchange to the south, resulting in approximately 1.5 miles of additional travel. This alternative also results in residential displacements.
- West side: Not applicable

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Single parcel residential access to I-69 will be via new access road N1 and Old SR 37 to Liberty Church Road interchange to the north, resulting in approximately 2 miles of additional travel.
- West side: Not applicable
- **Unnamed at-grade driveway (south of southern Old SR 37):** This driveway currently has full access to SR 37 on the east side of the road; however, at this location there will be no direct access to I-69 in any of the alternatives.

Alternative 4:

- East side: Residential access to I-69 via access road N1 to Old SR 37 and Pine Boulevard to the Paragon Road interchange, resulting in approximately 1.4 miles of additional travel. This alternative also results in residential displacements.
- West side: Not applicable

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Residential access to I-69 via new access road N1 and Old SR 37 to Liberty Church Road interchange to the north, resulting in approximately 1.9 miles of additional travel. This alternative also results in residential displacements (depending on the alternative).
- West side: Not applicable
- **Turkey Track Road/Old SR 37 N.:** This at-grade intersection currently has full access to SR 37 on both sides of the road; however, at this location there will be no direct access to I-69 in any of the alternatives. On the east side, Old SR 37 provides access to the Old SR 37 neighborhood, agricultural land, and Morgan Monroe State Forest. On the west side, the northern terminus of Turkey Track Road provides access to the Turkey Track neighborhood.



Alternative 4:

- East side: Residential, agricultural, and community access via access road N3 to Old SR 37 and Pine Boulevard to the Paragon Road interchange, resulting in approximately 1.4 miles of additional travel.
- West side: Residential and agricultural access via access road N4 to Turkey Track Road to the Paragon Road interchange, resulting in approximately 1.0 mile of additional travel.

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Residential, agricultural, and community access via new access road N3 and Old SR 37 to the Liberty Church interchange, resulting in approximately 1.5 miles of additional travel. Refined Preferred Alternative 8 would potentially displace three residences in this area.
- West side: Residential and agricultural access via new access road N4 to the Liberty Church Road interchange, resulting in approximately 1.2 miles of additional travel. Refined Preferred Alternative 8 would potentially displace one residence in this area.
- **Old SR 37 (south of Liberty Church):** This at-grade intersection currently has full access to SR 37 on both sides of the road; however, at this location there will be no direct access to I-69 in any of the alternatives. On the east side, Old SR 37 provides access to several residences, agricultural land, and Hacker Creek Road. A single driveway provides access to New Testament Baptist Church, several residences, and agricultural land on the west side.

Alternative 4:

- East side: Residential and agricultural access to I-69 via new access road N3 to Old SR 37 and Pine Boulevard to the Paragon Road interchange, resulting in approximately 1.9 miles of additional travel.
- West side: Residential and agricultural access to I-69 via new access road N4 and Turkey Track Road to the Paragon Road interchange, resulting in approximately 1.5 miles of additional travel. New Testament Baptist Church is displaced by the new access road.



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Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Residential and agricultural access via new access road segments (N3 and N5) and existing Old SR 37 to the Liberty Church Road interchange, resulting in approximately 1.0 mile of additional travel.
- West side: Residential, community, and agricultural access via new access road N4 to the Liberty Church Road interchange, resulting in approximately 0.7 mile of additional travel.
- **Godsey Road/Liberty Church Road:** Godsey Road provides access to agricultural and residential uses to the west of SR 37 and Liberty Church Road provides access to agricultural, residential, and community uses (Liberty Church) on the east side of SR 37. These at-grade intersections currently have full access to SR 37.

Alternative 4:

- East side (Liberty Church Road): Access to I-69 would be via new access road N5 to Old SR 37 and N3 to the Paragon Road interchange, resulting in approximately 2.6 miles of additional travel. East/west connectivity is provided with a new overpass connecting Liberty Church and Godsey Roads. Overpass development results in two residential displacements.
- West side (Godsey Road): Access to I-69 would be via new access road N4 to Turkey Track Road to the Paragon Road interchange, resulting in approximately 2.0 miles of additional travel. East/west connectivity is provided with a new overpass connecting Liberty Church and Godsey Roads. Overpass development would result in one business displacement (Shotmakers Golf Complex).

Alternatives 5 and 7:

- Full access is provided to Liberty Church and Godsey Roads via new diamond interchange. The interchange would result in three residential displacements and two business displacements (Idle Zone and Shot Makers Golf Complex).

Alternatives 6, 8, and Refined Preferred Alternative 8:

- Full access is provided to Liberty Church and Godsey Roads via new tight diamond interchange. Depending on the alternative, This interchange would result in residential and business displacements. Refined Preferred Alternative 8 would displace two residences and two businesses affiliated with the Idle Zone.



- **Unnamed farm access at-grade intersection (north of Godsey Road):** This at-grade intersection currently has full access to SR 37 on the west side of the highway; however, at this location there will be no direct access to I-69 in any of the alternatives.

Alternative 4:

- East side: Not applicable
- West side: Agricultural access via new access roads N6 and N4 to Turkey Track Road to the Paragon Road interchange, resulting in approximately 2.3 miles of additional travel.

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable
- West side: Agricultural access via new access road N6 to Liberty Church Road interchange, resulting in approximately 0.6 mile of additional travel.

- **Unnamed at-grade intersection (south of Legendary Drive):** This at-grade intersection currently has full access to SR 37 on the east and west side of the road; however, at this location there will be no direct access to I-69 in any of the alternatives.

Alternative 4:

- East side: Residential and agricultural access via new access road segments (N7, N5, and N3) to Old SR 37 to the Paragon Road interchange, resulting in approximately 3.1 miles of additional travel.
- West side: Residential and agricultural access via new access road N4 to Turkey Track Road to the Paragon Road interchange, resulting in approximately 2.5 miles of additional travel.

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Residential and agricultural access via new access road N7 and existing Old SR 37 to Liberty Church Road interchange, resulting in approximately 0.5 mile of additional travel.
- West side: Residential and agricultural access via new access road N6 to Liberty Church Road interchange, resulting in approximately 0.7 mile of additional travel.

- **Legendary Drive:** Legendary Hills currently has only one access road in and out of the neighborhood. This neighborhood at-grade intersection currently has full access to SR 37; however, at this location there will be no direct access to I-69 in any of the alternatives.



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Alternative 4:

- East side: Not applicable
- West side: Residential access to I-69 from Legendary Hills Subdivision will be provided via new access road N6 to Turkey Track road to the Paragon Road interchange, resulting in approximately 2.8 miles of additional travel.

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Not applicable
 - West side: Residential access to I-69 from Legendary Hills Subdivision will be provided via new access road N6 to the Liberty Church Road interchange, resulting in approximately 1.0 mile of additional travel.
- **Old SR 37 S. at-grade connection (at Hillview Motel):** This at-grade intersection currently has full access to SR 37 on the east side of the road; however, at this location there will be no direct access to I-69 in any of the alternatives.

Alternative 4:

- East side: Access would occur along existing Old SR 37, to Jordan Road, to Burton Lane, and then to CR 50 West. That route would connect with the existing SR 39 interchange on the east side of I-69.
- West side: Not applicable

Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Existing businesses will have access to I-69 via new access road N7 and existing Old SR 37 to the Liberty Church interchange, resulting in approximately 1.1 miles of additional travel.
 - West side: Not applicable
- **Unnamed at-grade intersection (north of Old SR 37 S.):** This at-grade intersection currently has full access to SR 37; however, at this location there will be no direct access to I-69 in any of the alternatives.

Alternative 4:

- East side: Access to existing Old SR 37 via access road N8, and then to Jordan Road, Burton Lane, and CR 50 West to provide connection to the existing SR 39 interchange on the east side of I-69.
- West side: Eliminated access to parcels result in residential displacements.



Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8:

- East side: Access for existing residences via new access road segments (N8 and N7) and existing Old SR 37 to Liberty Church interchange, resulting in approximately 1.5 miles of additional travel length.
- West side: Eliminated access to parcels results in residential displacements. Refined Preferred Alternative 8 would displace five residences.

Between six to nine overpasses and underpasses (depending on the alternative) are proposed to maintain county public road connectivity. In addition, local new access roads are proposed where road closures are required, while in other instances local roads would be relocated or have sections realigned. **Table 5.6-7** identifies grade separations, interchanges, and road closures proposed for each alternative. **Table 5.8** lists the new access roads for each alternative. **Figure 5.3-5** to **Figure 5.3-10** show the locations of proposed interchanges, grade separations, road closures, and access roads associated with each alternative.

Table 5.6-8 includes a description of the access roads which are included in the alternatives. Except for locations where interchange/overpass decisions are different for the alternatives, access roads are similar between each alternative. The total length of access roads ranges from approximately 17 miles in Alternative 4 to approximately 15 miles in Refined Preferred Alternative 8.

Table 5.6-7: Proposed Local Access - Interchanges, Intersections, Grade Separations, and Road Closures by Alternative

Road Name	Location*	Existing SR 37 Access* Type of Access	Proposed I-69 Access for Section 5 Alternatives*					
			Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
W That Road	West	Intersection	Closure; Cul-de-sac	Closure; Cul-de-sac	Closure; Cul-de-sac	Closure; Cul-de-sac	Closure; Cul-de-sac	Closure; Cul-de-sac
W That Road	East	Intersection	Closure; Reroute to Rockport Rd.	Closure; Reroute to Rockport Rd.	Closure; Reroute to Rockport Rd.	Closure; Reroute to Rockport Rd.	Closure; Reroute to Rockport Rd.	Closure; Reroute to Rockport Rd.
Rockport Road	East	Intersection	Overpass	Overpass	Overpass	Overpass	Overpass	Overpass
Rockport Road	West	Intersection	Overpass	Overpass	Overpass	Overpass	Overpass	Overpass
S Judd Avenue	West	Intersection with Fullerton Pike	Closure; Reroute to Sharon Dr.	Closure; Reroute to Sharon Dr.	Closure; Reroute to Sharon Dr.	Closure; Reroute to Sharon Dr.	Closure; Reroute to Sharon Dr.	Closure; Reroute to Sharon Dr.
Fullerton Pike	East/ West	Intersection	Interchange	Interchange	Interchange	Interchange	Interchange	Interchange
Yonkers Street – (South)	West	Intersection with Tapp Road	Closure; Reroute to Rayle Pl.	Closure; Reroute to Rayle Pl.	Maintain access	Closure; Reroute to Rayle Pl.	Closure; Reroute to Rayle Pl.	Closure; Reroute to Rayle Pl.
Rex Grossman Blvd. (North & South)	East	Intersection with Tapp Road	Closure; Reroute to W. Schmaltz Blvd.	Closure; Reroute to W. Schmaltz Blvd.	Closure; Reroute to W. Schmaltz Blvd.	Closure; Reroute to W. Schmaltz Blvd.	Closure; Reroute to W. Schmaltz Blvd.	Closure; Reroute to W. Schmaltz Blvd.



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Table 5.6-7: Proposed Local Access - Interchanges, Intersections, Grade Separations, and Road Closures by Alternative

Road Name	Location*	Existing SR 37 Access* Type of Access	Proposed I-69 Access for Section 5 Alternatives*						Refined Preferred Alternative 8
			Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8		
Tapp Road	East/ West	Intersection	Overpass	Split Interchange w/ SR 45	Overpass	Split Interchange w/ SR 45	Split Interchange w/ SR 45	Split Interchange w/ SR 45	
Barger Lane - South	West	Intersection with Tapp Road	Closure; Reroute to Maple Leaf Dr.	Closure; Reroute to Maple Leaf Dr.	Closure; Reroute to Maple Leaf Dr.	Closure; Reroute to Maple Leaf Dr.	Closure; Reroute to Maple Leaf Dr.	Closure; Reroute to Danlyn Rd.	
Barger Lane - North	West	NA	New Intersection with Maple Leaf Drive	New Intersection with Maple Leaf Drive	New Intersection with Maple Leaf Drive	New Intersection with Maple Leaf Drive	New Intersection with Maple Leaf Drive	Closure; Reroute to Danlyn Rd.	
SR 45/2 nd Street/ Bloomfield Road	East/ West	Interchange	Interchange	Split Interchange w/ Tapp	Interchange	Split Interchange w/ Tapp	Split Interchange w/ Tapp	Split Interchange w/ Tapp	
Indiana Railroad	East/ West	Overpass	Overpass	Overpass	Overpass	Overpass	Overpass	Overpass	
SR 48/3 rd Street	East/ West	Interchange	Interchange	Interchange	Interchange	Interchange	Interchange	Interchange	
Whitehall Crossing Boulevard	West	Intersection	Closure; Cul-de-sac; Reroute to Gates Drive	Closure; Cul-de-sac; Reroute to Gates Drive	Closure; Cul-de-sac; Reroute to Gates Drive	Closure; Cul-de-sac; Reroute to Gates Drive	Closure; Cul-de-sac; Reroute to Gates Drive	Closure; Cul-de-sac; Reroute to Gates Drive	
CSX Railroad	East/ West	Underpass	Underpass	Underpass	Underpass	Underpass	Underpass	Underpass	
Vernal Pike	East	Intersection	Underpass	Underpass	Underpass	Overpass	Overpass	Overpass	
Vernal Pike	West	Intersection	Underpass	Underpass	Underpass	Overpass	Overpass	Overpass	
N Crescent Road	East	Intersection with 17 th Street	Closure	Closure	Closure	Intersection with 17 th Street	Intersection with 17 th Street	Intersection with 17 th Street	
SR 46	East/ West	Interchange	Interchange	Interchange	Interchange	Interchange	Interchange	Interchange	
Arlington Road	East/ West	Overpass	Overpass	Overpass	Overpass	Overpass	Overpass	Overpass	
Acuff Road	East	Intersection	Closure; Reroute to Kinser Pike	Closure; Reroute to Kinser Pike	Closure; Reroute to Kinser Pike	Closure; Reroute to Kinser Pike	Closure; Reroute to Kinser Pike	Closure; Reroute to Kinser Pike	
Acuff Road	West	Intersection	Closure; Reroute to Maple Grove Dr	Closure; Reroute to Maple Grove Dr	Closure; Reroute to Maple Grove Dr	Closure; Reroute to Maple Grove Dr	Closure; Reroute to Maple Grove Dr	Closure; Reroute to Maple Grove Dr	
Kinser Pike	East	Intersection	Interchange	Overpass	Closure; Cul-de-sac	Overpass	Overpass	Overpass	
Kinser Pike	West	Intersection	Interchange	Overpass	Closure; Cul-de-sac	Overpass	Overpass	Overpass	
Bottom Road	West	Intersection	Closure; Reroute to Overpass	Closure; Reroute to Interchange	Closure; Reroute to Access Road	Closure; Reroute to Access Road	Closure; Reroute to Interchange	Closure; Reroute to Access Road	
SR 37 Business/ N. Walnut Street	East	Partial Interchange	Overpass	Interchange	Overpass	Existing Partial Interchange	Interchange	Existing Partial Interchange	
Unnamed driveway N of Bottom Road	West	Intersection	Closure	Closure	Closure	Closure	Closure	Closure	



Table 5.6-7: Proposed Local Access - Interchanges, Intersections, Grade Separations, and Road Closures by Alternative

Road Name	Location*	Existing SR 37 Access* Type of Access	Proposed I-69 Access for Section 5 Alternatives*						Refined Preferred Alternative 8
			Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8		
N Connaught Road (to Hoosier Energy)	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
N Charlie Taylor Ln (to Thompsons Furniture)	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Ellis Road	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway W of Ellis Road	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Griffith Cemetery Road	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Wylie Road/Showers Road	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway (W of Wylie Road)	West	Intersection	Closure	Closure	Closure	Closure	Closure	Closure	
Stonebelt Drive	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Purcell Drive	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed Local Road (W of southern Wayport Rd intersection)	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Wayport Road (southern intersection)	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Wayport Road (northern intersection)	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
W Wayport Road (north)	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Sample Road	East/ West	Intersection	Interchange	Interchange	Interchange	Interchange	Interchange	Interchange	
Unnamed driveway (to Bloomington Auto Parts)	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway (to Wayport Kennels)	West	Intersection	Closure	Closure	Closure	Closure	Closure	Closure	



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Table 5.6-7: Proposed Local Access - Interchanges, Intersections, Grade Separations, and Road Closures by Alternative

Road Name	Location*	Existing SR 37 Access* Type of Access	Proposed I-69 Access for Section 5 Alternatives*						Refined Preferred Alternative 8
			Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8		
Unnamed driveway (to Worms Way & residence)	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Duxberry Drive (includes Thames Dr. & Winery Rd.)	East	Intersection	Closure; Continued as Access Rd.	Closure; Continued as Access Rd.	Closure; Continued as Access Rd.	Closure; Continued as Access Rd.	Closure; Continued as Access Rd.	Closure; Continued as Access Rd.	
Simpson Chapel Road	West	Intersection	Closure; Continue along Simpson Chapel Rd.	Closure; Continue along Simpson Chapel Rd.	Closure; Continue along Simpson Chapel Rd.	Closure; Continue along Simpson Chapel Rd.	Closure; Continue along Simpson Chapel Rd.	Closure; Continue along Simpson Chapel Rd.	
Lee Paul Road	West	Intersection with Simpson Chapel Road	Continued intersection w/ Simpson Chapel Rd.	Continued intersection w/ Simpson Chapel Rd.	Continued intersection w/ Simpson Chapel Rd.	Continued intersection w/ Simpson Chapel Rd.	Continued intersection w/ Simpson Chapel Rd.	Continued intersection w/ Simpson Chapel Rd.	
Lee Paul Road	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed multi-access drive (E of Lee Paul Rd)	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Fox Hollow Road	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway N of Fox Hollow	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway 1 S of S Crossover	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway 1 S of S Crossover	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway 2 S of S Crossover	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed Local Rd. (E of Norm Anderson Rd./N Crossover Road	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Norm Anderson Rd./N Crossover Road	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway (to Poynter Sheet Metal)	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Chambers Pike	East	Intersection	Overpass	Overpass	Overpass	Closure; Reroute to Access Rd.	Overpass	Overpass	



Table 5.6-7: Proposed Local Access - Interchanges, Intersections, Grade Separations, and Road Closures by Alternative

Road Name	Location*	Existing SR 37 Access* Type of Access	Proposed I-69 Access for Section 5 Alternatives*						Refined Preferred Alternative 8
			Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8		
N Crossover Rd	West	Intersection	Overpass	Overpass	Overpass	Closure; Reroute to Access Rd.	Overpass	Overpass	
Sparks Lane	East	Intersection	Closure	Closure	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Sylvan Lane	West	Intersection	Closure; Reroute to Access Rd.						
Unnamed driveway N of Sylvan Lane	West	Intersection	Closure; Reroute to Access Rd.						
Burma Road	West	Intersection	Closure; Reroute to Access Rd.						
Unnamed access into Morgan-Monroe State Forest	East	Intersection	Closure; Reroute to Chambers Pike						
Bryant's Creek Road	East	Intersection	Closure; Reroute to Old SR 37	Closure; Reroute to Old SR 37	Closure; Reroute to Old SR 37	Overpass	Closure; Reroute to Old SR 37	Closure; Reroute to Old SR 37	
Cooksey Lane/Petro Rd.	East	Intersection	Closure	Closure	Closure	Overpass	Closure	Closure	
Turkey Track Road	West	Intersection	Closure; Continue along Turkey Track Rd.						
Unnamed driveway S of Pine Blvd	East	Intersection	Closure	Closure	Closure	Closure	Closure	Closure	
Pine Boulevard	East	Intersection	Interchange	Overpass	Closure; Reroute to Old SR 37				
Paragon Road	West	Intersection	Interchange	Overpass	Closure; Reroute to Turkey Track Rd.	Closure; Reroute to Turkey Track Rd.	Closure; Reroute to Turkey Track Rd.	Closure; Reroute to Turkey Track Rd.	
Unnamed driveway 1 N of Pine Boulevard	East	Intersection	Closure	Closure	Closure	Closure	Closure	Closure	
Unnamed Driveway 2 N of Pine Boulevard	East	Intersection	Closure; Reroute to Access Rd.						
Unnamed driveway S of Turkey Track Road	East	Intersection	Closure; Reroute to Access Rd.						
Old SR 37 N	East	Intersection	Closure; Reroute to Access Rd.						



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Table 5.6-7: Proposed Local Access - Interchanges, Intersections, Grade Separations, and Road Closures by Alternative

Road Name	Location*	Existing SR 37 Access* Type of Access	Proposed I-69 Access for Section 5 Alternatives*						Refined Preferred Alternative 8
			Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8		
Turkey Track Road	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Old SR 37 S of Liberty Church	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Old SR 37 S of Liberty Church	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Liberty Church Road/Godsey Road	East/ West	Intersection	Overpass	Interchange	Interchange	Interchange	Interchange	Interchange	
Unnamed driveway N of Godsey Rd	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway S of Legendary Drive	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed driveway S of Legendary Drive	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Legendary Drive	West	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Old SR 37 S	East	Intersection	Closure/Reroute to Jordan Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed Access N Old SR 37	East	Intersection	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	Closure; Reroute to Access Rd.	
Unnamed Access N Old SR 37	West	Intersection	Closure	Closure	Closure	Closure	Closure	Closure	

Source: Michael Baker Jr., Inc.

Notes:*Location relative to SR 37 or I-69 unless otherwise noted



Table 5.6-8: Proposed Local Access Roads

Name	To	From	Description	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8	Ref. Pref. Alt 8	Length (miles)
S1	Rockport Road	That Road	New Connection	●	●	●	●	●	●	0.2
S2	parcel	Fullerton Pike	New Connection	●	●					0.2
S3-A	Maple Leaf Drive	Barger Lane	New Connection	●	●	●	●	●		0.0
S3-B	Danlyn Road	Tapp Road	New Connection						●	<0.1
S4	2 nd Street	Sam's Club	Major Realignment	●	●					0.2
S5	2 nd Street	Oakdale Apartments	Major Realignment	●	●					0.2
S6	Vernal Pike	Industrial Park	Major Realignment			●	●	●	●	0.2
S7	Vernal Pike	Industrial Park	Major Realignment	●	●					0.2
S8	SR 37	Walnut Road	New Connection	●						1.0
S9	S8	Kinser Pike	New Connection	●						0.2
C1	Ellis Road	Walnut Road	New Connection	●	●	●	●	●		1.4
C2	Connaught Road	Bottom Road	New Connection			●	●			0.8
C3	Sample Road	Ellis Road	New Connection	●	●	●	●	●	●	1.4
C4	Sample Road	Connaught Road	New Connection	●	●	●	●	●	●	1.4
C5	Chambers Pike	Sample Road	New and Upgraded Connection	●	●	●	●	●	●	3.0
C6	Crossover Road	Simpson Chapel Road	New and Upgraded Connection	●	●	●	●	●	●	1.8
C7	Sparks Lane	Chambers Pike	New Connection			●		●	●	0.1
C8	Burma Road	Crossover Road	New Connection	●	●	●	●	●	●	0.8
C9	Petro Road	Bryant's Creek Road	New Connection				●			0.2
N1	Old SR 37	parcel	New Connection	●	●	●	●	●	●	0.3
N2	Turkey Track Road	Turkey Track Road	Major Realignment	●	●					0.3
N3	Old SR 37	Old SR 37	New Connection	●	●	●	●	●	●	0.6
N4	Liberty Church Road	Turkey Track Road	New Connection	●	●	●	●	●	●	1.1
N5	Liberty Church Road	E Hacker Creek Road	Major Realignment		●	●	●	●	●	0.4
N6	Legendary Drive	Godsey Road	New Connection	●	●	●	●	●	●	1.0
N7	Old SR 37	Liberty Church Road	New Connection	●	●	●	●	●	●	1.2
N8	parcel	Old SR 37	New Connection	●	●	●	●	●	●	0.1

Source: Michael Baker Jr., Inc.



5.6.4 Mitigation

During the scoping process, and in meetings with Participating Agencies, the Community Advisory Committee (CAC) and outreach meetings with schools and emergency responders, road closures and the provision of adequate access to all sectors of the Study Area were discussed. As a result of these discussions, local roads that would access the interstate, those crossing the facility and those to be closed by I-69 were carefully selected with recognition of local travel patterns, available alternative routes, and interchange spacing. In some cases, access roads or grade separations have been provided to avoid land locking properties. The final decision to provide access would be made as a result of the final right-of-way acquisition analysis.

Possible grade separations and road closures proposed for each alternative were presented to the CAC during the screening of alternatives process and presented to the public at the April 24, 2012 Public Information Meeting. Additional detailed analysis of the access roads, grade separations and road closures that differ from those presented at the Public Information Meeting are identified in Chapter 3.

5.6.5 Summary

As a result of the construction of the Build Alternatives, traffic volumes on state highways and local roads in the Section 5 Study Area would change as traffic is diverted from these highways to I-69. As part of the analysis, 2035 traffic volumes on 63 segments of the roads in the Study Area were examined. The roadways chosen to be included in this analysis are the ones that are forecasted to have the greatest changes in volume and thus the most likely to be impacted by the build alternatives. Most of the road links chosen either cross SR 37/I-69 or are adjacent parallel roads that will feed traffic to and from the interchanges that access I-69. Others include parallel roads that provide local traffic an alternative to using SR 37/I-69. Traffic impacts are defined as undesirable increases in traffic on roadways, when compared to the No Build condition that result in congestion. For example, if a road would operate in uncongested conditions in the “No Build” scenario, but becomes congested in the build scenario because traffic going to and from I-69 uses it, that congestion is considered a traffic impact of I-69.

Level of Service (LOS) is a commonly used measure of congestion by the transportation industry. As defined in the Highway Capacity Manual, “Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience”.⁵ Based on INDOT design criteria, traffic flow is considered to operate at an unacceptable LOS below LOS “C” for rural freeways, arterials and collectors and below LOS

⁵ Highway Capacity Manual, Chapter 5 Glossary.



“D” for urban freeways, arterials, and collectors⁶. For the analysis in this section, roadways are determined to be congested if they are expected to operate at an unacceptable LOS.

There was very little difference overall between the six alternatives when it came to the number of road segments that are expected to improve or regress a LOS under an I-69 build condition. Refined Preferred Alternative 8 has eight roads with an improved LOS. The greatest improvement was SR 37/I-69 between SR 46 and SR 48/3rd Street, which improved from LOS E to LOS C. Roads that improved LOS include:

- Southbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS E to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Southbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS C to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from SR 46 to SR 48/3rd Street; improves from LOS D to LOS C.
- Northbound SR 37/I-69 from SR 45/2nd Street to Tapp Road; improves from LOS D to LOS B, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Tapp Road to Fullerton Pike; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.
- Northbound SR 37/I-69 from Fullerton Pike to SR 37; improves from LOS D to LOS C, as the Build Alternative includes an additional lane.

Eight roads had a lower LOS due to an increase in traffic volumes in the Build Condition without an increase in capacity. These roads are:

- SR 45 from Liberty Drive to Curry Pike; reduces from LOS A to LOS B.
- SR 45 from Basswood Drive to Weimer Road; reduces from LOS A to LOS B

⁶ Indiana Design Manual Part 5 Road Design Volume II, Tables 53-1 through 53-9 specifies design criteria for rural and urban roads. The minimum acceptable level of service for rural freeways, arterials, and collectors is “C” with a desirable level of service of “B,” and for freeways, arterials, and collectors in urban areas the minimum acceptable level of service is “D” with a desirable level of service of “C.”

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- SR 48 west of SR 37/I-69; reduces from LOS C to LOS E.
- Sample Road west of SR 37; reduces from LOS A to LOS D
- Sample Road east of SR 37; reduces from LOS A to LOS D
- Simpson Chapel Road from Sample Road to Williams Road; reduces from LOS A to LOS B.
- Liberty Church Road east of SR 37/I-69; reduces from LOS A to LOS B.
- Liberty Church Road east of SR 37/I-69; reduces from LOS A to LOS B.

Although these segments experience a lower LOS than the No Build condition, all but three roadway segments (Sample Road east and west of SR 37/I-69 and SR 48 west of SR 37/I-69) fall within the acceptable LOS threshold of LOS C in rural areas or LOS D in urban areas. Therefore, there are few traffic congestion impacts associated with the Refined Preferred Alternative 8.

I-69 is a fully-controlled access facility; therefore, the only access would be at interchanges. Several overpasses are also proposed to maintain county public road connectivity. In addition, local access roads are proposed where road closures are required; while in other instances local roads would be relocated or have sections realigned. All the alternatives provide an acceptable level of access to the proposed I-69 in Section 5 with a sufficient number of interchanges to handle the forecasted travel demand. Typically spacing for these interchanges is 1 mile or in urban areas and 3 miles or more for rural areas. The alternatives equally conform to these guidelines overall. In addition, traffic movements at all intersections associated with the interchanges (interchanges between an interstate and a non-limited access cross road) such as those proposed along Section 5 of I-69 can typically handle upwards of 60,000 to 70,000 ADT which is greater than the forecast volumes for the interchanges in Section 5. During final design of the Preferred Alternative, the number of turn lanes, storage lengths, and signal phasing at each interchange/intersection will be designed to ensure all traffic movements operate at acceptable levels of service during peak traffic hours. Microsimulation models show that the conceptual designs of the proposed interchanges provide acceptable levels of service for the 2035 design year. Therefore, there is expected to be very little difference in traffic operational performance of the interchanges among the various alternatives.

However, some differences do exist among the alternatives from a network traffic distribution and efficiency standpoint. Locating interchanges nearest to major destinations, residential areas and employment centers make the overall transportation network more efficient as drivers have to travel fewer miles to make their desired trip. Among the alternatives there are three key interchange locations that are different that affect how well traffic is distributed along the transportation network and how efficient the transportation network operates. These include Tapp Road interchange, Walnut Street interchange, and Liberty Church Road interchange.



Alternatives 5, 7, 8 and the Refined Preferred Alternative 8 are the only alternatives that have interchanges at these three key locations. Therefore, it is expected that these four alternatives would have the highest network efficiency and best traffic distribution for Section 5.

There is very little difference between the alternatives with respect to how well they provide local access corridor-wide. The local access roads included in each alternative provide access to the I-69 interchanges for all parcels that lose direct access to SR 37/I-69 unless they become landlocked and considered for right of way acquisition. The length of diversion required for travel from individual businesses and residential properties due to the limited access provided with I-69 can vary substantially among alternatives as discussed in **Section 5.3**, *Land Use and Community Impacts*.

Based on the above analysis none of the alternatives have significantly more impacts than another alternative.



Section 5.6 Figure Index

(Figures follow this index.)

Figure Reference	Number of Sheets
Figure 5.6-1: 2035 Traffic Volume (ADT) Forecast- No Build Condition (North)	1 Sheet
Figure 5.6-2: 2035 Traffic Volume (ADT) Forecast- No Build Condition (South)	1 Sheet
Figure 5.6-3: 2035 Traffic Volume (ADT) Forecast- Refined Preferred Alternative 8 (North)	1 Sheet
Figure 5.6-4: 2035 Traffic Volume (ADT) Forecast- Refined Preferred Alternative 8 (South)	1 Sheet

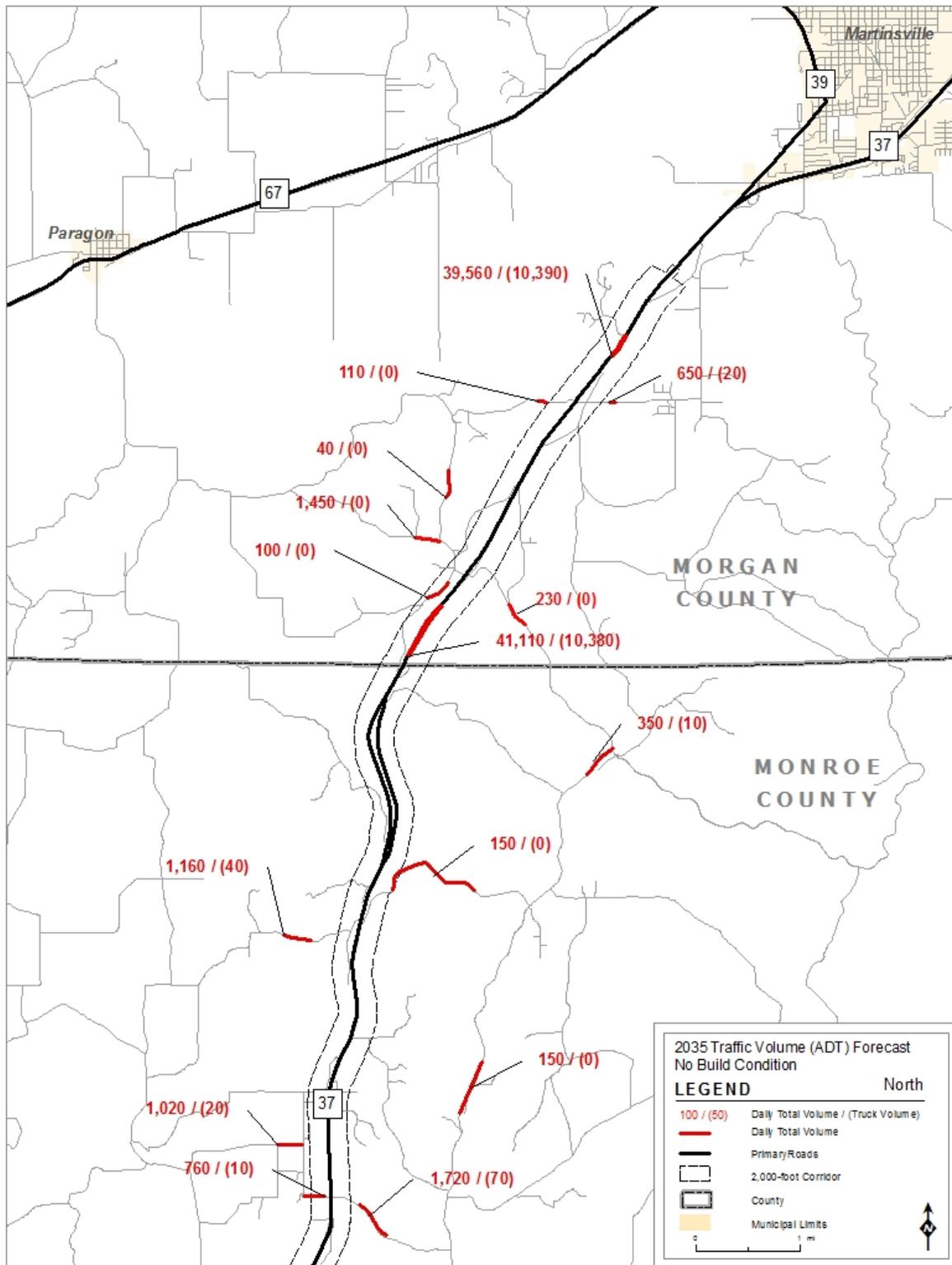


Figure 5.6-1: 2035 Traffic Volume (ADT) Forecast- No Build Condition (North)

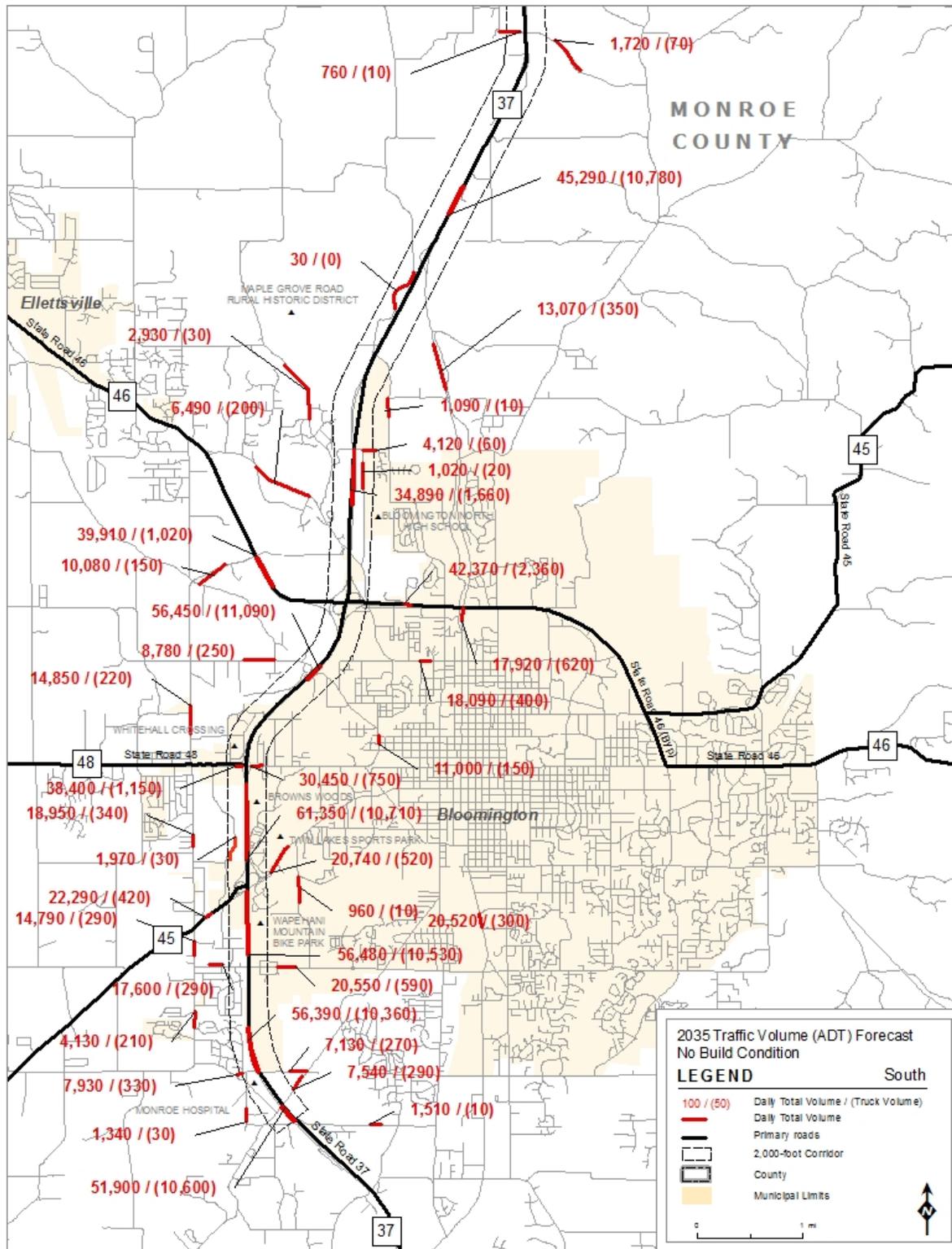


Figure 5.6-2: 2035 Traffic Volume (ADT) Forecast- No Build Condition (South)

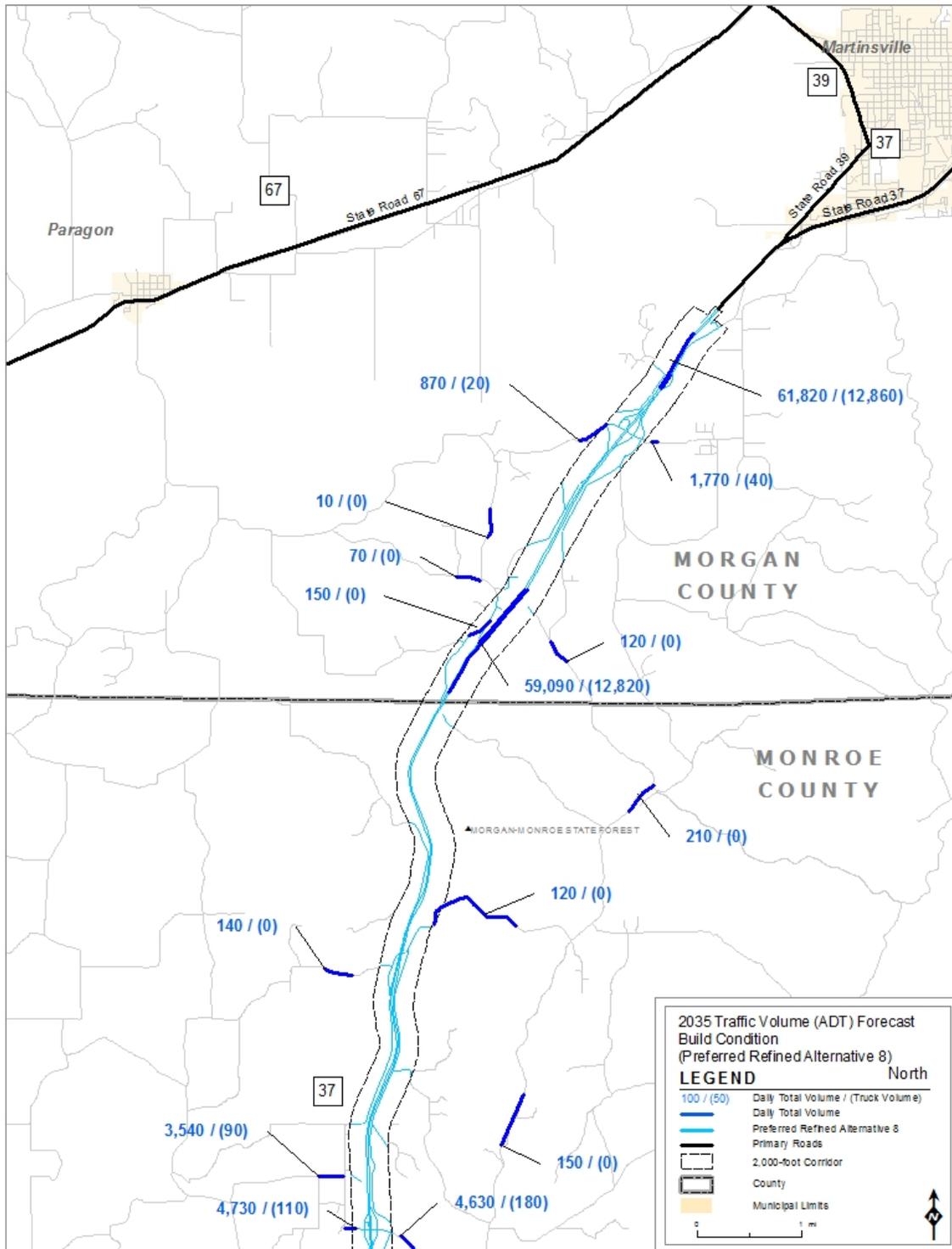


Figure 5.6-3: 2035 Traffic Volume (ADT) Forecast- Refined Preferred Alternative 8 (North)

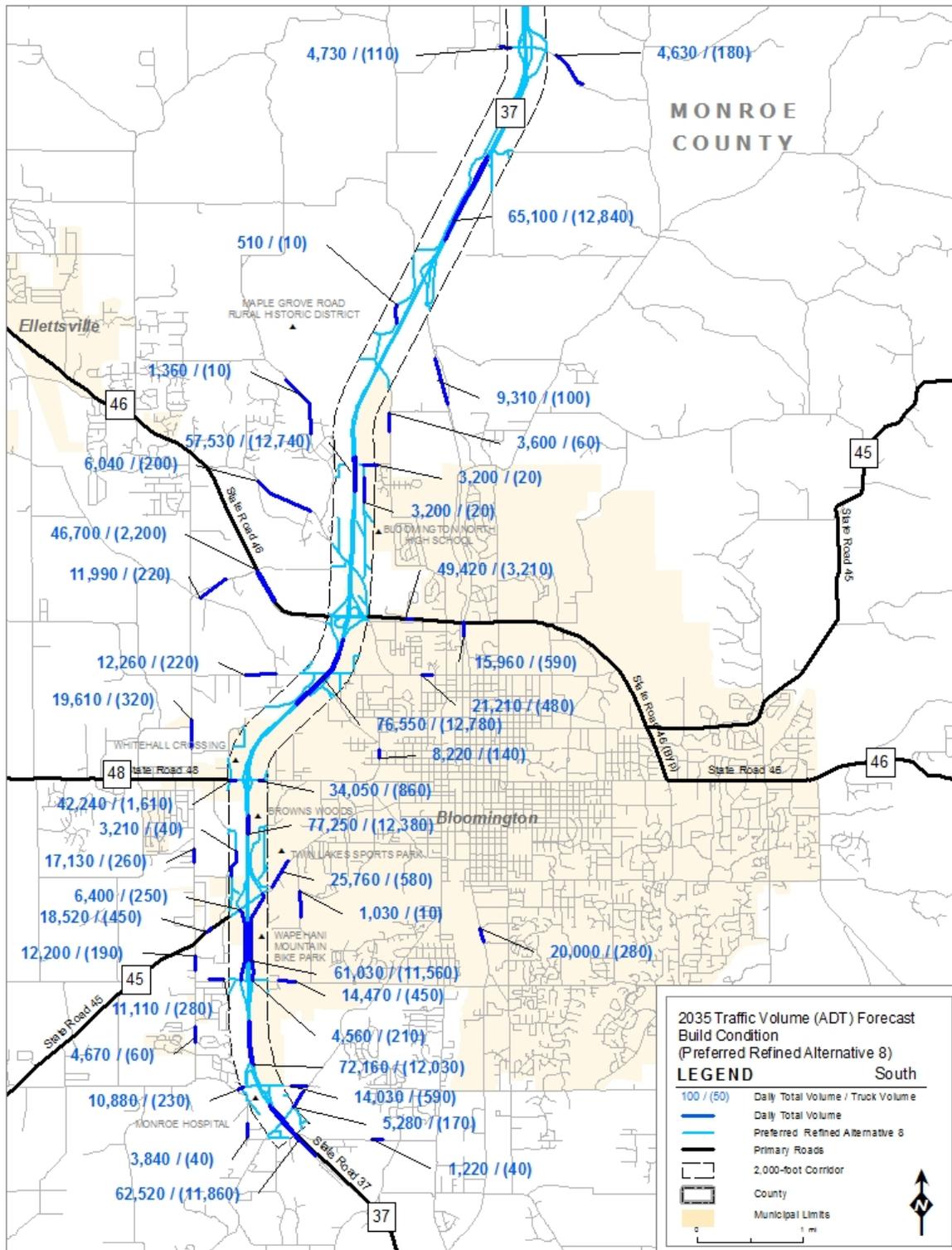


Figure 5.6-4: 2035 Traffic Volume (ADT) Forecast- Refined Preferred Alternative 8 (South)



5.7 Visual and Aesthetic Impacts

No substantive changes have been made to this section since the publication of the Draft Environmental Impact Statement (DEIS).

5.7.1 Introduction

The proposed Section 5 project would upgrade existing SR 37 from a partially-controlled access arterial roadway to a fully-controlled access interstate facility. SR 37 is currently a four-lane, divided highway in Section 5. From the southern terminus of the project through the SR 46 interchange, access to the roadway is allowed through intersections within the local road network (Rockport Road, Fullerton Pike, Tapp Road, and Vernal Pike; all except Rockport Road are signalized) or via interchanges (SR 45/2nd Street interchange, SR 48/3rd Street interchange, and SR 46 interchange). North of the SR 46 interchange to the northern terminus of the project, there are numerous access points to SR 37, including non-signalized local road intersections as well as residential and commercial drives. The alternatives would have six lanes between the southern terminus and the Sample Road Interchange. From Sample Road north to the northern terminus, the roadway would have four travel lanes for all the alternatives, similar in appearance to SR 37 today.

Visual resources of the proposed I-69 include both the “view from the road” and the “view of the road.” The proposed project involves upgrading existing SR 37 from a partially access-controlled divided highway to a fully access-controlled freeway. Thus, the visual resource impacts are comparable with those impacts currently attributable to the existing SR 37. Impacts to these visual resources are considered in the design quality, art, and architectural aspects of the project planning. These considerations are particularly important for facilities in sensitive environmental settings.

The construction of I-69 would result in both temporary and permanent visual impacts. Temporary impacts include the sighting of construction equipment and exposed earth and the presence of dust resulting from construction impacts. These temporary impacts would be mitigated by controlling the construction limits and quick re-vegetation upon completion of construction. For further mitigation measures during construction, refer to **Section 5.12.3, Mitigation**, and **Chapter 7, Mitigation**. Permanent impacts resulting from clearing the area within the construction limits and outside of the existing SR 37 facility include the conversion of forests, wetlands, farmland, and rural landscapes to use by an interstate highway.

5.7.2 Methodology

In an analysis of visual impacts of alternative roadway alignments, consideration is given to “aesthetic” appeal as it pertains to both the “view from the road” and the “view of the road.” “Aesthetics” refers to the visual qualities and scenic nature of an area. The methodology for evaluating visual impacts of the I-69 project in Section 5 followed guidelines set forth in the *Visual Impact Assessment of Highway Projects* handbook (Federal Highway Administration [FHWA], 1988).

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5.7.3 Background Information

Section 5 can be broken into South, Central, and North regions.

The South Region begins at the south terminus of Section 5, south of Fullerton Pike, and extends north to Kinser Pike, and contains the more urbanized areas of the Study Corridor proximate to Bloomington. The region is characterized by commercial, institutional, residential, and light industrial uses, including shopping centers, residential subdivisions, and apartment complexes. **Figure 5.7-1** shows a typical view of the project corridor in the South Region.



Figure 5.7-1: South Region

The Central Region extends from Kinser Pike north to the Monroe/Morgan County line. This region is more rural than the South Region and has pockets of row crops, pastures, and forests (including the Morgan-Monroe State Forest) interspersed with businesses and residences adjacent to the roadway (**Figure 5.7-2**).

The North Region begins at the Monroe/Morgan County line and continues north to the north terminus of Section 5, located south of the SR 39 Interchange with SR 37 in Martinsville. This region is rural with a predominance of row crop fields and residences scattered along the roadway (**Figure 5.7-3**).



Figure 5.7-2: Central Region



Figure 5.7-3: North Region

The landform of the corridor is consistent with the Mitchell Plateau, Norman Upland, and Martinsville Hills physiographic divisions (refer to **Figure 4.3-2** in **Section 4.3**, *Natural Environment*). Each of these physiographic region divisions is described below.

- The Mitchell Plateau extends from south of the Study Corridor to Kinser Pike, which is located within the South Region. It is comprised of a limestone plateau dissected by many deeply entrenched, major stream systems and exhibits extensive karst features.

- The Norman Upland begins at the Beanblossom Valley and continues north to about the Morgan/Monroe County line, and is located within the Central Region. It is characterized by high relief and generally rugged topography with relatively flat uplands among a maze of dendritic ridges.
- The Martinsville Hills starts at about the Monroe/Morgan County line and continues north of the Study Corridor, and is located in the North Region. It is distinguished from the other divisions due to modification by pre-Wisconsin glaciations and the presence of a relatively thin layer of pre-Wisconsin glacial drift.

In general, land uses within the Study Corridor are more urbanized in and near the cities of Bloomington and Martinsville (see **Figure 4.2-3** in **Section 4.2**, *Existing Land Use*, and **Figure 5.7-4**). Land uses adjacent to SR 37 between Bloomington and Martinsville are agricultural and forested with scattered residential and commercial development. Morgan-Monroe State Forest is located within the Central Region of the Study Corridor and encompasses more than 25,000 acres in Morgan and Monroe counties.



Figure 5.7-4: SR 48/3rd Street, Bloomington

Various water features are found throughout the Section 5 corridor. These include riparian wetlands, man-made farm ponds, and streams. Most of the wetlands are emergent, although there are some forested wetlands. The Study Corridor is located within the White River Basin and traverses the watersheds of the following White River tributaries: Clear Creek, Stout Creek, Griffy Creek, Beanblossom Creek, Bryant Creek, Little Indian Creek, and Indian Creek. Many intermittent streams and ephemeral drains occur in the undulating terrain throughout the corridor (**Figure 4.3-13** in **Section 4.3**, *Natural Environment*, and **Figure 5.7-5**). Springs can be found at many locations throughout the corridor.

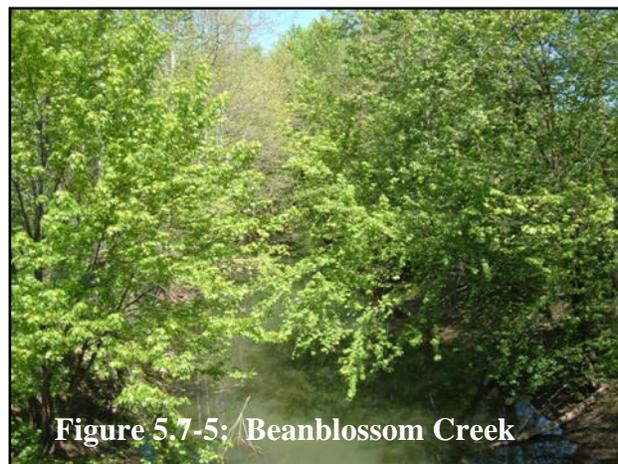


Figure 5.7-5: Beanblossom Creek

Vegetation in the corridor is primarily a deciduous upland forest with common trees being oak, hickory, beech, maple, and tulip-poplar and with a ground layer composed mostly of forest herbs and grasses. Vegetation in the bottomlands and riparian wetlands include box elder, red maple, silver maple, sycamore, sedges, and rushes.

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5.7.3.1 View from the Road

All of the alternatives either use common mainline alignments or have alignments that are within close proximity to each other and make use of the existing SR 37 right-of-way. As such, views from the road will generally be similar for each of the alternatives, including Refined Preferred Alternative 8.

In the visual analysis of the views from the road, three distinct visual characteristics were identified. First, views from the road will be obstructed in some locations due to either the roadway's position or design within the existing terrain and/or the dense adjacent forest. Second, opportunities to view the visual resources of the corridor from the road will only be possible in those areas that have flat to slightly rolling terrain (versus hilly terrain) and less extensive vegetation adjacent to the road. Finally, some panoramic vistas will be created or maintained by the road construction at certain locations along the corridor. Unlike close-up views of vegetation, farmland, and the built environment that are possible from existing, slower speed state highways and county roads in the corridor, most views from the road will be distant views.

In many areas, distant views will be limited by dense vegetation adjacent to the road. These include the section of the corridor that traverses the Morgan-Monroe State Forest (**Figure 5.7-6**) from North Crossover Road/East Chambers Pike to Bryants Creek Road and from Cooksey Lane north to the vicinity of Pine Boulevard/Paragon Road.



Figure 5.7-6: View of Morgan-Monroe State Forest

Panoramic vistas provide an aesthetic amenity for highway travel. Some vistas of the surrounding land will be visible while traveling along I-69. Two locations in particular include:

- The Beanblossom Valley in Monroe County approaching from the south near Kinser Pike and approaching from the north near Sample Road. Kinser Pike rises approximately 130 feet above the Beanblossom floodplain. Sample Road is approximately 165 feet above the creek.
- The panoramic view from the road to the east to adjacent farm fields near Liberty Church Road in Morgan County (**Figure 5.7-7**).

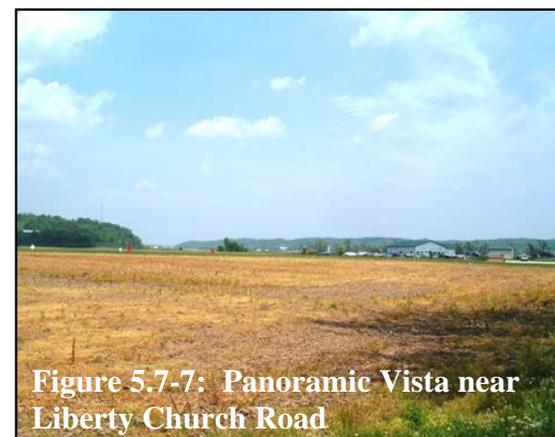


Figure 5.7-7: Panoramic Vista near Liberty Church Road

The required right-of-way for I-69 in Section 5 will range from 220 feet to 790 feet wide, depending on the alignment and terrain features. The very widest sections will occur only in limited locations where the alignment is bifurcated (two directions of travel are widely spaced and typically have different horizontal and vertical profiles). Alternatives 4 and 5 would have a wider footprint through this area, while Alternatives 6, 7, 8, and Refined Preferred Alternative 8

would maintain the existing bifurcation throughout the Morgan-Monroe State Forest. Regardless of alternative, the primary view through this bifurcated section from the road would be of dense forested areas.

Many residential areas will be visible from the road throughout the southern portion of the Section 5 c corridor. In particular, several densely populated neighborhoods abut or are near existing SR 37 between Fullerton Pike and Tapp Road. Further north, scattered, less dense residential areas and single owner lots abut or are within a quarter-mile of SR 37 in the areas of SR 48/3rd Street interchange, and between SR 46 interchange and Kinser Pike. Larger neighborhoods currently served by SR 37 are located just north of the current Walnut Street interchange and include the Windsor Estates and Showers Road subdivisions. Further north, there are residential areas near Sample Road, Simpson Chapel Road, Fox Hollow Road, Crossover Road, Chambers Pike, and Bryant's Creek Road in Monroe County and Cooksey Lane, Turkey Track Road, Old SR 37, Legendary Hills Road, and Liberty Church Road in Morgan County (**Figure 5.7-8**).



Figure 5.7-8: Residential Development

Many public facilities and commercial businesses will be visible from the road as they are now from SR 37. The Monroe Hospital is located to the west of the corridor south of Fullerton Pike. Traveling through Bloomington, Rural King (formerly Walmart), Sam's Club, Menards, automobile dealership, Cracker Barrel, and numerous other businesses will be visible as they currently are from SR 37. Traveling north of the Arlington Road overpass, Bloomington High School North will be visible on the east side of the road. Continuing north of Bloomington, several churches are visible on the east side of the road. Visible businesses through the Central Region of the corridor include Bloomington Auto Parts, Bloomington Wholesale Garden north of County Road 700, and the Oliver Winery off East Duxbury Road (**Figure 5.7-9**). Additionally, several cemeteries are visible from the road, including Griffith Cemetery (**Figure 5.7-10**).



Figure 5.7-9: Oliver Winery

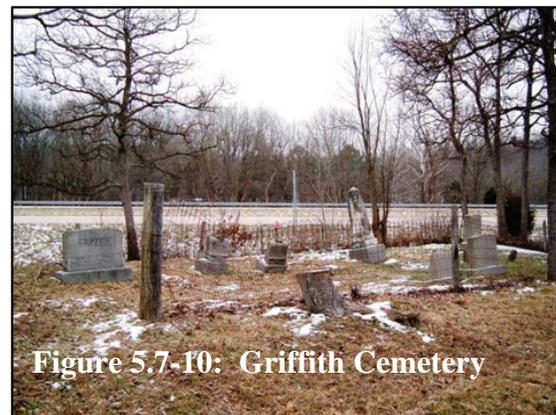


Figure 5.7-10: Griffith Cemetery

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A junkyard/salvage facility, Bloomington Auto Parts, is located east of and adjacent to SR 37. The view of the existing facility is currently screened from SR 37, partially in the form of vegetation and partially in the form of a fence. Indiana Code (IC 8-23-20-18) requires that if feasible such facilities within one thousand feet of an interstate or primary highway be considered for screening so that the facility is not visible from the main-traveled way. Refined Preferred Alternative 8 is not expected to remove either of the existing screening features.

5.7.3.2 View of the Road

Direct views of all the alternatives would occur in many parts of the corridor. As a result of the urban setting in the South Region of the corridor, the road will remain a key part of the urban landscape. Most of the land uses adjacent to the corridor are commercial, residential, and light industrial, including shopping centers, residential subdivisions, and apartment complexes. Most of these land uses currently have a view of existing SR 37. Changing the existing view of a busy roadway corridor to that of an interstate facility would not significantly modify the visual quality of the South Region under any alternative. Any of the alternatives would be in keeping with the visual context of the existing setting.

Within the Central Region of the corridor, the alternatives would be visible from the numerous residences, churches, and businesses adjacent to the corridor. Where residences are now shielded from the existing SR 37 by trees, shrubs, and/or distance, there could be adverse visual impacts due to the loss of trees and shrubs from construction of the new roadway facility (interstate mainline or newly constructed access roads).

The roadway would also be visible to adjacent homes, churches, and businesses in the North Region of the corridor. Because most of this area has minimal shielding from the view by trees and dense vegetation, the view of all the alternatives would be similar to the existing view of SR 37.

In the vicinity of interchanges, lighting may be visible from homes, businesses, and churches located near the roadway. During construction, there would be several temporary visual impacts, such as exposed earth and jobsite equipment.

Direct views of the road would occur for all alternatives where interchanges or overpasses/underpasses would be developed. These may include the following locations:

- I-69 and SR 37 (as part of the Section 4 project)
- Rockport Road
- Fullerton Pike
- Tapp Road
- SR 45/2nd Street Interchange
- SR 48/3rd Street Interchange
- Vernal Pike
- SR 46 Interchange



- Kinser Pike
- North Walnut Street
- Chambers Pike
- Sample Road
- Bryant's Creek Road
- Paragon Road/Pine Road
- Liberty Church Road
- I-69 and SR 39 (as part of the Section 6 project)

Arlington Road would remain the same for all alternatives, and thus, the view would remain the same in this area. In addition, Alternatives 4 and 6 would change the view at N. Walnut Street from a partial interchange to an overpass. Alternatives 5 and 8 (Option A) would change the view from a partial interchange to a full interchange. Alternatives 7, 8 (Option B), and Refined Preferred Alternative 8 would keep the existing view with the partial interchange at North Walnut Street.

Alternatives 6, 7, 8 and the Refined Preferred Alternative 8 were refined to incorporate minimal design criteria to reduce impacts and costs, when compared to Alternatives 4 and 5. Efforts will be made during the subsequent design phase for use of additional design refinements as a measure, which may further reduce direct impacts and/or construction costs (see **Section 5.1, Introduction and Methodology**). However, these design refinements are not likely to change the overall visual impacts, which were determined by the right-of-way footprint of the alternatives.

5.7.4 Mitigation

The Indiana Department of Transportation's (INDOT) policy is to incorporate context sensitive solutions (CSS) into the development, construction, and maintenance process for improvements to the state jurisdictional transportation system.¹ **Section 7.3.6, Visual Impacts (Mitigation and Commitments)**, summarizes mitigation measures that will be used to address impacts on visual resources.

The establishment of CSS incorporates accepted effective design practices. CSS consider the preservation of historic places, scenic trails, natural environmental enhancement, and community values along with the objectives of mobility, safety, and economics. See **Section 7.2, Major Mitigation Initiatives**, for details regarding INDOT's policy regarding CSS.

CSS has been and will continue to be taken into consideration within the project INDOT has committed to include CSS measures, which may include plantings, "gateways", and other

¹ CSS is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist.

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enhancements within constraints of available right-of-way, impacts, and cost, as further discussed with the city and county agencies during final design.

If feasible, existing vegetative screening will be retained along the existing highway right-of-way in the vicinity of Bloomington Auto Parts in accordance with IC 8-23-20-18.

5.7.5 Summary

Because Section 5 of I-69 involves the conversion of existing SR 37 to an interstate, the visual resource impacts are similar to those impacts attributable to the existing roadway. The I-69 Section 5 corridor follows existing SR 37 as an urban corridor from the southern terminus at the intersection of SR 37 and Victor Pike traveling north through Bloomington. Developed land uses in the corridor consist of commercial, residential, and light industrial uses, including shopping centers, residential subdivisions, and apartment complexes, predominantly in the South Region. North of Bloomington, the corridor changes to a rural, sparsely developed corridor with a viewshed dominated by farmland, forested areas, and scattered residences and businesses. Many intermittent streams and ephemeral drains occur in the undulating terrain throughout the corridor. Springs can be found at many locations in the corridor.

Visual impacts would occur in the corridor, beyond those currently associated with existing SR 37. Due to an increased width of the roadway footprint, new local access roads, interchanges, and overpasses, vegetation will be removed within the construction limits associated with all of the alternatives. Many residential areas, which are currently visible from SR 37, will be visible from the road throughout the South Region of Section 5. Some panoramic vistas of the surrounding land will be visible while traveling along I-69, especially between Kinser Pike and Sample Road, north of Bloomington and through the farm fields near Martinsville. In areas that have rolling terrain, views of the adjacent landscape will be possible, although vegetation, intervening terrain, and distance may limit such views. Elevated ramps and interchanges may be visible in some locations, such as the interchanges located in the urbanized area of Bloomington. However, at many of the interchanges and overpasses, vegetation and heavily-wooded areas will remain in the vicinity to shield the view of these elevated structures from resources, such as homes and historic districts. Terrain features will also provide obstructed views of the roadway, overpasses, and interchanges.

Mitigation measures will be implemented to reduce impacts. Such measures will include CSS. A discussion of mitigation is provided in **Section 7.3.6**, *Visual Impacts*.



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5.8 Title VI / Environmental Justice

For purposes of this section, Preferred Alternative 8 that was identified in the Draft Environmental Impact Statement (DEIS) will be referred to as “Alternative 8.” The Preferred Alternative for the Final Environmental Impact Statement (FEIS) will be referred to as the “Refined Preferred Alternative 8.”

Since the publication of the DEIS, the following substantive changes have been made to this section:

- **Section 5.8.3.3, *Disproportionately High and Adverse Effects Analysis***, updated potential displacements for all alternatives and included Refined Preferred Alternative 8. Corrected **Table 5.8-9** through **Table 5.8-11** and added **Figure 5.8-7**.

5.8.1 Introduction

All federal agencies must comply with Title VI of the 1964 Civil Rights Act (Title VI) and Executive Order 12898: *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.¹ Under Title VI and related statutes, each federal agency is required to ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion. Executive Order 12898 states that “...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...”

Pursuant to the Executive Order, the Federal Highway Administration (FHWA) issued Order 6640.23, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, on December 2, 1998. On August 4, 2011, the Secretary of Transportation, along with heads of other federal agencies, signed a Memorandum of Understanding (EJ MOU) on Environmental Justice (EJ) and Executive Order 12898 confirming the continued importance of identifying and addressing these considerations in agency programs, policies, and activities as required by Executive Order 12898. As part of the EJ MOU, each agency agreed to review and update their EJ strategy as appropriate. Accordingly, the United States Department of Transportation (USDOT) updated its 1995 EJ strategy on March 2, 2012. The updated strategy continues to reflect USDOT's commitment to EJ principles and to integrating those principles into USDOT programs, policies and activities. The updated strategy relies upon existing authorities for achieving environmental justice as described by the Executive Order 12898, such

¹ Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” 59 FR 7629 (February 11, 1994).



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as the National Environmental Policy Act of 1969 (NEPA), Title VI and related statutes, as well as the commitments and focus areas set forth in the EJ MOU. The USDOT also updated its 1997 Order 5610.2(a) on May 2, 2012 to reaffirm its commitment to environmental justice and clarify certain aspects of the original Order, including the definitions of "minority" populations. Likewise, FHWA issued Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, on June 14, 2012, which cancels its 1998 Order 6640.23.

The FHWA administers its governing statutes so as to identify and avoid discrimination and disproportionately high and adverse effects on minority populations and low-income populations by:

- 1) identifying and evaluating environmental, public health, and interrelated social and economic effects of FHWA programs, policies, and activities;
- 2) proposing measures to avoid, minimize, and/or mitigate disproportionately high and adverse environmental and public health effects and interrelated social and economic effects; and provide offsetting benefits and opportunities to enhance communities, neighborhoods, and individuals affected by FHWA programs, policies, and activities, where permitted by law and consistent with Executive Order 12898; and
- 3) considering alternatives to proposed programs, policies, and activities where such alternatives would result in avoiding and/or minimizing disproportionately high and adverse human health or environmental impacts, where permitted by law and consistent with Executive Order 12898; and
- 4) providing public involvement opportunities and considering the results thereof, including providing meaningful access to public information concerning the human health or environmental impacts and soliciting input from affected minority populations and low-income populations in considering alternatives during the planning and development of alternatives and decisions.

Section 5 of I-69 entails upgrading an existing multi-lane, divided transportation facility to a full freeway design. Most of the right-of-way used for the Section 5 project already is devoted to transportation use. This analysis of impacts to minority and low-income populations takes into account that the project location already contains a multi-lane, partially access controlled road.

5.8.2 Methodology

Under FHWA Order 6640.23A, the following populations must be considered in an analysis of environmental justice issues:

- **Minority** means a person who is:
 - Black – a person having origins in any of the black racial groups of Africa.



Hispanic or Latino – a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

Asian American – a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent.

American Indian and Alaskan Native – a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition.

Native Hawaiian or Other Pacific Islander – a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

- **Low-Income** means a person whose median household income is at or below the Department of Health and Human Services poverty guidelines.
- **Minority populations or low-income populations** are any readily identifiable group of minority or low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed FHWA program, policy, or activity.

FHWA Order 6640.23A also defines the meaning of adverse effects in relation to environmental justice populations and directs an analysis of whether identified effects have a disproportionately high and adverse effect on minority and low-income populations.

- **Adverse effects** means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms or nonprofit organizations; increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities.
- **Disproportionately high and adverse effect** on minority and low-income populations means an adverse effect that 1) is predominately borne by a minority population and/or a low-income population, or 2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.



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Compliance with environmental justice requirements was assessed by identifying and analyzing minority and low-income populations within the Study Area for Section 5. The approach included basic information-gathering such as data collection from the 2006-2010 American Community Survey (ACS), U.S. Census Bureau's Year 2010 Census, FHWA's Environmental Justice web page², public participation, and a thorough assessment of communities, i.e., a Community Impact Assessment. The Section 5 Study Area was defined by the 19 Census Block Groups traversed by the project corridor (see **Figure 5.8-1**) thereby providing a statistically identifiable geographic area for the data gathering effort. Figures are located at the end of this chapter. Other data sources include the United Way of Monroe County SCAN 2012 report³ and U.S. Housing and Urban Development datasets.⁴ Public participation included a staffed project office within the project area for Section 5. This office has been open to the public from the early stages of the Tier 2 study. The project team has used an extensive public involvement and outreach plan to ensure full and fair participation of all populations in the transportation process. **Chapter 11, Comments, Coordination and Public Involvement**, provides a detailed summary of public participation activities. Specific examples of outreach to environmental justice populations include:

- One on one meetings with representatives of Monroe Rural Transit and Bloomington Transit to discuss transportation needs of low-income and elderly residents.
- One on one meetings with Perry, Van Buren, and Washington Township Trustees to discuss minority and low-income needs within each Township.
- Phone call with a representative of Indiana Housing & Community Development Authority (IHCDA) to discuss the administration of financial vehicles and incentives such as Community Block Grant Funds or Low Income Housing Tax Credits to create affordable housing in the Study Area.
- Public information meetings and a public hearing provided additional opportunities to learn more about the potentially affected communities and people along the corridor, including minority and low-income populations.
- Bloomington/Monroe County Community Advisory Committee (CAC) meetings provided additional opportunities to learn more about the potentially affected

² USDOT/FHWA, "Environmental Justice," http://www.fhwa.dot.gov/environment/environmental_justice/.

³ United Way of Monroe County SCAN 2012 Service Community Assessment of Needs, Bloomington Indiana MSA (including Monroe, Owen and Green Counties). This report provides a comprehensive look at human services in Monroe County, in relation to neighboring counties and the state of Indiana. The report serves to increase public awareness of community needs, changing trends, and emerging issues; and is a valuable tool used by community leaders to support a more coordinated and collaborative approach to achieving community goals. (Source: United Way of Monroe County, "SCAN 2012 The Monroe County (Indiana) Needs and Capacity Assessment," *The Service Community Assessment of Needs (SCAN)*, <http://www.monroequitedway.org/scan>.)

⁴ U.S. Department of Housing and Urban Development's Office of Policy Development and Research (PD&R): HUD USER: A Clearinghouse for Housing, Sustainable Communities, and Community Development Research & Data. (Source: HUD, "Office of Policy Development and Research," www.huduser.org.)



communities and people along the corridor, including minority and low-income populations. For example, Indiana University (IU) and Ivy Tech Community College of Indiana (Ivy Tech) representatives have participated in and continue to be invited for ongoing CAC meetings. In addition, a coordination meeting was held with IU on August 22, 2005.

- Local planners and service providers (such as township trustees and Area 8 and 10 Agencies on Aging) were consulted in order to identify appropriate ways to reach out to these residents and provided information on the location, needs, and services provided to elderly residents who may also be low-income and/or transit-dependent.

After the preliminary data collection, specific effects on minority and low-income populations were evaluated. This included field analysis and an investigation of populations and potential impacts to these populations. The information gathered for Section 5 includes the population in the Study Area by race and ethnicity, age, employment, and income; and the potential number of residential relocations and business displacements that could result from the project. **Section 4.2, *Human Environment (Community Impact Assessment)***, details the population and employment characteristics of the Study Area. **Section 5.2, *Social Impacts***, and **Section 5.3, *Land Use and Community Impacts***, present social, land use, and community impacts for all populations, including potential residential relocations and business impacts associated with the project.

To ensure that programs, policies and activities are in compliance with Executive Order 12898 requirements, the following techniques were used to plan and develop the project:

- A strong public involvement process.
- A systematic interdisciplinary approach.
- Attempts to identify, avoid, minimize, and mitigate adverse effects and impacts.

5.8.3 Analysis

Following the procedures identified in **Section 5.8.2, *Methodology***, data gathered on the minority and low-income populations in the Section 5 Study Area was analyzed using Indiana Department of Transportation (INDOT) EJ Guidance⁵ to determine the potential impacts of the project on environmental justice populations. The following sections present the result of the analysis.

⁵ INDOT Environmental Services issued EJ Guidance dated April 03, 2012. This guidance provides direction on how to define the COC and AC. An AC has a population of concern for environmental justice if the population is more than 50 percent minority or low-income or if the percentage of low-income population or minority population in the AC is 25 percent higher than the percentage of low-income or minority population in the COC. Since people's incomes, education, occupation, poverty status, and disabilities were not tabulated in the 2010 U.S. Census data collection, 2010 Summary File 1 or 2 will not be utilized in the EJ analysis. As a result, ACS 5-year estimates will be used for both low-income and minority data. (Source: INDOT, "Environmental Justice in NEPA Documentation Process (American FactFinder, Step-by-Step Guide)," April 3, 2012, http://www.in.gov/indot/files/ES_EnvironmentalJusticeGuidance_2012.pdf.)



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5.8.3.1 Minority Population—Race

The 2006-2010 ACS data shows that the Study Area had a lower concentration of minorities than the State of Indiana. Table 5.8-1 shows the breakdown by race for those who are not of Hispanic or Latino Origin, which represents 96.6% of the Study Area population.

Table 5.8-1: Comparative Population Characteristics—Race (Not Hispanic or Latino)

Geographic Area	Total Population	Not Hispanic or Latino Origin Total	One Race						Population of Two or More Races
			White Alone	Black or African American Alone	American Indian & Alaska Native Alone	Asian Alone	Native Hawaiian & Other Pacific Islander Alone	Some Other Race Alone	
United States	303,965,272	256,237,739	196,572,772	37,122,425	2,048,784	14,021,974	458,775	685,669	5,327,340
Percent	100.0%	84.3%	64.7%	12.2%	0.7%	4.6%	0.2%	0.2%	1.8%
Indiana	6,417,398	6,055,926	5,271,451	565,835	11,994	95,085	1,321	9,665	100,575
Percent	100.0%	94.4%	82.1%	8.8%	0.2%	1.5%	0.0%	0.2%	1.6%
Monroe County	134,442	130,660	116,505	4,484	320	6,999	34	463	1,855
Percent	100.0%	97.2%	86.7%	3.3%	0.2%	5.2%	0.0%	0.3%	1.4%
Morgan County	68,654	67,814	66,624	172	73	322	0	0	623
Percent	100.0%	98.8%	97.0%	0.3%	0.1%	0.5%	0.0%	0.0%	0.9%
STUDY AREA									
Monroe County									
CT 4.01, BG 3	2581	2,468	2,262	99	2	90	0	0	14
Percent	100.0%	95.6%	87.7%	3.9%	0.1%	3.5%	0.0%	0.0%	0.5%
CT 4.02, BG 2	815	790	605	118	2	32	5	0	29
Percent	100.0%	97.0%	74.2%	14.5%	0.2%	3.9%	0.6%	0.0%	3.6%
CT 5.01, BG 2	2284	2,154	1,874	143	0	49	0	16	73
Percent	100.0%	94.3%	82.0%	6.3%	0.0%	2.1%	0.0%	0.7%	3.2%
CT 5.02, BG 1	1090	946	856	70	0	19	0	0	0
Percent	100.0%	86.8%	78.6%	6.4%	0.0%	1.8%	0.0%	0.0%	0.0%
CT 5.02, BG 2	936	812	735	60	0	17	0	0	0
Percent	100.0%	86.8%	78.6%	6.4%	0.0%	1.8%	0.0%	0.0%	0.0%
CT 6.01, BG 2	2391	2,337	2,253	41	0	0	0	0	43
Percent	100.0%	97.7%	94.2%	1.7%	0.0%	0.0%	0.0%	0.0%	1.8%
CT 6.02, BG 2	857	857	760	82	0	0	0	0	16
Percent	100.0%	100.0%	88.7%	9.5%	0.0%	0.0%	0.0%	0.0%	1.8%
CT 7, BG 2	606	581	545	11	0	12	0	5	7
Percent	100.0%	95.8%	89.9%	1.9%	0.0%	2.0%	0.0%	0.9%	1.1%
CT 7, BG 3	1,224	1,173	1,101	23	0	24	0	11	14
Percent	100.0%	95.8%	89.9%	1.9%	0.0%	2.0%	0.0%	0.9%	1.1%
CT 8, BG 4	1,574	1,532	1,250	118	0	152	0	0	12
Percent	100.0%	97.3%	79.4%	7.5%	0.0%	9.7%	0.0%	0.0%	0.7%
CT 11.02, BG 2	2,642	2,566	2,353	113	54	24	0	0	22
Percent	100.0%	97.1%	89.1%	4.3%	2.1%	0.9%	0.0%	0.0%	0.8%
CT 11.03, BG 2	1,129	1,129	1,071	4	0	48	0	0	6
Percent	100.0%	100.0%	94.9%	0.3%	0.0%	4.2%	0.0%	0.0%	0.6%
CT 11.03, BG 3	666	666	632	2	0	28	0	0	4
Percent	100.0%	100.0%	94.9%	0.3%	0.0%	4.2%	0.0%	0.0%	0.6%
CT 12, BG 2	815	776	737	15	0	10	0	0	14
Percent	100.0%	95.2%	90.4%	1.9%	0.0%	1.2%	0.0%	0.0%	1.7%



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Table 5.8-1: Comparative Population Characteristics—Race (Not Hispanic or Latino)

Geographic Area	Total Population	Not Hispanic or Latino Origin Total	One Race						Population of Two or More Races
			White Alone	Black or African American Alone	American Indian & Alaska Native Alone	Asian Alone	Native Hawaiian & Other Pacific Islander Alone	Some Other Race Alone	
STUDY AREA									
CT 13.01, BG 3	682	679	667	4	5	0	0	2	2
Percent	100.0%	99.6%	97.8%	0.5%	0.7%	0.0%	0.0%	0.3%	0.2%
CT 14.01, BG 1	1,415	1,415	1,327	0	15	52	0	0	20
Percent	100.0%	100.0%	93.8%	0.0%	1.1%	3.7%	0.0%	0.0%	1.4%
CT 14.01, BG 2	614	614	576	0	7	23	0	0	9
Percent	100.0%	100.0%	93.8%	0.0%	1.1%	3.7%	0.0%	0.0%	1.4%
Morgan County									
CT 5107.01, BG 3	1,118	1,118	0	0	5	0	0	0	1,113
Percent	100.0%	100.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	99.5%
CT 5110, BG 4	1,234	1,225	0	0	0	0	0	13	1,212
Percent	100.0%	99.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	98.2%
Study Area Total	24,673	23,839	21,930	903	85	585	5	34	296
Percent	100.0%	96.6%	88.9%	3.7%	0.3%	2.4%	0.0%	0.1%	1.2%

CT = Census Tract. BG = Block Group within a Census Tract.

Source: U.S. Census Bureau, 2006-2010 American Community Survey Table B03002.

*Total population for US, Indiana, Monroe and Morgan counties is from ACS 5-year estimates. Total population for each Block Group is from 2010 US Census since Block Group data is not available within the ACS.

Note: The number and percentage of ethnic and racial minorities for each Block Group was calculated by applying percentages from 5 yr ACS data based on percentages from applicable Census Tract.

The 2006-2010 ACS data show Blacks alone comprised 8.8% of the state’s population, while they comprise 3.3% and 0.3% of the population in Monroe and Morgan counties, respectively. Four Census Tract Block Groups in the Study Area had a lower percentage (0.0%) of Blacks than the State of Indiana, Monroe County, or Morgan County. Two Block Groups in Monroe County have Black populations above the state average (9.5% and 14.5%), and the remaining Block Groups ranged from 0.3% to 7.5%.

American Indian/Alaska Natives alone comprised 0.2% of the state’s population, while they comprise 0.2% and 0.1% of the population in Monroe and Morgan counties respectively. Five Census Tract Block Groups in the Study Area have American Indian/Alaska Native populations above the average for the State of Indiana and their respective county (with four Block Groups ranging from 0.7 to 2.1% in Monroe County, and one Block Group reporting 0.5% in Morgan County). The remaining Block Groups ranged from 0.0% to 0.2%.

Asians alone comprised 1.5% of the state’s population, while they comprise 5.2% and 0.5% of the population in Monroe and Morgan counties, respectively. Seven Census Tract Block Groups the Study Area have Asian populations below the average for the State of Indiana and their respective county (with five Block Groups in Monroe County ranging from 0.0% to 1.2%, and both Block Groups in Morgan County reporting 0.0%). One Block Group in Monroe County reported a population of 9.7%, which is above the average population of Asians alone for both



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the State and Monroe County. The remaining Block Groups were above the state average but below the Monroe County average, ranging from 1.8% to 4.2%.

Native Hawaiian/Other Pacific Islanders alone comprised 0.0% of the population of the state, as well as Monroe and Morgan counties. All but one Block Group in the Study Area also reported Native Hawaiian/Other Pacific Islander populations of 0.0% (one Block Group in Monroe County reported a 0.6% population).

Table 5.8-2 shows the breakdown by race for those reporting Hispanic or Latino Origin. Those reporting Hispanic or Latino Origin ranged from 0.0% to 13.2%, with the overall average for the study area population being 3.4%. Concentrations higher than the State of Indiana (5.6%) were reported in three Census Tract Block Groups, but these values were below the level for the nation (15.7%). The highest Hispanic/Latino concentrations were reported in Monroe County, Census Tract 5.02-BG 1 & 2 (13.2%), followed by Census Tract 5.01-BG 1 (5.7%). Six other Block Groups reported concentrations higher than their respective county but lower than the state or national levels. Please note that individuals of Hispanic or Latino Origin may be of any race as shown in **Table 5.8-2**.

Geographic Area	Total Population	Hispanic or Latino Origin Total	One Race						Population of Two or More Races
			White Alone	Black or African American Alone	American Indian & Alaska Native Alone	Asian Alone	Native Hawaiian & Other Pacific Islander Alone	Some Other Race Alone	
United States	303,965,272	47,727,533	28,322,928	856,327	431,681	163,519	32,898	15,918,139	2,002,041
Percent	100.0%	15.7%	9.3%	0.3%	0.1%	0.1%	0.0%	5.2%	0.7%
Indiana	6,417,398	361,472	189,807	6,517	2,493	1,104	189	139,292	22,070
Percent	100.0%	5.6%	3.0%	0.1%	0.0%	0.0%	0.0%	2.2%	0.3%
Monroe County	134,442	3,782	2,370	103	18	0	0	770	521
Percent	100.0%	2.8%	1.8%	0.1%	0.0%	0.0%	0.0%	0.6%	0.4%
Morgan County	68,654	840	461	0	23	0	0	356	0
Percent	100.0%	1.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%
STUDY AREA									
Monroe County									
CT 4.01, BG 3	2581	113	52	0	14	0	0	0	47
Percent	100.0%	4.4%	2.0%	0.0%	0.5%	0.0%	0.0%	0.0%	1.8%
CT 4.02, BG 2	815	25	11	7	0	0	0	7	0
Percent	100.0%	3.0%	1.3%	0.8%	0.0%	0.0%	0.0%	0.9%	0.0%
CT 5.01, BG 2	2284	130	104	0	0	0	0	10	16
Percent	100.0%	5.7%	4.5%	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%
CT 5.02, BG 1	1090	144	115	0	0	0	0	24	5
Percent	100.0%	13.2%	10.6%	0.0%	0.0%	0.0%	0.0%	2.2%	0.4%
CT 5.02, BG 2	936	124	99	0	0	0	0	21	4
Percent	100.0%	13.2%	10.6%	0.0%	0.0%	0.0%	0.0%	2.2%	0.4%



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Table 5.8-2: Comparative Population Characteristics—Race (Hispanic or Latino)

Geographic Area	Total Population	Hispanic or Latino Origin Total	One Race						Population of Two or More Races
			White Alone	Black or African American Alone	American Indiana & Alaska Native Alone	Asian Alone	Native Hawaiian & Other Pacific Islander Alone	Some Other Race Alone	
CT 6.01, BG 2	2391	54	54	0	0	0	0	0	0
Percent	100.0%	2.3%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 6.02, BG 2	857	0	0	0	0	0	0	0	0
Percent	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 7, BG 2	606	25	15	11	0	0	0	0	0
Percent	100.0%	4.2%	2.4%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 7, BG 3	1,224	51	29	22	0	0	0	0	0
Percent	100.0%	4.2%	2.4%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 8, BG 4	1,574	42	28	0	0	0	0	0	14
Percent	100.0%	2.7%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
CT 11.02, BG 2	2,642	76	41	0	0	0	0	0	34
Percent	100.0%	2.9%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%
CT 11.03, BG 2	1,129	0	0	0	0	0	0	0	0
Percent	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 11.03, BG 3	666	0	0	0	0	0	0	0	0
Percent	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 12, BG 2	815	39	18	0	0	0	0	14	8
Percent	100.0%	4.8%	2.2%	0.0%	0.0%	0.0%	0.0%	1.7%	0.9%
CT 13.01, BG 3	682	3	3	0	0	0	0	0	0
Percent	100.0%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 14.01, BG 1	1,415	0	0	0	0	0	0	0	0
Percent	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 14.01, BG 2	614	0	0	0	0	0	0	0	0
Percent	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Morgan County									
CT 5107.01, BG 3	1,118	0	0	0	0	0	0	0	0
Percent	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CT 5110, BG 4	1,234	9	9	0	0	0	0	0	0
Percent	100.0%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Study Area Total	24,673	834	578	39	14	0	0	75	128
Percent	100.0%	3.4%	2.3%	0.2%	0.1%	0.0%	0.0%	0.3%	0.5%

CT = Census Tract.

BG = Block Group within a Census Tract.

Source: U.S. Census Bureau, 2006-2010 American Community Survey Table B03002.

*Total population for United States, Indiana, Monroe and Morgan counties is from ACS five-year estimates. Total population for each Block Group is from 2010 U.S. Census. Block Group data are not available within the ACS. Number and percentage of ethnic and racial minorities for each Block Group was calculated by applying percentages from five-year ACS data based on percentages from applicable Census Tract.



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The analysis to determine the potential for impact to minority populations is shown in **Table 5.8-3**. The Affected Community (AC) includes each Census Tract Block Group within the Study Area, and the Community of Comparison (COC) is Monroe and Morgan counties. The minority population compared for this analysis includes the total non-white population (Hispanic or Latino and Not Hispanic or Latino) and the white population of Hispanic or Latino origin. Five ACs with potential minority environmental justice impacts were identified and include Census Tract 4.02-BG2, Census Tract 5.01-BG2, Census Tract 5.02-BG1 & 2, and Census Tract 8-BG4, all located in the Monroe County COC. **Figure 5.8-2** through **Figure 5.8-7** show the distribution of these ACs in relation to the proposed right-of-way buffer and displacements for each alternative. **Figure 5.3-5** through **Figure 5.3-10** (the tabbed alternative maps in **Section 5.3, Land Use and Community Impacts**) include detailed maps of right-of-way buffers and local access in relation to community facilities, neighborhoods, apartment complexes, and also displacements for each alternative.

The greatest concentrations of Blacks alone, Asians alone, and Hispanic persons (of any race) reside in the City of Bloomington and Bloomington Township; however, no specific minority communities have been identified in the Section 5 corridor. In general, higher concentrations of racial minority residents are located east of SR 37 in the Bloomington area. This is due in part to the diverse community at IU. The complete analysis of disproportionately high and adverse effects to minority populations is discussed in **Section 5.8.3.3, Disproportionately High and Adverse Effects Analysis**.

**5.8.3.2 Low-income Populations**

Low-income populations consist of those people living below the poverty level, as defined in the U.S. Department of Health and Human Services Poverty Level Guidelines. Poverty guidelines are issued annually in the Federal Register and are a “simplification of the [Census] poverty thresholds for use for administrative purposes” (U.S. Department of Health and Human Services, 2012). The 2012 Health and Human Services poverty guideline for a family of four in the 48 contiguous states and in the District of Columbia was \$23,050; however, poverty guidelines vary according to family size and composition and geographic location. Programs such as Head Start, the Food Stamp Program, and the National School Lunch Program apply the annual poverty guidelines to families to determine their program eligibility. The number of families at or below the poverty guidelines within the study area could be obtained from the agencies administering the federal programs; however, this would be a less than efficient approach and might compromise individual household privacy. Estimated numbers of households or persons at or below the poverty guidelines are not readily available from the 2010 Census or other federal data source at an appropriate geographic level for this analysis.

The Census poverty threshold is, however, a comparable basis for analysis and is more readily available than the Health and Human Services poverty guidelines. The Census poverty thresholds are used mainly for statistical purposes, including the determination of the poverty guidelines and the number of persons below the poverty level. The 2006-2010 ACS data applies the Census poverty threshold to identify the population with income in the past 12 months below poverty level. **Table 5.8-4** shows the population with income in the past 12 months below poverty level for the nation, the state, and Morgan and Monroe counties, as well as ranges for the Study Area. Monroe County reported lower Median Household Income than the State of Indiana or the nation. Incomes were generally lower for Monroe County than for other places within the Study Area, which also coincides with a concentration of IU students. Income used to determine poverty includes money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps). Income, as defined, would not reflect money received from student loans or parental support which often augments the income of many college students.



Table 5.8-4: Comparative Median Household Income and Population for Whom Poverty Status is Determined: Income in Past 12 Months Below Poverty Level

	United States	Indiana	Monroe County	Morgan County	Study Area Range of Values
Median Household Income					
Total	\$51,914	\$47,697	\$38,137	\$55,427	\$17,734 - \$77,443
Median Family Income					
Total	\$62,982	\$58,944	\$62,507	\$60,845	\$17,557 - \$81,528
Per Capita Income					
Total	\$27,334	\$24,058	\$21,882	\$23,972	\$14,230 - \$51,836
Percent of Population for Whom Poverty Status is Determined: Income in Past 12 Months Below Poverty Level					
% of Total Population with Income in the Past 12 Months Below Poverty Level	13.8%	13.9%	25.5%	10.1%	5.3 – 55.9%
% of All Youths (Ages 0-17) with Income in the Past 12 Months Below Poverty Level	19.2%	18.9%	19.1%	14.9%	1.4 – 9.7%
% of All Elderly (Ages 65+) with Income in the Past 12 Months Below Poverty Level	9.5%	7.7%	8.2%	6.8%	0.0 – 2.1%
<i>Source: U.S. Census Bureau, 2006-2010 American Community Survey, based on data from a sample population. Table B17001, B19013, B19113, and B19301.</i> <i>*Since poverty data by age and individual is no longer available at Block Group level, percentage is reported based on applicable Census Tract data.</i>					

Table 5.8-5 shows the data for each Census Tract Block Group in the Study Area (depicted on **Figure 5.8-1**). The percentage for each Block Group was determined by calculating the percentage of the total population reporting income in the past 12 months below poverty level for each Census Tract. That percentage was then applied to the total population in each Block Group to estimate the population in the Study Area with income in the past 12 months below poverty level (approximately 19.4% or 4,775 individuals). Census Tract 6.01-BG 2, in Bloomington east of SR 37, recorded lower median household income, median family income, and per capita income than the other areas in the comparison (\$17,734, \$17,557, and \$14,230, respectively). Census Tract 6.02-BG 2, also located in Bloomington adjacent to and east of SR 37, reported the highest percent of total population with income in the past 12 months below poverty level at 55.9%.



Table 5.8-5: Population for Whom Poverty Status is Determined: Income in Past 12 Months Below Poverty Level—Study Area Only

Block Group	Total Population	Age (Percent)			Median Household Income Total	Median Family Income Total	Per Capita Income	Percent Population with Income in the Past 12 Months Below Poverty Level*		
		Youths (0-17)	Adult (18-64)	Elderly (65+)				% Total Population (Individuals)	% All Youths (0-17)	% All Elderly (Ages 65+)
Monroe County										
CT 4.01, BG 3	2,581	12.2%	78.9%	8.9%	\$22,911	\$30,357	\$15,534	30.5%	4.8%	0.6%
CT 4.02, BG 2	815	19.0%	74.8%	6.1%	\$33,813	\$34,167	\$15,412	26.4%	5.7%	0.4%
CT 5.01, BG 2	2,284	20.2%	55.6%	24.2%	\$43,456	\$56,118	\$19,200	11.3%	5.3%	0.2%
CT 5.02, BG 1	1,090	19.5%	68.9%	11.6%	\$43,750	\$53,370	\$18,811	19.6%	6.9%	2.1%
CT 5.02, BG 2	936	20.1%	67.9%	12.0%	\$44,071	\$52,885	\$24,885	19.6%	6.9%	2.1%
CT 6.01, BG 2	2,391	24.8%	68.9%	6.3%	\$17,734	\$17,557	\$14,230	38.7%	8.2%	0.9%
CT 6.02, BG 2	857	25.9%	66.2%	7.9%	\$27,232	\$65,526	\$18,810	55.9%	1.4%	0.0%
CT 7, BG 2	606	21.8%	58.7%	19.5%	\$39,688	\$37,500	\$19,694	5.3%	1.7%	0.0%
CT 7, BG 3	1,224	21.0%	64.1%	14.9%	\$68,203	\$74,125	\$34,005	5.3%	1.7%	0.0%
CT 8, BG 4	1,574	17.0%	65.6%	17.4%	\$50,663	\$51,148	\$23,072	23.6%	4.7%	0.3%
CT 11.02, BG 2	2,642	28.7%	63.7%	7.6%	\$56,359	\$62,115	\$23,015	13.8%	2.9%	1.2%
CT 11.03, BG 2	1,129	30.2%	60.5%	9.3%	\$77,443	\$81,528	\$30,644	11.3%	2.9%	0.3%
CT 11.03, BG 3	666	27.9%	60.2%	11.9%	\$60,179	\$65,938	\$23,185	11.3%	3.5%	0.3%
CT 12, BG 2	815	21.6%	66.3%	12.1%	\$44,257	\$56,364	\$51,836	7.8%	2.4%	0.4%
CT 13.01, BG 3	682	19.6%	66.3%	14.1%	\$35,893	\$62,045	\$28,221	10.5%	3.9%	0.9%
CT 14.01, BG 1	1,415	19.8%	65.2%	15.0%	\$58,250	\$65,263	\$39,401	9.7%	4.2%	1.7%
CT 14.01, BG 2	614	22.1%	66.3%	11.6%	\$56,154	\$73,875	\$25,166	9.7%	4.2%	1.7%
Morgan County										
CT 5107.01, BG 3	1,118	27.6%	62.0%	10.4%	\$59,145	\$66,500	\$22,500	18.6%	9.7%	1.7%
CT 5110, BG 4	1,234	25.0%	62.0%	13.0%	\$60,809	\$72,625	\$22,689	11.1%	4.3%	0.3%

CT = Census Tract **BG** = Block Group within a Census Tract

Source: U.S. Bureau of the Census, ACS 2006-2010, 2010 inflated values based on sample population. Table B17001, B19013 and B19301.

*Since poverty data by age and individual is no longer available at Block Group level, percentage is reported based on applicable Census Tract data.

The analysis to determine the potential for impact to low-income populations is shown in **Table 5.8-6**. The AC includes each Census Tract Block Group within the Study Area, and the COC is Monroe and Morgan counties. Two ACs with potential low-income EJ impacts were identified in Monroe County (Census Tract 6.01-BG 2 and Census Tract 6.02-BG2) and one AC in Morgan County (Census Tract 5107.01-BG 3). **Figure 5.8-2** through **Figure 5.8-7** show the distribution of these ACs in relation to the proposed right-of-way and displacements for each alternative. **Figure 5.3-5** through **Figure 5.3-10** (tabbed alternative maps) in **Section 5.3, Land Use and**



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Community Impacts, details right-of-way and local access in relation to community facilities, neighborhoods, apartment complexes, and also displacements for each alternative.

Geographic Area	Total Population	Population with Income in the Past 12 Months Below Poverty Level		125% of COC	Potential Low-Income EJ Impact? (>125% of COC)
		Number	Percentage		
Community of Comparison (COC)					
Monroe County COC	119,866	30,606	25.5%	31.9%	
Morgan County COC	68,104	6,872	10.1%	12.6%	
Affected Community (AC) located within Monroe County COC					
CT 4.01, BG 3	2,581	787	30.5%	31.9%	No
CT 4.02, BG 2	815	215	26.4%	31.9%	No
CT 5.01, BG 2	2,284	258	11.3%	31.9%	No
CT 5.02, BG 1	1,090	214	19.6%	31.9%	No
CT 5.02, BG 2	936	183	19.6%	31.9%	No
CT 6.01, BG 2	2,391	925	38.7%	31.9%	Yes
CT 6.02, BG 2	857	479	55.9%	31.9%	Yes
CT 7, BG 2	606	32	5.3%	31.9%	No
CT 7, BG 3	1,224	65	5.3%	31.9%	No
CT 8, BG 4	1,574	371	23.6%	31.9%	No
CT 11.02, BG 2	2,642	365	13.8%	31.9%	No
CT 11.03, BG 2	1,129	128	11.3%	31.9%	No
CT 11.03, BG 3	666	75	11.3%	31.9%	No
CT 12, BG 2	815	64	7.8%	31.9%	No
CT 13.01, BG 3	682	72	10.5%	31.9%	No
CT 14.01, BG 1	1,415	137	9.7%	31.9%	No
CT 14.01, BG 2	614	60	9.7%	31.9%	No
Affected Community (AC) located within Morgan County COC					
CT 5107.01, BG 3	1118	208	18.6%	12.6%	Yes
CT 5110, BG 4	1234	137	11.1%	12.6%	No
Study Area Totals	24,673	4,775	19.4%		
<p>CT = Census Tract BG = Block Group within a Census Tract COC = Community of Comparison AC = Affected Community</p> <p>Source: U.S. Bureau of the Census, ACS 2006-2010, 2010 inflated values based on sample population. Table B17001. *Since poverty data by age and individual is no longer available at Block Group level, percentage is reported based on applicable Census Tract data.</p> <p>Note: Red highlight denotes AC with potential low-income EJ impact based on INDOT's Environmental Justice Guidance.</p>					

As noted during interviews with local service providers, the availability of affordable housing for low and moderate income residents is especially pressing in Bloomington due to the market demand placed by IU students. As such, there are a number of apartment complexes that accept Section 8 housing vouchers and or qualify for Low Income Housing Tax Credits.



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Table 5.8-7 summarizes the developments which may include low-income populations. The complete analysis of disproportionately high and adverse effects to low-income populations is discussed in **Section 5.8.3.3**, *Disproportionately High and Adverse Effects Analysis*.

Project Name	Project Address	Project City	Total Number of Units	Total Low-Income Units
1245 Miller Drive	1245 Miller Drive	Bloomington	1	1
HSI Partners	1819 S. Covey Lane	Bloomington	2	2
Bradford Ridge	2900 W. Ridge Road	Bloomington	130	128
HS Partners III (Housing Opt. I)	1834 S. Covey Lane	Bloomington	12	12
Henderson Court Apts.	2475 S. Winslow Court	Bloomington	150	NA
Adams Bend	2602 S. Adams St.	Bloomington	NA	NA
Arbor Glenn	3100 S. Walnut Street Pike	Bloomington	190	180
Covey Parke Phase II	1853 S. Covey Lane	Bloomington	4	4
Stone Brook Apts.	675 S. Fieldstone Blvd.	Bloomington	NA	NA
Crescent Point	1210 N. Crescent Road	Bloomington	45	45
Huntington Gardens LLC	1815 S Huntington Gardens Pl	Bloomington	16	14
Huntington Gardens #4, LLC	11300 N. Walnut St.	Bloomington	8	8
Madison Downtown / The Bicycle Apartments	200 S Madison St.	Bloomington	48	48
Middle Way Transitional Housing DBA The Rise	401 S. Washington St.	Bloomington	28	28
Bradford Pointe of Evansville, Phase II	5665 W. State Road 46	Bloomington	48	48
Arlington Park Apartments	1320 Arlington Park Drive	Bloomington	120	120
Country View Apts. - 3	2500 S. Rockport Road	Bloomington	206	206
Village At Curry	1630 S. Curry Pike	Bloomington	38	38
Edgewood Village Apts.	7400 W. Mustang Drive	Ellettsville	48	48
Canterbury House Apts.	540 S. Basswood Drive	Bloomington	208	174
Spring Hill Apts Phase III, LP	301 Springmill Drive	Mooresville	30	30
Village of Morgantown	370 N. Church St.	Morgantown	24	24
Towne View Apartments	5 Crosby Road	Mooresville	88	88
Country View Apartments - 2	338 Country View Court	Martinsville	92	92
Total Monroe County			1,302	1,104
Total Morgan County			234	234
<p>Source: HUD, "LIHTC Database Access," http://lihtc.huduser.org/, accessed June 6, 2012 for Monroe and Morgan counties. HUD datasets include projects placed in service through 2009.</p> <p>NA = Not Available</p>				



5.8.3.3 Disproportionately High and Adverse Effects Analysis

Table 5.8-8 summarizes ACs and identifies the potential minority and/or a low-income EJ populations within the Study Area. Monroe County includes five Census Tract Block Groups with potential minority EJ populations (Census Tract 4.02-BG 2, Census Tract 5.01-BG 2, Census Tract 5.02-BG 1 & 2, and Census Tract 8-BG 4) and two with potential low-income EJ populations (Census Tract 6.01-BG 2 and Census Tract 6.02-BG 2). ACs within Morgan County include a potential low-income EJ population (Census Tract 5107.01-BG 3).

Affected Community (AC)	Community of Comparison (COC)	Potential Minority EJ Population	Potential Low-Income EJ Population
CT 4.01, BG 3	Monroe County	No	No
CT 4.02, BG 2	Monroe County	Yes	No
CT 5.01, BG 2	Monroe County	Yes	No
CT 5.02, BG 1	Monroe County	Yes	No
CT 5.02, BG 2	Monroe County	Yes	No
CT 6.01, BG 2	Monroe County	No	Yes
CT 6.02, BG 2	Monroe County	No	Yes
CT 7, BG 2	Monroe County	No	No
CT 7, BG 3	Monroe County	No	No
CT 8, BG 4	Monroe County	Yes	No
CT 11.02, BG 2	Monroe County	No	No
CT 11.03, BG 2	Monroe County	No	No
CT 11.03, BG 3	Monroe County	No	No
CT 12, BG 2	Monroe County	No	No
CT 13.01, BG 3	Monroe County	No	No
CT 14.01, BG 1	Monroe County	No	No
CT 14.01, BG 2	Monroe County	No	No
CT 5107.01, BG 3	Morgan County	No	Yes
CT 5110, BG 4	Morgan County	No	No

Source: Table 5.8-6 and Table 5.8-7.

Note: Red highlight denotes AC with potential low-income EJ impact or potential minority EJ impact based on INDOT's Environmental Justice Guidance.



Residential, Business, and Institutional Displacements

Section 5.2, *Social Impacts*, identifies potential residential, business and institutional displacements anticipated as a result of implementing the Section 5 project. **Figure 5.8-2** through **Figure 5.8-7** show the distribution of ACs with minority or low-income EJ populations in relation to the proposed right-of-way buffer and displacements for each alternative. **Figure 5.3-5** through **Figure 5.3-10** (tabbed alternative maps in **Section 5.3**, *Land Use and Community Impacts*) includes displacements for each alternative.

Census Tract Block Group data can be used as a proxy to estimate the potential for disproportionate effects to EJ populations related to residential displacements. First, the total population of the ACs with minority and low-income EJ populations was compared to the total population of the Study Area. The total population within ACs with EJ minority populations (Census Tract 4.02-BG 2, Census Tract 5.01-BG 2, Census Tract 5.02-BG 1 & 2, and Census Tract 8-BG 4 in Monroe County) is approximately 27% of the Study Area population, and the ACs with EJ low-income populations (Census Tract 6.01-BG 2 and Census Tract 6.02-BG 2 in Monroe County and Census Tract 5107.01-BG 3 in Morgan County) is approximately 18% of the Study Area population.

Comparatively, 14% to 24% of the residential displacements for Section 5 Alternatives occur within ACs with minority EJ populations, and 11% to 20% in low-income EJ populations. Total residential displacements within ACs with minority and low-income EJ populations for each alternative are shown in **Table 5.8-9**. Total residential displacements range from 21 to 39 for ACs with minority EJ populations and from 13 to 42 for ACs with low-income populations, depending on the alternative. Low-income housing units in the project area are shown in **Table 5.8-7**. In summary, it is very unlikely that all displacements within an AC would be borne solely by minority or low-income individuals regardless of the alternative. However, Alternatives 4, 5, and 8 are more likely to impact a small but greater number of minorities than Alternatives 6, 7, and Refined Preferred Alternative 8. Alternatives 4, 5 and 6 are more likely to impact a small but greater number of low-income residents than Alternative 7,8, or Refined Preferred Alternative 8.



Table 5.8-9: Potential Impact to Minority and Low-Income Populations – Residential Displacements

		Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
Total Residential Displacements within AC's with Minority EJ Population*	%	16%	14%	15%	22%	24%	21%
	#	39	33	21	27	36	25
Total Residential Displacements within AC's with Low-Income EJ Population*	%	15%	18%	20%	15%	12%	11%
	#	38	42	27	19	18	13
Total Potential Residential Displacements within Entire Study Area*		249	235	138	123	151	119

Source: Michael Baker Jr., Inc.

* Number is based on total potential residential displacements, which include single family homes, duplex units, and apartment units counted individually. Final decisions regarding displacements will be made during design and right-of-way acquisition phases. Surveys of individual households would be needed to identify if displacement will be borne by minority or low-income individuals. It is very unlikely that all displacements within an AC would be borne solely by minority or low-income individuals regardless of the alternative.

Business displacements located in ACs with minority and low-income EJ populations are shown in **Table 5.8-10**. Total business displacements range from 3 to 11 for ACs with minority EJ populations and from 4 to 14 for ACs with low-income populations, depending on the alternative. In summary, feedback from public outreach has not identified significant numbers of minority owned businesses and it is very unlikely that all displacements within an AC would be borne solely by minority or low-income individuals regardless of the alternative. However, Alternatives 4 and 5 are more likely to impact a small but greater number of minorities and low-income business owners than Alternatives 6, 7, 8 or Refined Preferred Alternative 8.



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Table 5.8-10: Potential Impact to Minority and Low-Income Populations – Business Displacements							
		Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
Total Business Displacements within AC's with Minority EJ Population*	%	14%	14%	9%	11%	9%	18%
	#	11	10	3	3	3	3
Computer Clubhouse		X	X				
A Touch of Grace		X	X				
Monroe Co. Pizza		X					
Outback Steakhouse		X	X				
Bob Evans		X	X				
Aldi (Discount Grocery Store)		X	X				
Steak & Shake		X	X				
Bloomfield State Bank		X	X				
Scientia, LLC (formerly vacant commercial)		X	X	X	X	X	X
Professional Golfcar		X	X	X	X	X	X
Rural Metro Ambulance		X	X	X	X	X	X
Total Business Displacements within AC's with Low-Income EJ Population*	%	18%	17%	21%	26%	22%	24%
	#	14	12	7	7	7	4
Mann Plumbing, Inc.		X	X				
Prall & Co., Inc. CPA		X	X				
Dotlich Crane Service		X	X	X	X	X	X
Anderson Construction		X	X				
Carpenters Local 1664		X	X				
McDonalds		X	X				X
Scottish Inn		X	X				
Ken Nunn (Personal Injury Attorney)		X	X				
Fastenal			X				
Shot Makers Golf Complex		X	X	X	X	X	
The Idle Zone Sales and Repair			X	X	X	X	X
Stat Engineering			**	**	**	**	X
Melissa A. Schiff, CPA, PC		X		X	X	X	
Hillview Motel		X		X	X	X	
Brian's Off Road Shop		X		X	X	X	
Hunters Towing		X		X	X	X	
Hunter Self Storage		X	X				
Total Potential Business Displacements within Entire Study Area*		77	71	33	27	32	17
<i>Source: Michael Baker Jr., Inc.</i>							
<i>* Number is based on total potential business displacements. Final decisions regarding displacements will be made during design and right-of-way acquisition phases. Surveys of each individual business would be needed to identify if displacement will be borne by minority or low-income individuals. It is very unlikely that all displacements within an AC would be borne solely by minority or low-income individuals regardless of the alternative.</i>							
<i>** Additional business space was reconstructed and leased in the Idle Zone building during Fall 2012. This business addition occurred after the DEIS and therefore is counted as a relocation impact for Refined Preferred Alternative 8 only.</i>							



Institutions displaced in ACs with minority EJ populations under one or more alternatives include the Bloomington Holiness Church. Institutions displaced in ACs with low-income EJ populations under one or more alternatives include the New Testament Baptist Church. All alternatives would displace the Bloomington Holiness Church. Alternatives 4 and 5 would also displace the New Testament Baptist Church.

Feedback from public involvement activities and public outreach has not identified significant numbers of minority owned businesses or institutions. There is no indication as a result of site visits, community observation, contact with community service agencies, and public outreach that minorities or low-income populations would comprise a disproportionate percentage of the residents who would be relocated as part of this project. Therefore, no disproportionate impacts to minority populations resulting from residential, business or institutional displacements are anticipated as a result of the project. The relocation plan for all potential displacements resulting from this federally-funded project will be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended, 49 CFR (Code of Federal Regulations) 24, and Title VI.

Altered Travel Patterns and Community Cohesion

Section 5 of I-69 entails upgrading an existing multi-lane, divided transportation facility to a full freeway design. As such, altered travel patterns are not anticipated to disproportionately impact minority or low-income EJ populations in the Section 5 Study Area. Where the connectivity of existing public roads would be severed by I-69 in Section 5, connectivity would be maintained via overpasses/underpasses or road relocations, or on other routes that are within a reasonable distance of the severed roadway, as detailed in **Table 5.3-4** (see **Section 5.3.4.2, *Travel Patterns and Local Public Road Connectivity***). Access to I-69 would be available at interchanges within ACs that have minority or low-income EJ populations, including Fullerton Pike, Tapp Road (Alternatives 5, 7, 8, and Refined Preferred Alternative 8), SR 45/2nd Street, SR 48/3rd Street, SR 46, Kinser Pike (Alternative 4), Walnut Street (Alternatives 5, 7, 8, and Refined Preferred Alternative 8), and Liberty Church Road (Alternatives 5, 6, 7, 8, and Refined Preferred Alternative 8). Access roads will generally parallel I-69 on the east side, the west side, or both sides of I-69. Comparisons of traffic impacts for the future No Build condition and build alternatives are discussed in **Section 5.6, *Traffic Impacts***. **Section 5.3.4.2, *Travel Patterns and Local Public Road Connectivity***, provides a detailed discussion of local access issues related to the project, including a listing of road closures, relocations, and overpasses/underpasses proposed for each build alternative. **Section 3.3, *Screening of Alternatives***, identifies transportation benefits of the Section 5 project.

Because Section 5 of I-69 entails upgrading an existing multi-lane, divided transportation facility, neighborhoods would not be severed. However, some residential displacements would occur along the edge of neighborhoods that are located in ACs with minority or low-income EJ populations as shown in **Table 5.8-11**. Alternative 5 and Alternative 8 would have the most displacements within these neighborhoods (31 and 35, respectively) and Alternative 6 the least (21). The Refined Preferred Alternative 8 would have 27 residential displacements within neighborhoods located in ACs with minority or low-income EJ populations. Most displacements



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occur along the edge of SR 37 or other existing roadways. Two businesses (Computer Clubhouse and A Touch of Grace) located on the edge of the Leonard Springs neighborhood would be displaced with Alternative 4 or 5. On the edge of Garden Acres, all alternatives would displace Bloomington Holiness Church. Alternatives 4 through 8 also displace a Medical Center located just south of this neighborhood, which is avoided under Refined Preferred Alternative 8. Community cohesion is discussed further in **Section 5.2, Social Impacts**.

Table 5.8-11: Potential Impact to Minority and Low-Income Populations – Neighborhoods

Location	# Potential Residential Displacements Located Within Neighborhoods*					
	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
Minority AC						
Edge of Poplar Hill	2	2	1	2	2	2
Edge of Leonard Springs	2	3	0	3	3	3
Edge of Hickory Heights Trailer Park	0	0	0	1	4	2
Edge of Van Buren Park	18	20	13	14	20	14
Edge of Garden Acres	0	0	4	4	4	4
Total	22	25	18	24	33	25
Low-Income AC						
Edge of Maple Grove/Kimble Drive	2	2	0	0	0	0
Edge of Hacker Creek	1	2	2	2	1	0
Edge of Old SR 37 (north)	1	2	1	1	1	2
Total	4	6	3	3	2	2

Source: Michael Baker Jr., Inc.

**Number is based on total potential residential displacements. Final decisions regarding displacements will be made during design and right-of-way acquisition phases. Surveys of individual households would be needed to identify if displacement will be borne by minority or low-income individuals. It is very unlikely that all displacements within an AC would be borne solely by minority or low-income individuals regardless of the alternative.*

5.8.4 Summary

The initial environmental justice review conducted for Tier 1 determined that none of the alternatives would have a disproportionately high or adverse effect on minority or low-income populations in the Study Area (see the Tier 1 FEIS, Section 5.4.6). Potential minority and low-income EJ populations were identified during the evaluation for Tier 2. As summarized in **Table 5.8-12**, Alternatives 4 and 5 are more likely to impact a small but greater number of minorities and low-income individuals than Alternatives 6, 7, or 8. Refined Preferred Alternative 8 is likely to have the least overall impact to minority and low income populations. After completing further environmental justice review for Tier 2 Section 5, it was determined that none of the alternatives for Section 5 would have a disproportionately high or adverse effect on minority or low-income populations in the Section 5 Study Area.



Table 5.8-12: Summary of Potential Impact to Minority and Low-Income Populations

Potential Impact	EJ Concern	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
# Residential Displacements*	Minority	39	33	21	27	36	25
	Low Income	38	42	27	19	18	13
# Business Displacements*	Minority	11	10	3	3	3	3
	Low Income	14	12	7	7	7	4
Institution Displacements	Minority	1 Church	1 Church	1 Church	1 Church	1 Church	1 Church
	Low Income	1 Church	1 Church	None	None	None	None
Access	Minority	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads
	Low Income	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads	Interchanges Overpasses Underpasses Access Roads
Community Cohesion**	Minority	Poplar Hill Leonard Springs Van Buren Park	Poplar Hill Leonard Springs Van Buren Park	Poplar Hill Van Buren Park Garden Acres	Poplar Hill Hickory Heights Leonard Springs Van Buren Park Garden Acres	Poplar Hill Hickory Heights Leonard Springs Van Buren Park Garden Acres	Poplar Hill Hickory Heights Leonard Springs Van Buren Park Garden Acres
	Low Income	Maple Grove/ Kimble Dr. Hacker Creek Old SR 37	Maple Grove/ Kimble Dr. Hacker Creek Old SR 37	Hacker Creek Old SR 37	Hacker Creek Old SR 37	Hacker Creek Old SR 37	Old SR 37

Source: Michael Baker Jr., Inc.

* Number based on total potential residential/business displacements in ACs with potential minority or low-income EJ population. Final decisions regarding displacements will be made during design and right-of-way acquisition phases. Surveys of individual households/businesses would be needed to identify if displacement will be borne by minority or low-income individuals. It is very unlikely that all displacements within an AC would be borne solely by minority or low-income individuals regardless of the alternative.

** Potential displacements along the edge of neighborhoods in ACs with potential minority or low-income EJ populations. Most of these displacements occur to residences adjacent to SR 37 or other existing roadways.



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Displacement/relocation mitigation measures described in **Section 5.2.4, *Mitigation***, would be applied to all potential displacements in accordance with the Uniform Act and Title VI of the Civil Rights Act. INDOT will take required actions to ensure fair and equitable treatment of persons displaced as a result of this project up to and including providing replacement housing of last resort, as defined in 49 CFR §24.404. Relocation resources for this project are available without discrimination. At the time right-of-way is acquired, a relocation agent would be assigned to this project to ascertain the needs and desires of the potentially displaced persons to provide information, answer questions, give help in finding replacement property, and issue last resort housing payments, if needed.



Section 5.8 Figure Index

(Figures follow this index.)

Figure Reference	Number of Sheets
Figure 5.8-1: Section 5 Study Area Defined by Census Tract Block Group	1 Sheet
Figure 5.8-2: Distribution of Displacements in Relation to Potential EJ Populations - Alternative 4	1 Sheet
Figure 5.8-3: Distribution of Displacements in Relation to Potential EJ Populations - Alternative 5	1 Sheet
Figure 5.8-4: Distribution of Displacements in Relation to Potential EJ Populations - Alternative 6	1 Sheet
Figure 5.8-5: Distribution of Displacements in Relation to Potential EJ Populations - Alternative 7	1 Sheet
Figure 5.8-6: Distribution of Displacements in Relation to Potential EJ Populations - DEIS Preferred Alternative 8	1 Sheet
Figure 5.8-7: Distribution of Displacements in Relation to Potential EJ Populations - Refined Preferred Alternative 8	1 Sheet

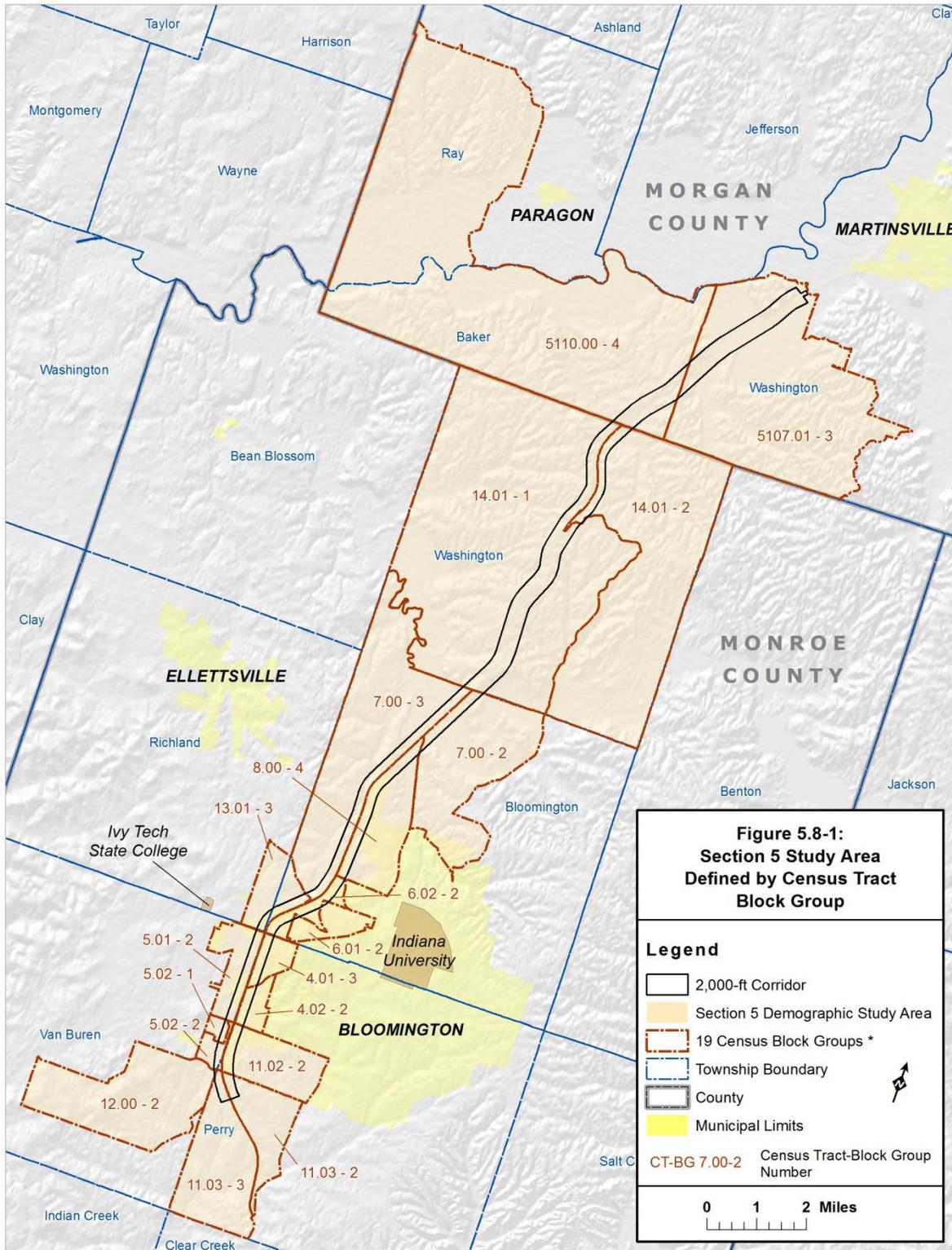


Figure 5.8-1: Section 5 Study Area Defined by Census Tract Block Group

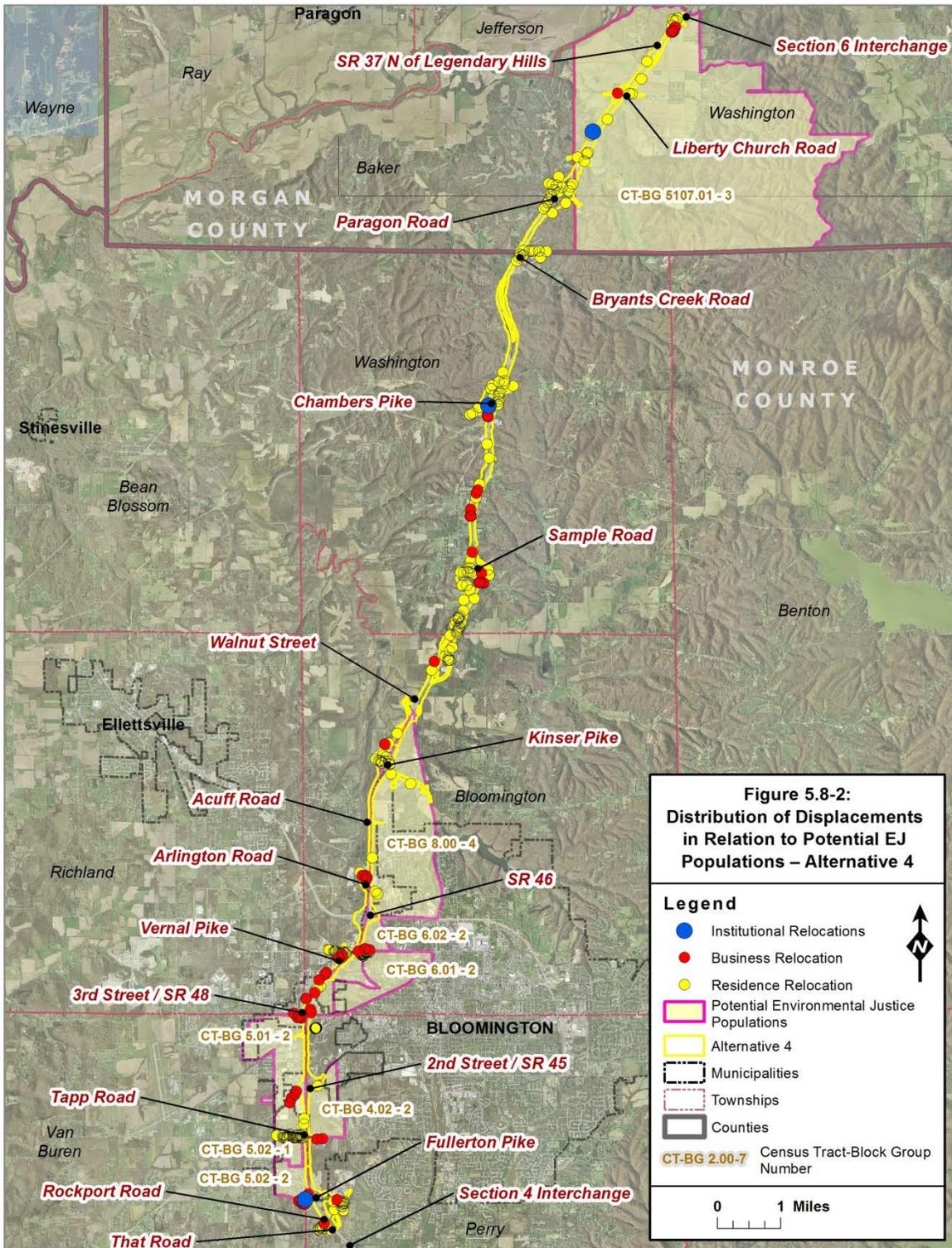


Figure 5.8-2: Distribution of Displacements in Relation to Potential EJ Populations - Alternative 4

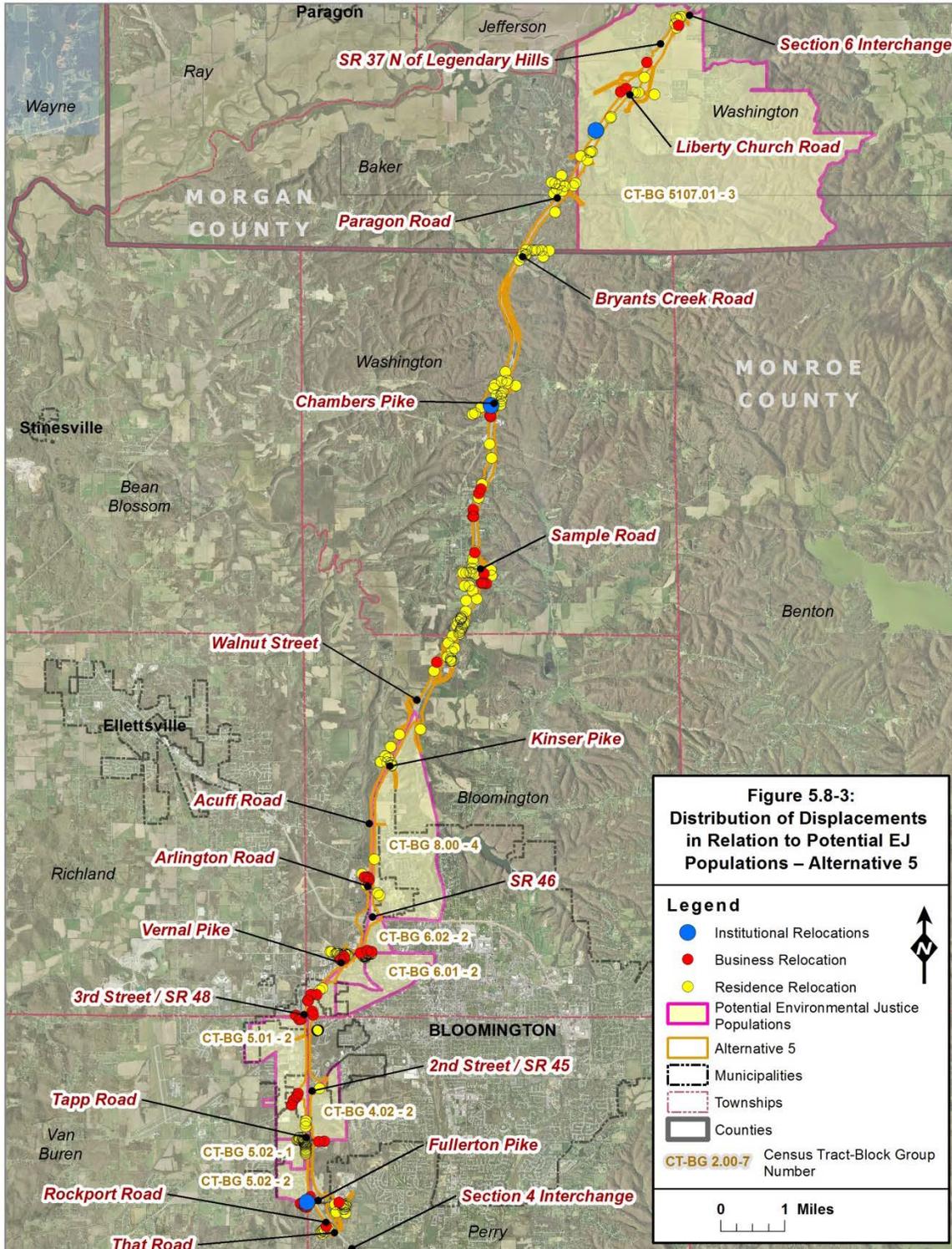


Figure 5.8-3: Distribution of Displacements in Relation to Potential EJ Populations - Alternative 5

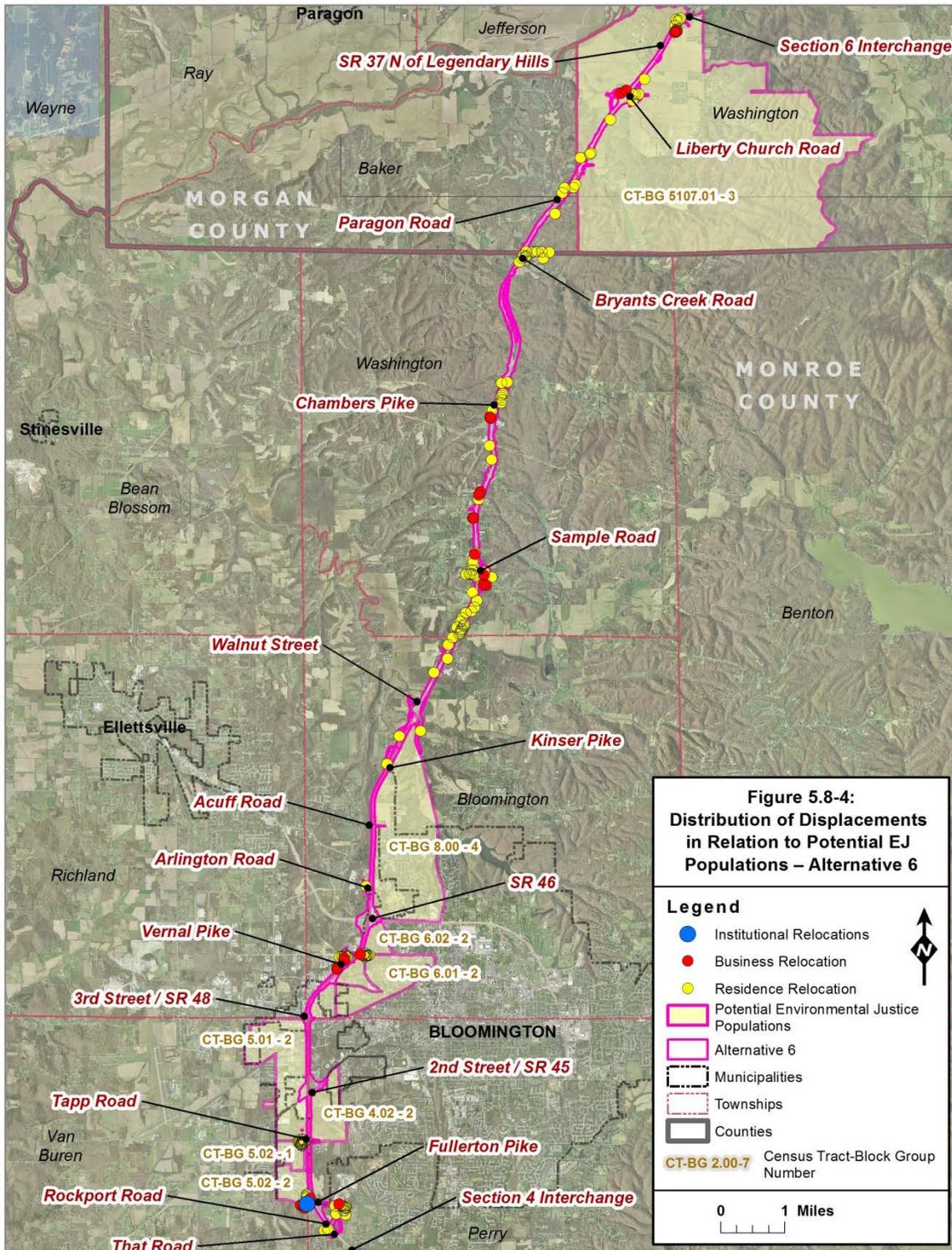


Figure 5.8-4: Distribution of Displacements in Relation to Potential EJ Populations - Alternative 6

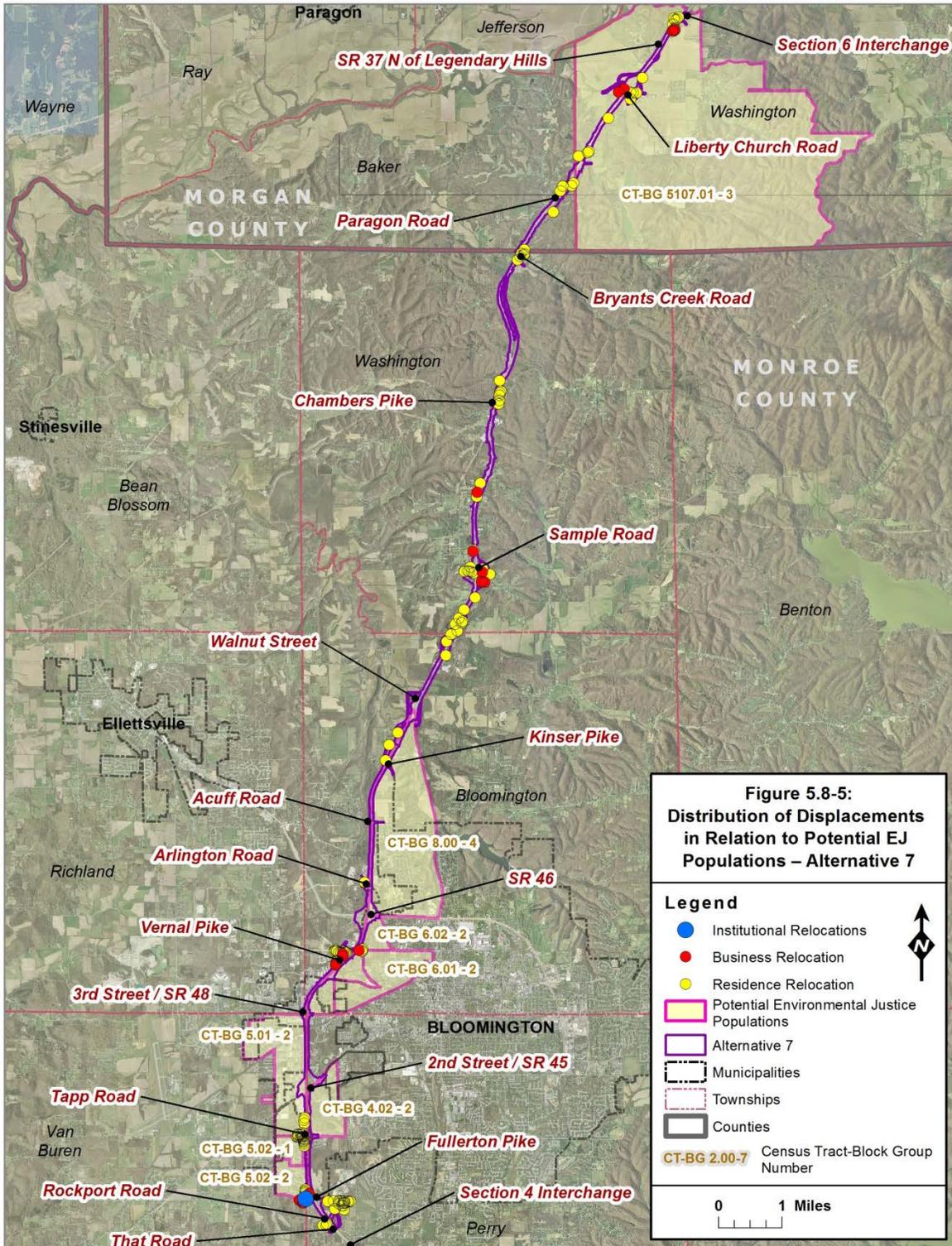


Figure 5.8-5: Distribution of Displacements in Relation to Potential EJ Populations - Alternative 7

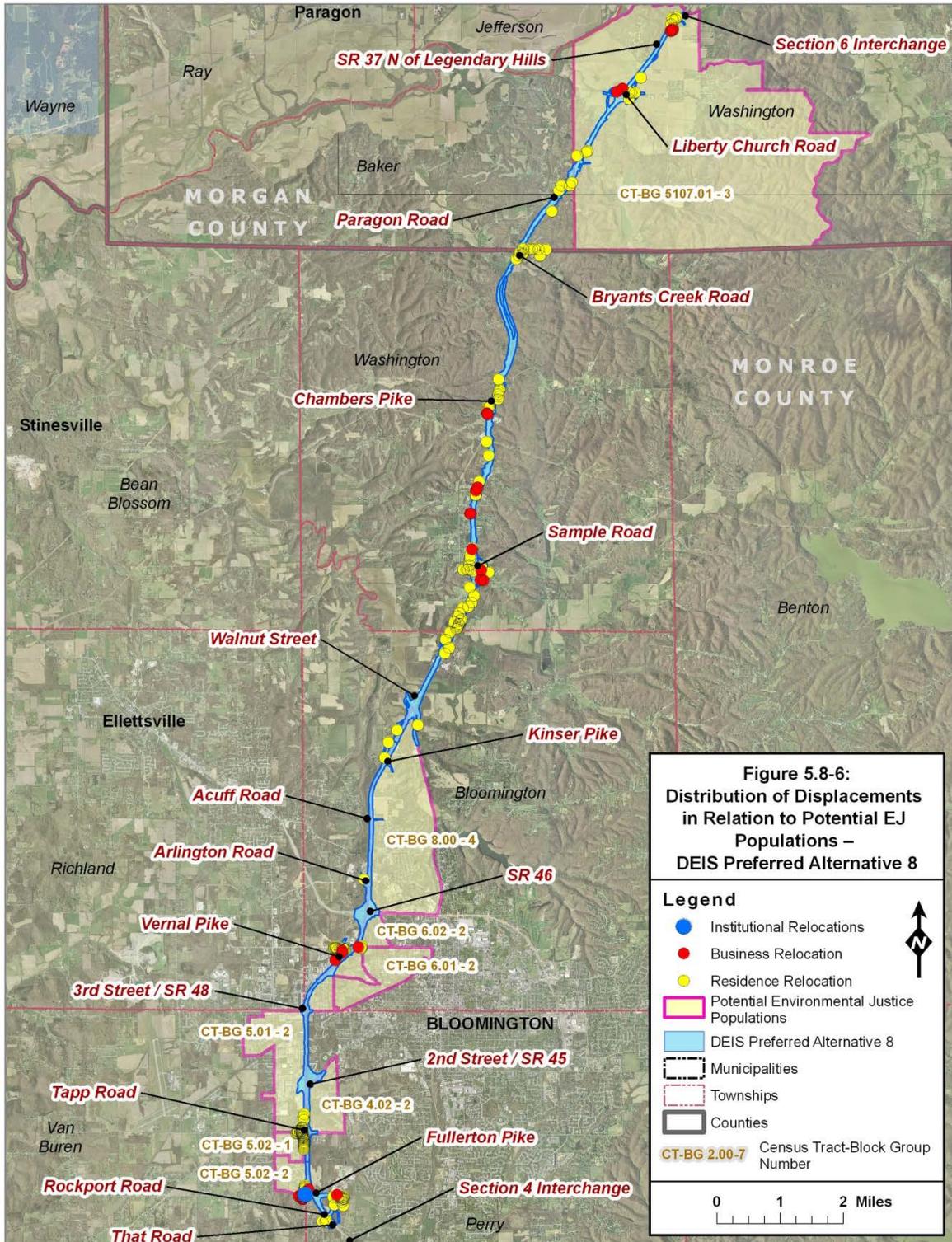


Figure 5.8-6: Distribution of Displacements in Relation to Potential EJ Populations - DEIS Preferred Alternative 8

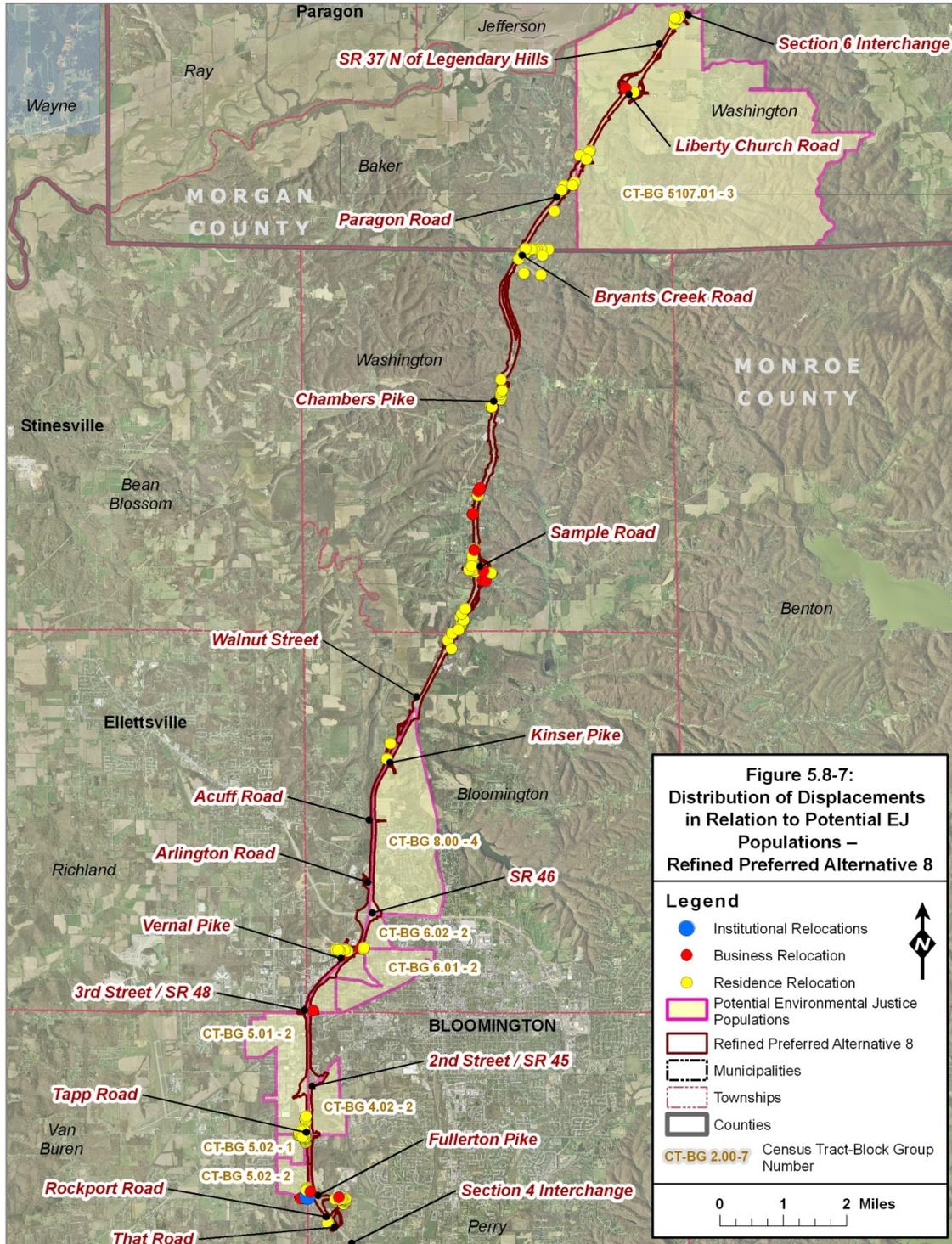


Figure 5.8-7: Distribution of Displacements in Relation to Potential EJ Populations - Refined Preferred Alternative 8



5.9 Air Quality

For purposes of this section, Preferred Alternative 8 that was identified in the Draft Environmental Impact Statement (DEIS) will be referred to as “Alternative 8.” The Preferred Alternative for the Final Environmental Impact Statement (FEIS) will be referred to as the “Refined Preferred Alternative 8.”

Since the publishing of the DEIS, the following substantive changes have been made to this section:

- **Section 5.9.2.5**, **Section 5.9.3.4**, and **Section 5.9.4.3** reflect updated interim guidance on Mobile Source Air Toxic Analysis (MSAT) in NEPA that was issued on December 6, 2012.
- The air quality analysis summarized in **Section 5.9.4** has been updated using MOVES, which has replaced MOBILE6.2 as the emissions factor model. This section also summarizes the project-level Particulate Matter (PM_{2.5}) hot-spot analysis conducted for I-69 Section 5. The decision to conduct this analysis was based on the project location in a PM_{2.5} nonattainment area with an increase in the number of diesel vehicles expected in future years.
- The discussions of Greenhouse Gas (GHG) has been updated in **Section 5.9.2.6**, **Section 5.9.3.5** and **Section 5.9.4.4**, including emissions estimates provided by MOVES.
- A project conformity finding has been made based upon the results of the PM_{2.5} hotspot analysis. This finding is referenced in **Section 5.9.5**.

5.9.1 Introduction

The air quality analysis for the I-69, Evansville to Indianapolis, Tier 1 FEIS generated comparative emissions data for each of the corridor alternatives and identified any Alternatives that might have a high likelihood of placing the air quality conformity status of Indianapolis in jeopardy. The I-69 Tier 1 FEIS found that there were minor differences in the area wide ozone impacts of the alternatives, but that none of the final alternatives (including the Preferred Alternative) would place the air quality conformity status of Indianapolis in jeopardy.

The build alternatives for Tier 2 Section 5 are located within the existing SR 37 corridor, which is more densely developed in the southern portion than in the northern portion of the project area. The air quality conformity analysis in Tier 2 uses Refined Preferred Alternative 8 and must show that it conforms to the State Implementation Plan (SIP) by not causing or contributing to any new violations of the National Ambient Air Quality Standards (NAAQS), increasing the frequency or severity of NAAQS violations, or delaying the timely attainment of the NAAQS or any interim milestones, in accordance with requirements of Section 176(c) of the Clean Air Act (CAA). Under the National Environmental Policy Act (NEPA), Carbon Monoxide (CO) and MSATs were also analyzed.

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The regional conformity issues in Section 5 involve the Morgan County 8-hour ozone maintenance area and the Particulate Matter (PM_{2.5}) nonattainment area (1997 annual standard). Monroe County is in attainment for the NAAQS criteria pollutants.

The following sections also address the issue of MSATs and the health effects related to MSATs. For the reasons given in **Section 5.9.2.5** and **Section 5.9.3.4**, a quantitative analysis of MSAT emissions was performed. Greenhouse Gases (GHG) are discussed in **Section 5.9.2.6**.

5.9.2 Regulatory Setting**5.9.2.1 Conformity Requirements**

The CAA requires the United States Environmental Protection Agency (USEPA) to establish NAAQS for pollutants that are considered to be harmful to the public health and environment.

Under the CAA, USEPA set forth NAAQS for six principal pollutants—PM, sulfur dioxide (SO₂), CO, ozone, nitrogen dioxide (NO₂), and lead.¹ An area that does not meet the NAAQS for one or more pollutants will be designated by the USEPA as a “nonattainment area.” An area that was formerly in nonattainment and now meets the NAAQS is known as a “maintenance area” for a period of 20 years after coming into attainment. Under the CAA, each state is required to establish a plan for achieving the NAAQS in nonattainment areas and maintaining the NAAQS in maintenance areas. This plan is known as the SIP.

Section 176 of the CAA prohibits federal agencies from approving, funding, or supporting in any way actions in nonattainment or maintenance areas unless the federal agency determines that the action “conforms” to the applicable SIP for that area. Regional and project-level requirements must be met before a ROD can be issued for non-exempt federal transportation projects. At the regional level, a project must be included in a regional emission analysis which demonstrates that future emissions from the transportation system are consistent with the SIP for any pollutants contributing to the designation of an area as nonattainment or maintenance for NAAQS. At the project level, CO and/or PM project-level analyses are required if the project falls in a nonattainment or maintenance area for these pollutants and is considered a project of air quality concern. This is done to demonstrate that emission concentrations adjacent to the new roadway are below the USEPA standard.

Since Morgan County has been designated a maintenance area for 8-hour ozone and nonattainment for the annual PM_{2.5} standard, a regional-level conformity analysis must demonstrate that emissions with the I-69 Section 5 project are below the SIP budgets for volatile organic compounds (VOCs) and NO_x. Since Morgan and Monroe counties are in attainment for CO, project-level CO analyses are not required for a transportation conformity determination for the proposed project in Section 5. Nevertheless, a worst-case CO project level analysis was

¹ For further information about the NAAQS and criteria pollutant levels, please refer to USEPA’s National Ambient Air Quality Standards website. (Source: USEPA, “National Ambient Air Quality Standards (NAAQS),” <http://www.epa.gov/air/criteria.html>.)



performed for information purposes to demonstrate that there are no local air quality impacts associated with CO under NEPA.

A joint FHWA/ Federal Transit Administration (FTA) policy memorandum of May 20, 2003, provides clarifying guidance concerning air quality conformity requirements for projects in nonattainment or maintenance areas requiring Environmental Impact Statements (EISs). For a copy of this memorandum, see **Appendix L**, *USDOT Air Quality Guidance (Policy Memorandum: Clarification of Transportation Conformity Requirements for FHWA/FTA Projects Requiring Environmental Impact Statements)*. The memorandum states that, in general, any required conformity determination should be made by the time of the FEIS, but in any event, “the conformity determination must be made prior to the issuance of the Record of Decision (ROD).” Therefore, the conformity requirements for Section 5 must be completed before the Tier 2 ROD for Section 5 can be signed. See **Section 5.9.5**, *Conformity Findings*, for conformity analysis information.

5.9.2.2 Carbon Monoxide

Currently, there are zero CO nonattainment areas in the United States. CO is a pollutant emitted by motor vehicles which originates as a byproduct from the combustion of fuel. In general, CO emissions are associated with large volumes of slow-moving traffic, such as exists at highly congested intersections. A project-level analysis for CO is often conducted as part of the NEPA process for highway projects to demonstrate that no local air quality impact concerns exist, even if the area is in attainment for CO. A project-level analysis focuses on a relatively small geographic area.

5.9.2.3 PM_{2.5}

On March 10, 2006, the U.S. Environmental Protection Agency (USEPA) published a Final Rule (71 FR 12468) that establishes transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts in PM_{2.5} and PM₁₀ nonattainment and maintenance areas. A quantitative PM hot-spot analysis using USEPA’s MOVES emission model is required only for those projects that are identified as projects of local air quality concern. The interagency consultation process is used to determine which projects require quantitative hot-spot analyses and to determine the methods and procedures for such analyses.

USEPA released guidance for quantifying the local air quality impacts of certain transportation projects for the PM_{2.5} and PM₁₀ NAAQS on December 10, 2010 (EPA-420-B-10-040). This guidance must be used by state and local agencies to conduct quantitative hot-spot analyses for new or expanded highway or transit projects with significant increases in diesel traffic in nonattainment or maintenance areas.

**5.9.2.4 Ozone**

USEPA issued a Federal Register Notice on June 21, 2012² that found the updated Central Indiana 8-hour Ozone SIP (1997 NAAQS) budgets adequate for conformity demonstration purposes. The 8-hour Ozone SIP was updated using MOVES and the 2009 Indiana fleet mix data. This new maintenance SIP budget became effective July 23, 2012.

The Indianapolis Metropolitan Planning Organization (MPO) adopted the 2035 Long-Range Transportation Plan: 2012 Amendment that includes the approved Section 5 project corridor and corresponding “Air Quality Conformity Determination Report,” dated July 23, 2012.³ The determination report found I-69 Section 5 to conform to the updated SIP budget (using MOVES and 2009 Indiana fleet mix data).

USEPA issued a Federal Register Notice on April 30, 2012, designating non-attainment areas for the new more restrictive 8-hour Ozone Standard (2008 standard of 0.075 ppm, rather than 1997 0.08 standard in which Morgan County was determined “maintenance”). The air quality in Indiana has improved to the point that only two areas in Indiana have been determined non-attainment to the new more restrictive standard: Cincinnati (Lawrenceburg Township in Dearborn County, Indiana) and the Chicago Area (Lake & Porter County in Northwest Indiana). Morgan County is listed as attainment to the new more restrictive 8-hour ozone standard.

As of July 20, 2013, USEPA revoked the 1997 8-hour Ozone standard for purposes of demonstrating conformity. FHWA no longer needs to demonstrate conformity to the ozone SIP for Central Indiana (including Morgan County) once the 1997 8-hour Ozone Standard was revoked for purposes of demonstrating conformity since the region attains the new (2008) 8-hour ozone standard.

5.9.2.5 MSAT

On September 30, 2009, FHWA issued an interim guidance update to the February 3, 2006, interim guidance on addressing MSATs in National Environmental Policy Act (NEPA) documents. The guidance is considered interim because MSAT analysis research is still ongoing. As the science progressed, FHWA issued updated interim guidance on Mobile Source Air Toxic Analysis in NEPA on December 6, 2012.

In addition to the NAAQS, USEPA also regulates air toxics. The 1990 CAA Amendments (CAAA) identified 188 air toxics, also known as hazardous air pollutants. USEPA has assessed this expansive list of toxics and identified a group of 93 compounds as mobile source air toxics,

² 77 FR 120, page 37328, June 21, 2012. <http://www.gpo.gov/fdsys/pkg/FR-2012-06-21/html/2012-14949.htm>.

³ The Indianapolis Metropolitan Planning Organization, “Indianapolis Metropolitan Planning Area, Air Quality Conformity Determination Report, 2035 Long-Range Transportation Plan: 2012 Amendment & 2012-2015 Indianapolis Regional Transportation Improvement Program,” Indianapolis Metropolitan Planning Organization, Madison County Council of Governments, Indiana Department of Transportation, July 23, 2012, http://www.indympo.org/Plans/Documents/2035LRTP_2012Amendment_Final.pdf.



which are set forth in the latest USEPA rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007). USEPA also extracted a subset of this list of 93 that include: *acrolein, benzene, 1,3-butadiene, diesel particulate matter/diesel exhaust organic gases, formaldehyde, naphthalene, and polycyclic organic matter*. A summary of these seven pollutant's health effects is presented here:

- Acrolein – the potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- Benzene – characterized as a known human carcinogen.
- 1,3-butadiene – characterized as carcinogenic to humans by inhalation.
- Diesel Exhaust (DE) – likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases. Diesel exhaust also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis.
- Formaldehyde – a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- Naphthalene – the USEPA has classified naphthalene as a possible human carcinogen. Acute exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to the liver, and neurological damage. Cataracts have also been reported in workers acutely exposed to naphthalene by inhalation and ingestion.
- Polycyclic Organic Matter (POM) – defines a broad class of compounds that includes the polycyclic aromatic hydrocarbon compounds (PAHs), of which benzo[a]pyrene is a member. Cancer is the major concern from exposure to POM. The USEPA has classified seven PAHs (benzo[a]pyrene, benz[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene) as probable human carcinogens.

Some of these toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics result from engine wear or from impurities in oil or gasoline. While these MSATs are considered the priority transportation toxics, USEPA stresses that the lists are subject to change and may be adjusted in future revisions to the rules.



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The 2007 USEPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis, the total annual emission rate for the priority MSAT will be reduced even if vehicle-miles of travel increase.

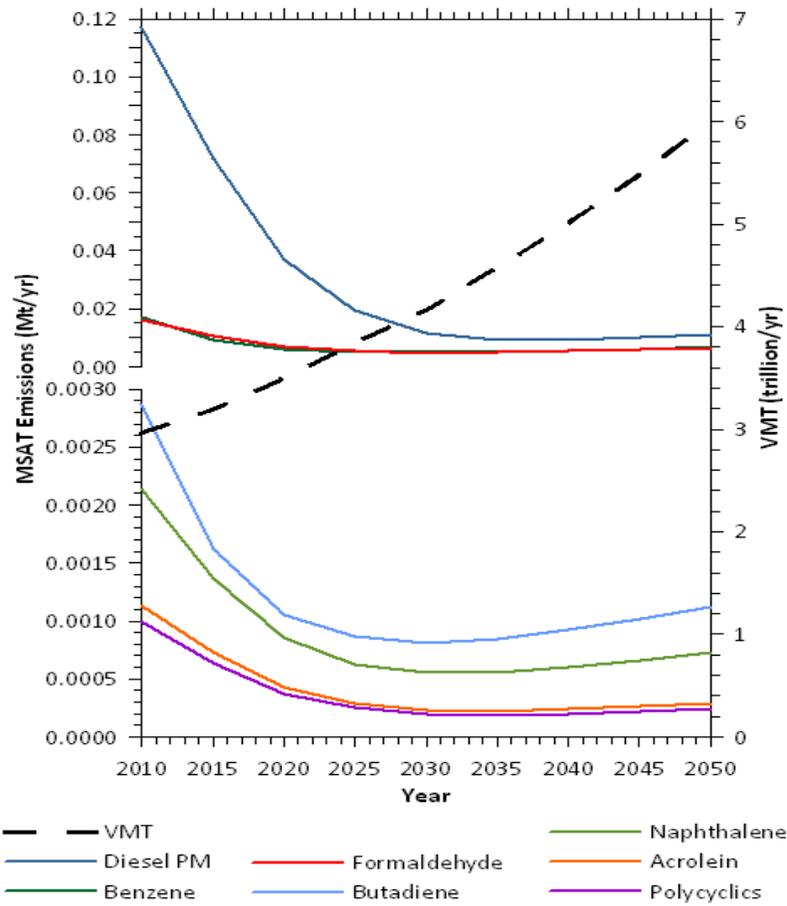
Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede FHWA's ability to evaluate how mobile source health risks should factor into project-level decision-making under NEPA. In addition, USEPA has not established regulatory concentration targets for the seven relevant MSAT pollutants appropriate for use in the project development process. Given the emerging state of the science and of project-level analysis techniques, there are no established criteria for determining when MSAT emissions should be considered a significant issue in the NEPA context.

Nonetheless, air toxics concerns continue to be raised on transportation projects during the NEPA process. As the science emerges, FHWA is increasingly expected by the public and other agencies to address MSAT impacts in its environmental documents. FHWA has issued an interim guidance on how MSATs should be addressed in NEPA documents for highway projects while research is ongoing to try to more clearly define potential risks from MSAT emissions associated with transportation projects. FHWA will continue to monitor the developing research in this emerging field.

The FHWA has developed a three tiered approach for analyzing MSAT in NEPA documents, depending on specific project circumstances. For the design year 2035, I-69 Section 5 is forecasted to have an average daily traffic (ADT) of approximately 77,300 vehicles per day (VPD) as the highest volume. As traffic for the design year 2035 falls below 140,000 to 150,000 ADT, I-69 falls into the second analysis level involving a qualitative analysis for projects with low potential MSAT effects.⁴

USEPA has existing and newly promulgated mobile source control programs that include the reformulated gasoline program, national low emission vehicle standards, Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, heavy duty engine and vehicle standards, and on-highway diesel fuel sulfur control requirements. Thus, USEPA regulations for vehicles engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on an FHWA analysis using USEPA's MOVES2010b model, as shown in **Figure 5.9-1**, even if vehicle-miles travelled (VMT) increases by 102% as assumed from 2010 to 2050, a combined reduction of 83% in the total annual emissions for the priority MSAT is projected for the same time period.

⁴ USDOT/FHWA, "Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA," *Air Quality, Transportation & Toxic Air Pollutants*, December 6, 2012. This website provides a description of levels of MSAT analysis.



Source: USEPA MOVES2010b model runs conducted during May - June 2012 by FHWA.

Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Figure 5.9-1: National MSAT Emission Trends 2010 – 2050 for Vehicles Operating on Roadways Using USEPA’s MOVES2010b Model

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The U.S. Department of Transportation (USDOT) and FHWA are currently working with USEPA to develop and evaluate the technical tools necessary to perform air toxics analysis, including improvements to emissions models and air quality dispersion models. FHWA's ongoing work in air toxics includes a research program to determine and quantify the contribution of mobile sources to air toxic emissions, the establishment of policies for addressing air toxics in environmental reports, and the assessment of scientific literature on health impacts associated with motor vehicle toxic emissions.

Availability of Information for Project Specific MSAT Impact Analysis

As noted, the science and modeling of project specific MSAT impacts has not developed to the point where there is certainty or scientific community acceptance on predicting the impacts from transportation projects. Accordingly, information on MSAT impacts on any of the alternatives evaluated in this Final Environmental Impact Statement (FEIS) is not available, and the means to obtain this information are not currently known. When this is the case, 40 CFR §1502.22(b) requires FHWA to address four provisions: (1) a statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.

5.9.2.6 GHG

Climate change is an important national and global concern. While the earth has gone through many natural changes in climate in its history, there is general agreement that the earth's climate is currently changing at an accelerated rate and will continue to do so for the foreseeable future. Anthropogenic (human-caused) GHG emissions contribute to this rapid change. Carbon dioxide (CO₂) makes up the largest component of these GHG emissions. Other prominent transportation GHGs include methane (CH₄) and nitrous oxide (N₂O).

Many GHGs occur naturally. Water vapor is the most abundant GHG and makes up approximately two thirds of the natural greenhouse effect. However, the burning of fossil fuels and other human activities are adding to the concentration of GHGs in the atmosphere. Many GHGs remain in the atmosphere for time periods ranging from decades to centuries. GHGs trap heat in the earth's atmosphere. Because atmospheric concentration of GHGs continues to climb, our planet will continue to experience climate-related phenomena. For example, warmer global temperatures can cause changes in precipitation and sea levels.

To date, no national standards have been established regarding GHGs, nor has USEPA established criteria or thresholds for ambient GHG emissions pursuant to its authority to establish motor vehicle emission standards for CO₂ under the Clean Air Act. However, there is a considerable body of scientific literature addressing the sources of GHG emissions and their adverse effects on climate, including reports from the Intergovernmental Panel on Climate Change, the U.S. National Academy of Sciences, and USEPA and other Federal agencies.



GHGs are different from other air pollutants evaluated in Federal environmental reviews because their impacts are not localized or regional due to their rapid dispersion into the global atmosphere, which is characteristic of these gases. The affected environment for CO₂ and other GHG emissions is the entire planet. In addition, from a quantitative perspective, global climate change is the cumulative result of numerous and varied emissions sources (in terms of both absolute numbers and types), each of which makes a relatively small addition to global atmospheric GHG concentrations. In contrast to broad scale actions such as actions involving an entire industry sector or very large geographic areas, it is difficult to isolate and understand the GHG emissions impacts for a particular transportation project. Furthermore, presently there is no scientific methodology for attributing specific climatological changes to a particular transportation project's emissions.

To help address the global issue of climate change, USDOT is committed to reducing GHG emissions from vehicles traveling on our nation's highways. USDOT and USEPA are working together to reduce these emissions by substantially improving vehicle efficiency and shifting toward less carbon intensive fuels. The agencies have jointly established new, more stringent fuel economy and first ever GHG emissions standards for model year 2012-2025 cars and light trucks, with an ultimate fuel economy standard of 54.5 miles per gallon for cars and light trucks by model year 2025. Further, on September 15, 2011, the agencies jointly published the first ever fuel economy and GHG emissions standards for heavy-duty trucks and buses.⁵ Increasing use of technological innovations that can improve fuel economy, such as gasoline- and diesel-electric hybrid vehicles, will improve air quality and reduce CO₂ emissions future years.

Consistent with its view that broad-scale efforts hold the greatest promise for meaningfully addressing the global climate change problem, FHWA is engaged in developing strategies to reduce transportation's contribution to GHGs - particularly CO₂ emissions - and to assess the risks to transportation systems and services from climate change. In an effort to assist States and MPOs in performing GHG analyses, FHWA has developed a Handbook for Estimating Transportation GHG Emissions for Integration into the Planning Process. The Handbook presents methodologies reflecting good practices for the evaluation of GHG emissions at the transportation program level, and will demonstrate how such evaluation may be integrated into the transportation planning process. FHWA has also developed a tool for use at the statewide level to model a large number of GHG reduction scenarios and alternatives for use in transportation planning, climate action plans, scenario planning exercises, and in meeting state GHG reduction targets and goals. To assist states and MPOs in assessing climate change vulnerabilities to their transportation networks, FHWA has developed a draft vulnerability and risk assessment conceptual model and has piloted it in several locations.

At the state level, project planning activities are key to reducing GHG from transportation projects and mitigation of GHGs. To this end, Indiana has identified measures to mitigate emissions from transportation and to prepare infrastructure in the state for current and future impacts of climate change, including; the Indiana Safe Routes to School Partnership, Indiana State Rail Plan, the multi-state initiative (Missouri, Illinois, Indiana and Ohio DOTs) for I-70

⁵ For more information on fuel economy proposals and standards, see the National Highway Traffic Safety Administration's Corporate Average Fuel Economy website: <http://www.nhtsa.gov/fuel-economy/>.



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dedicated truck lanes, the Indiana 2013-2035 Future Transportation Needs Report and the High Speed Intercity Passenger Rail program, as examples.

Project-level mitigation measures will not have a substantial impact on global GHG emissions because of the exceedingly small amount of GHG emissions involved. Nonetheless, to reduce GHG emissions during construction, best practice measures will be adopted as mitigation commitments are made. These activities are part of a program-wide effort by FHWA to adopt practical means to avoid and minimize environmental impacts in accordance with 40 CFR 1505.2(c).

5.9.3 Methodology

The primary source of air pollutants associated with either the construction of a new highway, or the improvement of an existing highway, is motor vehicle use. This chapter analyzes project air emissions associated with CO, PM_{2.5}, MSAT, Ozone and GHG. While MSAT and GHG are not subject to conformity requirements, they are considered in this chapter in accordance with applicable FHWA guidance. CO, MSAT and GHG are also examined under NEPA.

5.9.3.1 Carbon Monoxide

The purpose of a CO project-level analysis is to determine if CO emissions generated by a proposed project would cause or contribute to an exceedance of the air quality standard for CO as promulgated by USEPA. The state and federal ambient air quality standards for CO are:

One hour: 35 parts per million (ppm) or 40 milligrams per cubic meter (mg/m³)

Eight hour: 9 ppm or 10 mg/m³

These concentration values may not be exceeded more than once per year. Any computer-modeled concentration that occurs above either the 1-hour or 8-hour standard is considered a violation. Since CO is a product of combustion, is relatively inert, and is emitted near the ground surface, the highest concentrations are typically found near the source. CO concentrations were evaluated for the worst-case intersection/interchange condition with the highest volumes using the MOVES and CAL3QHC computer programs.

For the Tier 2 study, a CO project-level analysis comparing existing, future build, and future no build conditions was performed for the intersection/interchange carrying the highest predicted traffic volume in the corridor and which also includes a proposed traffic signal or stop controlled intersection on a ramp junction (worst-case scenario). The selected location for the CO project-level analysis was at the SR 48/Southbound entrance ramp to I-69. This intersection was selected because it had the highest predicted design year traffic volume and the worst-case Level-of-Service (LOS).⁶ The LOS was predicted to be “D” for the 2035 design year PM peak hour. The nearby SR 48/Gates Drive intersection data was also added to the model inputs since

⁶ These LOS estimates are for detailed, individual components of these interchange locations. **Table 5.6-6** in **Section 5.6, Traffic Impacts**, provides higher-level summary LOS estimates for overall interchanges.



it is in the analysis area and it was predicted to be LOS “E” for the same analysis scenario. No other analyzed intersections in the study area were predicted to exceed LOS “C.”

In addition to the project-level analysis, a free-flow analysis was also conducted (worst-case scenario). The free flow analysis was performed for the future build condition for I-69 between SR 45/2nd Street and SR 48/3rd Street. This segment was selected because it has the highest traffic volumes of any segment in the project area for Refined Preferred Alternative 8 (approximately 77,300 ADT).

The dispersion of CO in the Study Area was simulated using CAL3QHC, a dispersion model developed to predict the level of CO, or other inert pollutant concentrations, from motor vehicles traveling near roadway intersections. CAL3QHC is the standard model used by USEPA for these types of analyses. Traffic input parameters included peak-hour volumes and speeds. The analysis was conducted under simulated meteorological conditions designed to yield "worst-case" CO concentrations. In accordance with the I-69 project guidance and USEPA guidance, the following input values were used in the analysis:

- stability class: D (neutral)
- wind speed: 1.0 meter per second
- wind angle: 0 to 360° in 10° increments
- surface mixing height: 1,000 meters (3,280 feet)
- surface roughness: 175 cm (office/commercial area)
- one-hour background CO concentration: 2.0 ppm
- eight-hour background CO concentration: 1.2 ppm
- persistence factor: 0.7

The forecast year used in this analysis (for the Build Alternative and the future No Build Condition) was 2035, which is consistent with the forecast year used for other analyses in this Tier 2 study.

5.9.3.2 PM_{2.5}

The conformity rule requires that federal, state and local transportation and air quality agencies establish formal procedures for interagency coordination. This analysis included participation from the FHWA Indiana Division and Resource Center, Indiana Department of Environmental Management (IDEM), Indiana Department of Transportation (INDOT), Indianapolis Metropolitan Planning Organization (MPO), USEPA Office of Transportation and Air Quality (OTAQ), and USEPA Region 5. Interagency consultation provides an opportunity to reach agreements on key assumptions to be used in conformity analyses, strategies to reduce mobile source emissions, specific impacts of major projects, issues associated with travel demand and emissions modeling for hot-spot analyses. 40 CFR 93.105(c)(1)(i) requires interagency consultation to “evaluate and choose models and associated methods and assumptions.” For this project, interagency consultation meetings were held on April 19 and April 29, 2013. The



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meetings were used to obtain feedback on the document text and technical analysis assumptions. A follow-up meeting was conducted on May 23, 2013 to review the preliminary version of the technical report, offer feedback, and to advance the document for public comment. A two week public comment period was offered and concluded on June 14, 2013. No comments were received during the comment period. Section 93.109(b) of the conformity rule outlines the requirements for project-level conformity determinations. A PM_{2.5} hot-spot analysis is required for projects of local air quality concern, per Section 93.123(b)(1). The need for a quantitative PM_{2.5} analysis for I-69 Section 5 was discussed by the ICG. It was noted that the project is located in a PM_{2.5} nonattainment area (Morgan County) with an increase in the number of diesel vehicles expected in future years. The ICG agreed that a project level hot-spot analysis would be conducted for I-69 Section 5 although the group did not conclude that the project was a Project of Air Quality Concern. A technical report on the PM_{2.5} analysis is included in **Appendix OO**, *Project Level Conformity Determination*.

5.9.3.3 Ozone

Morgan County was designated as a nonattainment area for the 1997 8-hour ozone standard (Former Subpart 1). This designation was based on monitoring data from 2004-2006. “Subpart 1” areas are 8-hour nonattainment areas that are covered under Subpart 1, Part D, Title I of the Clean Air Act. “Subpart 1” is not a classification, but is included in the table as an indication of the requirements under the CAA that apply to these areas. On June 8, 2007, the United States Court of Appeals vacated the Subpart 1 portion of the Phase 1 Rule (Court Order). The Subpart 1 areas in *The Green Book Non-Attainment Areas for Criteria Pollutants* are listed as “Former Subpart 1” until reclassification of the areas is finalized. Morgan County was re-designated from nonattainment to attainment “maintenance” for 8-hour ozone on October 19, 2007.

The Indianapolis MPO adopted the 2035 Long-Range Transportation Plan: 2012 Amendment that includes the approved Section 5 project corridor and corresponding “Air Quality Conformity Determination Report,” dated July 23, 2012. Note: As of July 20, 2013, conformity for the 1997 ozone standard was revoked for transportation conformity purposes. However, as noted, the project is included in the most recent Plan and TIP.

5.9.3.4 MSAT

As noted in **Section 5.9.2.5**, *MSAT*, a qualitative analysis of MSAT was performed for Section 5 of I-69 as the forecasted daily traffic volumes do not reach the significantly higher threshold level requiring a quantitative analysis.

The FHWA has developed a tiered approach for analyzing MSAT in NEPA documents, depending on specific project circumstances. This project is considered a “minor widening project” (Low Potential MSAT Effects). A “minor highway widening project” includes those efforts for which the ultimate traffic level is predicted to be less than 150,000 AADT. The design year AADT’s for the Section 5 Project are predicted to be below 100,000. Prototype language is included in **Section 5.9.4.3**, *MSAT*, in the subsection, “MSAT Qualitative Analysis.”



The qualitative analysis for projects with low potential MSAT effects involves a comparison of the VMT for the Build and No Build conditions because the amount of MSATs emitted is proportional to VMT.

5.9.3.5 GHG

No detailed analysis of the GHG emissions or climate change effects of each of the alternatives was performed because the potential change in GHG emissions is very small in the context of the affected environment. Because of the insignificance of the GHG impacts, those impacts will not be meaningful to a decision on the environmentally preferable alternative or to a choice among alternatives. FHWA is working to develop strategies to reduce transportation's contribution to GHGs - particularly CO₂ emissions - and to assess the risks to transportation systems and services from climate change. FHWA will continue to pursue these efforts as productive steps to address this important issue. Finally, construction best practices will include practicable project-level measures that, while not substantially reducing global GHG emissions, may help reduce GHG emissions on an incremental basis and could contribute in the long term to meaningful cumulative reduction when considered across the Federal-aid highway program.

5.9.4 Analysis

5.9.4.1 Carbon Monoxide

The results of the analyses conducted for the project-level Existing Condition, future No Build Condition, Refined Preferred Alternative 8 are summarized in **Table 5.9-1**. There were zero (0) predicted impacts. A technical report on this modeling analysis is included as **Appendix J, Air Quality Technical Report**.

Existing Condition. The results of the Existing Condition analysis indicate that the highest predicted 1-hour concentration of CO is 4.8 ppm, while the highest 8-hour concentration is 3.1 ppm. The results indicate that the total concentrations are well below both the 1-hour (35 ppm) and 8-hour (9 ppm) NAAQS criteria.

Future No Build Condition. The results of the analysis for the future No Build Condition indicate that the highest predicted 1-hour concentration is 3.5 ppm, while the highest 8-hour concentration is 2.3 ppm. These results are well below both the 1-hour (35 ppm) and 8-hour (9 ppm) NAAQS criteria. When compared to the Existing Condition, the predicted 1-hour and 8-hour CO concentrations for the future No Build Condition are decreased.

Refined Preferred Alternative 8. The results of the analysis indicate that the highest 1-hour concentration is 3.6 ppm, while the highest 8-hour concentration is 2.3 ppm, both below the NAAQS criteria. When compared to the Existing Condition and the future No Build Condition, the 1-hour and 8-hour CO concentrations for the Refined Preferred Alternative are predicted to decrease over the Existing Condition and slightly increase over the future No Build Condition.

Free-Flow Section Analysis. The maximum 1-hour CO concentration for the Refined Preferred Alternative 8 is 2.7 ppm, while the highest 8-hour concentration is 1.7 ppm. None of the CO values pertaining to I-69, either now (SR 37) or in 2035, exceeds the NAAQS criteria.



Table 5.9-1: Maximum 1-Hour and 8-Hour CO Concentrations (ppm)

Modeled Segment	Modeled Location	Existing Roadway Network		Future No Build Year 2035		Refined Preferred Alternative 8 Year 2035	
		1-Hr.	8-Hr.	1-Hr.	8-Hr.	1-Hr.	8-Hr.
Intersection	SR 48/Southbound entrance ramp with I-69 and adjacent SR 48/Gates Drive intersection	4.8	3.1	3.5	2.3	3.6	2.3
Freeflow	Existing SR 37/Future I-69 between SR 48 and SR45	2.7	1.7	2.6	1.7	2.7	1.7

National Ambient Air Quality Standards: 1-hour: 35.0 parts per million (ppm); 8-hour: 9.0 ppm
Background CO Concentrations: 1-hour: 2.0 ppm; 8-hour: 1.2 ppm

5.9.4.2 PM_{2.5}

The results of the PM_{2.5} hot-spot analyses conducted for the Refined Preferred Alternative 8 are summarized in **Table 5.9-2**. Analyses were conducted for the location with the highest expected concentration levels for the 2018 and 2035 analysis years. PM_{2.5} concentrations were combined to determine design values that were compared to the NAAQS for each analysis year. The annual PM_{2.5} design values are defined as the average of three consecutive years’ annual averages, each estimated using equally-weighted quarterly averages. This NAAQS is met when the three-year average concentration is less than or equal to the 1997 annual PM_{2.5} NAAQS. The interagency consultation process played an integral role in defining the need, methodology and assumptions for the analysis.

The analysis demonstrated transportation conformity for the project by determining that future design value concentrations for the 2018 and 2035 analysis year will be lower than the 1997 annual PM_{2.5} NAAQS of 15.0 µg/m³. As a result, the project does not create a violation of the 1997 annual PM_{2.5} NAAQS, worsen an existing violation of the NAAQS, or delay timely attainment of the NAAQS and interim milestones, which meets 40 CFR 93.116 and 93.123 and supports the project level conformity determination. A technical report on this modeling analysis is included in **Appendix OO**, *Project Level Conformity Determination*.

Table 5.9-2: Maximum 2018 and 2035 PM_{2.5} Concentrations (µg/m³)

Analysis Year	Background Concentration	AERMOD Modeling Results	Design Value (rounded to one decimal per USEPA Guidance)
2018	10.43	0.99	11.4
2035	10.43	0.70	11.1

Notes:
 Modeling results are for the receptors with the maximum concentration.
 1997 annual PM_{2.5} NAAQS is 15 µg/m³
 µg/m³ = micrograms per cubic meter



5.9.4.3 MSAT

This FEIS includes a qualitative analysis of the likely MSAT emission impacts of this project. However, technical shortcomings or uncertain science prevent a more complete prediction of the project-specific health impacts of the emission changes associated with the Section 5 alternatives. Due to these limitations, the following information⁷ is included in accordance with Council on Environmental Quality (CEQ) regulations (40 CFR §1502.22), including a discussion of unavailable information for project-specific MSAT Health Impacts Analysis:

Information that is Unavailable or Incomplete. In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more the uncertainly introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects (EPA, <http://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current concentrations (HEI, <http://pubs.healtheffects.org/view.php?id=282>) or in the future as vehicle emissions substantially decrease (HEI, <http://pubs.healtheffects.org/view.php?id=306>).

⁷ USDOT/FHWA, "Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA," *Air Quality, Transportation & Toxic Air Pollutants*, December 6, 2012, http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/aqintguidmem.cfm.



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The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (<http://pubs.healtheffects.org/view.php?id=282>). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (<http://www.epa.gov/risk/basicinformation.htm#g>) and the HEI (<http://pubs.healtheffects.org/getfile.php?u=395>) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.



Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

In this document, FHWA provides a qualitative assessment that acknowledges that the project Alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain. Because of this uncertainty, the health effects from these emissions cannot be estimated.

MSAT Qualitative Analysis

For each alternative in this document, the amount of MSAT emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network.

Table 5.9-3 shows the VMT (derived by multiplying the AADT for each road link times its distance) for the greatest volume link for each alternative. The highest predicted road link traffic volume for build alternatives 4, 5 and 6 is between SR46 and SR 48/3rd Street. The highest predicted road link traffic volume for build alternatives 7, 8 and the Refined Preferred Alternative 8 is between SR 45/2nd Street and SR 48/3rd Street. In order to compare the alternatives on an equal distance footing, the entire road length between SR 45/2nd Street and SR 46 was included.

Table 5.9-3: VMT For Alternatives						
Design Year VMT No Build	Design Year VMT Build Alternatives					
	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Refined Preferred Alternative 8
196,400	231,100	245,000	236,500	244,700	244,800	236,800
<i>Note: The VMT is based on ADT (daily) values</i>						

This increase in VMT would lead to higher MSAT emissions for the build alternatives. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to USEPA’s MOVES emissions model, emissions of all of the priority MSAT except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases would offset VMT-related emissions increases cannot be reliably projected due to the inherent imprecision of technical models. Because the estimated VMT under each of the Build Alternatives are nearly the same, varying by approximately 7% between the highest



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and the lowest values, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce annual MSAT emissions by 83% between 2010 and 2050.⁸ Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases. Additionally, any diversion from the local road system to this facility will benefit the roads that may have lower predicted volumes as a result.

In this document, a qualitative MSAT assessment has been provided relative to the various alternatives of MSAT emissions and has acknowledged that some of the project alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated. MSAT emissions are projected to decrease substantially in the future as a result of new USEPA programs to reduce MSAT emissions nationwide. As a result, the I-69 Section 5 project is expected to result in low potential MSAT effects.

5.9.4.4 GHG

Under NEPA, detailed environmental analysis should be focused on issues that are significant and meaningful to decision-making.⁹ FHWA has concluded, based on the nature of GHG emissions and the exceedingly small potential GHG impacts of the proposed action, as discussed below and shown in **Table 5.9-4**, that the GHG emissions from the proposed action will not result in “reasonably foreseeable significant adverse impacts on the human environment” (40 CFR 1502.22(b)). The GHG emissions from the project build alternatives will be insignificant, and will not play a meaningful role in a determination of the environmentally preferable alternative or the selection of the preferred alternative. More detailed information on GHG emissions “is not essential to a reasoned choice among reasonable alternatives” (40 CFR 1502.22(a)) or to making a decision in the best overall public interest based on a balanced consideration of transportation, economic, social, and environmental needs and impacts (23 CFR 771.105(b)). For these reasons, no alternatives-level GHG analysis has been performed for this project.

The context in which the emissions from the proposed project will occur, together with the expected GHG emissions contribution from the project, illustrate why the project's GHG emissions will not be significant and will not be a substantial factor in the decision-making. The transportation sector is the second largest source of total GHG emissions in the U.S., behind electricity generation. The transportation sector was responsible for approximately 27% of all

⁸ USDOT/FHWA, “Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA,” *Air Quality, Transportation & Toxic Air Pollutants*, December 6, 2012, http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/aqintguidmem.cfm. This website provides a description of levels of MSAT analysis.

⁹ See 40 CFR 1500.1(b), 1500.2(b), 1500.4(g), and 1501.7.



anthropogenic (human caused) GHG emissions in the U.S. in 2010.¹⁰ The majority of transportation GHG emissions are the result of fossil fuel combustion. CO₂ makes up the largest component of these GHG emissions. U.S. CO₂ emissions from the consumption of energy accounted for about 18% of worldwide energy consumption CO₂ emissions in 2010.¹¹ U.S. transportation CO₂ emissions accounted for about 6% of worldwide CO₂ emissions.¹²

While the contribution of GHGs from transportation in the U.S. as a whole is a large component of U.S. GHG emissions, as the scale of analysis is reduced the GHG contributions become quite small. Using CO₂ because of its predominant role in GHG emissions, **Table 5.9-4** below presents the relationship between current and projected Indiana highway CO₂ emissions and total global CO₂ emissions, as well as information on the scale of the project relative to statewide travel activity.

¹⁰ Calculated from data in USEPA, Inventory of Greenhouse Gas Emissions and Sinks, 1990-2010.

¹¹ Calculated from data in U.S. Energy Information Administration (EIA) International Energy Statistics, Total Carbon Dioxide Emissions from the Consumption of Energy, <http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=90&pid=44&aid=8>.

¹² Calculated from data in EIA figure 104: <http://www.eia.gov/forecasts/archive/ieo10/emissions.html> and USEPA Table ES-3: <http://epa.gov/climatechange/emissions/downloads11/US-GHG-Inventory-2011-Executive-Summary.pdf>.



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Table 5.9-4: Statewide and Projected Emissions Potential, Related to Global Totals

	Global CO ₂ Emissions, MMT*	Indiana Motor Vehicle CO ₂ Emissions, MMT**	Indiana Motor Vehicle Emissions, % of Global Total	Annual Project Study Area VMT (Monroe and Morgan Counties), % of Statewide Emissions	Percent Change in Statewide VMT due to the Project
Current Conditions (2010)	29,670	41.86	0.141%	1,598 (in millions) 2.04%	(Not Applicable)
Future Projection (2035)	42,862	45.19	0.105%	2,652 (in millions) 2.22%	0.2%

Source: Global emissions estimates are from International Energy Outlook 2010, data for Figure 104, prorated to 2035. Indiana emissions and statewide VMT estimates are from MOVES2010b.

Notes:

MMT = million metric tons.

* These estimates are from the EIA’s International Energy Outlook 2010, and are considered the best-available projections of emissions from fossil fuel combustion. These totals do not include other sources of emissions, such as cement production, deforestation, or natural sources; however, reliable future projections for these emissions sources are not available.

** MOVES projections suggest that Indiana motor vehicle CO₂ emissions may increase by 15% between 2010 and 2040; more stringent fuel economy/GHG emissions standards will not be sufficient to offset projected growth in VMT.

Based on emissions estimates from USEPA’s Motor Vehicle Emissions Simulator (MOVES) model¹³, and global CO₂ estimates and projections from the Energy Information Administration, CO₂ emissions from motor vehicles in the entire state of Indiana contributed less than two tenths of one percent of global emissions in 2010 (0.141%). These emissions are projected to contribute an even smaller fraction (0.105%) in 2035.¹⁴ Annual VMT in the project study area represents 2.22% of total Indiana travel activity; and the project itself would increase annual statewide VMT by 0.2%. (Note that the project study area includes travel on many other roadways in addition to the proposed project.) As a result, based on the Refined Preferred Alternative 8 VMT¹⁵, FHWA estimates that the proposed project could result in a potential increase in global CO₂ emissions in 2035 of 0.0002% (less than one thousandth of one percent), and a corresponding increase in Indiana’s share of global emissions in 2035 of 0.2%. This very small change in global emissions is well within the range of uncertainty associated with future emissions estimates.^{16 17}

¹³ <http://www.epa.gov/otaq/models/moves/index.htm>. EPA’s MOVES model can be used to estimate vehicle exhaust emissions of carbon dioxide (CO₂) and other GHGs. CO₂ is frequently used as an indicator of overall transportation GHG emissions because the quantity of these emissions is much larger than that of all other transportation GHGs combined, and because CO₂ accounts for 90-95% of the overall climate impact from transportation sources. MOVES includes estimates of both emissions rates and VMT, and these were used to estimate the Indiana statewide highway emissions in **Table 5.9-3**.

¹⁴ Indiana emissions represent a smaller share of global emissions in 2035 because global emissions increase at a faster rate.

¹⁵ The Refined Preferred Alternative 8 was chosen to represent the VMT in the FEIS.

¹⁶ For example, Figure 114 of the EIA’s International Energy Outlook 2010 shows that future emissions projections can vary by almost 20%, depending on which scenario for future economic growth proves to be most accurate.



5.9.5 Conformity Findings

The Indianapolis MPO adopted the 2035 Long-Range Transportation Plan: 2012 Amendment that includes the approved Section 5 project corridor and corresponding “Air Quality Conformity Determination Report,” dated July 23, 2012.

The PM_{2.5} hot-spot analysis has demonstrated transportation conformity for the project by determining that future design value concentrations for the 2018 and 2035 analysis year will be lower than the 1997 annual PM_{2.5} NAAQS of 15.0 µg/m³. As a result, the project does not create a violation of the 1997 annual PM_{2.5} NAAQS, worsen an existing violation of the NAAQS, or delay timely attainment of the NAAQS and interim milestones, which meets 40 CFR 93.116 and 93.123 and supports the project level conformity determination. IDEM and the USEPA completed their reviews in accordance with the Indiana Conformity Consultation State Implementation Plan Documentation, and FHWA finds that I-69 Section 5 conforms to all applicable project level conformity requirements.

Conformity findings and supporting documentation are included in **Appendix OO**, *Project Level Conformity Determination*.

5.9.6 Mitigation

There were no predicted CO impacts. Mitigation is not warranted.

For PM_{2.5}, the requirements of the Clean Air Act (CAA) and 40 CFR 93.116 were met with a quantitative hot-spot analysis. The results of the analysis show that there is no predicted exceedance of the NAAQS. Therefore, mitigation is neither required nor proposed.

MSATs were found to result in low potential MSAT effects. No further action is required. Construction mitigation strategies are included in **Appendix J**, *Air Quality Technical Report*.

5.9.7 Summary

Pursuant to the 1990 CAA Amendments, Monroe County has been designated as being in attainment for all the NAAQS criteria pollutants.

Morgan County has been designated as a maintenance area for the 1997 8-hour ozone standard and nonattainment for PM_{2.5}. The PM_{2.5} hot-spot analysis results demonstrate transportation

¹⁷ When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency is required make clear that such information is lacking (40 CFR 1502.22). The methodologies for forecasting GHG emissions from transportation projects continue to evolve and the data provided should be considered in light of the constraints affecting the currently available methodologies. As previously stated, tools such as USEPA’s MOVES model can be used to estimate vehicle exhaust emissions of carbon dioxide (CO₂) and other GHGs. However, only rudimentary information is available regarding the GHG emissions impacts of highway construction and maintenance. Estimation of GHG emissions from vehicle exhaust is subject to the same types of uncertainty affecting other types of air quality analysis, including imprecise information about current and future estimates of vehicle miles traveled, vehicle travel speeds, and the effectiveness of vehicle emissions control technology. Finally, there presently is no scientific methodology that can identify causal connections between individual source emissions and specific climate impacts at a particular location.

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conformity for the project by determining that future design value concentrations for the 2018 and 2035 analysis year will be lower than the 1997 annual PM_{2.5} NAAQS of 15.0 µg/m³. As a result, the project does not create a violation of the 1997 annual PM_{2.5} NAAQS, worsen an existing violation of the NAAQS, or delay timely attainment of the NAAQS and interim milestones, which meets 40 CFR 93.116 and 93.123 and supports the project level conformity determination.

Monroe and Morgan Counties have been designated as CO attainment areas for the NAAQS, and a conformity demonstration is not required at the regional-level or project-level. However, results of project level CO project-level and the free-flow section analyses (which were measured at the worst-case scenario locations) for the Build Alternative indicate no violation of the CO NAAQS. As a result, there are no local air quality impacts for CO.

Morgan County is a maintenance area for 8-hour ozone. Mobile sources (cars and trucks) contribute to the generation of ozone by emitting hydrocarbons (also known as volatile organic compounds, or VOCs), and NO_x. The Indianapolis MPO amended its 2035 Transportation Plan on June 6, 2012; its July 23, 2012 Conformity Analysis/Finding found I-69 Section 5 to conform to the updated SIP budget (using MOVES and 2009 Indiana fleet mix data). USEPA also issued a Federal Register Notice on June 21, 2012¹⁸ that found the updated Central Indiana 8-hour Ozone SIP (1997 NAAQS) adequate for conformity demonstration purposes. The 8-hour Ozone SIP was updated using MOVES and the 2009 Indiana fleet mix data. This new maintenance SIP budget became effective July 23, 2012.

Based on the Refined Preferred Alternative 8 VMT, FHWA estimates that the proposed project could result in a potential increase in global GHG CO₂ emissions in 2035 of 0.0002% (less than one thousandth of one percent), and a corresponding increase in Indiana's share of global emissions in 2035 of 0.2%. This very small change in global emissions is well within the range of uncertainty associated with future emissions estimates.

Finally, although regional and localized increases in MSAT emissions are expected for the Build Alternative over the No Build Condition, total MSAT emissions are projected to decrease substantially in the future compared to the present because of new USEPA programs to reduce MSAT emissions nationwide. Thus, the I-69 Section 5 project is expected to result in low potential MSAT effects.

¹⁸ 77 FR 120, page 37328, June 21, 2012. <http://www.gpo.gov/fdsys/pkg/FR-2012-06-21/html/2012-14949.htm>



Section 5.9 Figure Index

Figure Reference	Number of Sheets
Figure 5.9-1: National MSAT Emission Trends 2010 – 2050 for Vehicles Operating on Roadways Using USEPA’s MOVES2010b Model	(p. 5.9-6)



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