



**I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES**

---

**Section 5—Final Environmental Impact Statement**

**APPENDIX RR  
WALNUT STREET INTERCHANGE SELECTION REPORT**



# I-69 Interchange Selection Report

## Section 5: Partial Interchange Justification at Walnut Street

Prepared for:

Indiana Department of Transportation

Prepared by:

Michael Baker Jr., Inc.

In association with:

[Bernardin, Lochmueller and Associates](#)

**February 2013**

---

# TABLE OF CONTENTS

---

## Contents

Table of Contents .....	i
List of Tables .....	ii
List of Figures .....	ii
Introduction .....	1
1.1 Background.....	1
1.2 Proposed Project .....	1
1.3 Analysis Area .....	3
Responses to FHWA’s 8-Point Policy on Interstate Highway Access Modifications .....	4
Other Considerations .....	27
Conclusion .....	31

## Table of Contents

### List of Tables

Table 1: Mainline Capacity Analysis.....	7
Table 2: Walnut Interchange Ramp Junction Capacity Analysis.....	8
Table 3: Walnut Street Interchange Ramp Terminal Intersection Capacity Analysis.....	9
Table 4: SR 46 Interchange Ramp Junction Capacity Analysis.....	10
Table 5: SR 46 Interchange Ramp Terminal Intersection Capacity Analysis.....	11
Table 6: Sample Road Interchange Ramp Junction Capacity Analysis.....	12
Table 7: Sample Road Interchange Ramp Terminal Intersection Capacity Analysis.....	13
Table 8: Existing Crash Data on SR 37 - Severity of Crash.....	15
Table 9: Existing Crash Data on SR37 - Crash Type .....	16
Table 10: Impact to Resources Full Vs. Partial Interchange.....	29

### List of Figures

Figure 1: Location Map and Study Area .....	32
Figure 2-1: 2035 No-Build Traffic Volumes and LOS (SR 46 Interchange) .....	33
Figure 2-2: 2035 No-Build Traffic Volumes and LOS (Walnut Road Interchange) .....	34
Figure 2-3: 2035 No-Build Traffic Volumes and LOS (Sample Road Interchange) .....	35
Figure 3-1: 2035 Build Alternative 8 Traffic Volumes and LOS (SR 46 Interchange).....	36
Figure 3-2: 2035 Build Alternative 8 Traffic Volumes and LOS (Walnut Street Interchange).....	37
Figure 3-3: 2035 Build Alternative 8 Traffic Volumes and LOS (Sample Road Interchange).....	38
Figure 4-1: 2035 Build Alternative 9 Traffic Volumes and LOS (SR 46 Interchange).....	39
Figure 4-2: 2035 Build Alternative 9 Traffic Volumes and LOS (Walnut Road Interchange).....	40
Figure 4-3: 2035 Build Alternative 9 Traffic Volumes and LOS (Sample Road Interchange).....	41
Figure 5: Existing Crash Data on SR 37.....	42
Figure 6: Right-of-way Footprint for Alternatives.....	43
Figure 7: Advanced Interstate 69 Guide Signs for Alternative 8 (Partial Interchange).....	44

---

# INTRODUCTION

---

## 1.1 Background

Section 5 of the I-69 Evansville to Indianapolis project begins just north of the interchange of I-69 with SR37 south of Bloomington (currently under construction), and continues northward on the existing alignment of SR 37 to just south of the interchange of SR 37 and SR 39 in Martinsville. This section of the I-69 project is approximately 21 miles in length and extends through Monroe and Morgan Counties, Indiana, following the existing alignment of SR 37, a multi-lane divided principal arterial highway with partial access control. The project will convert SR 37 to fully access-controlled I-69 with access to and from the interstate via interchanges only. Some of these interchanges already exist (some needing modification) while others will be new. One of the existing interchanges is a partially-directional interchange at Walnut Street.

The existing Walnut Street Interchange on SR 37 serves only southbound exiting and northbound entering traffic. FHWA's guidelines<sup>1</sup> state that interchanges on newly-constructed interstate highways should serve all directions of travel. This interchange selection report provides justification for retaining the existing partially-directional interchange at Walnut Street instead of providing a fully-directional interchange at this location. Approval from the Federal Highway Administration to include the existing interchange in the proposed Preferred Alternative in the Section 5 FEIS/ROD is also requested. This request is based upon reduction in resource impacts, reduction of costs, public input, and the ability to continue to serve two of the four traffic movements at this facility. It also reflects the very low levels of additional traffic served by a fully-directional interchange, compared with the significant increases in costs and impacts, as well as the adopted land use plans of Monroe County which seeks to discourage development in areas to which a full interchange would provide new access.

## 1.2 Proposed Project

Section 5 of the I-69 project would reconstruct the SR 37 corridor to meet freeway standards with full access control. A Draft Environmental Impact Statement (DEIS) for Section 5 was approved on October 18, 2012, and a Notice of Availability was published in the Federal Register on October 26, 2012. The comment period for this DEIS ended on January 2, 2013.

In this DEIS, Alternative 8 is the Preferred Alternative. Alternative 8 has interchanges at the following locations: Fullerton Pike (new), Tapp Road (new), 2nd Street/SR 45 (existing), 3rd Street/SR 48 (existing), SR 46 (existing), Walnut Street (existing), Sample Road (new), and

---

1. *Access to the Interstate System*, U.S. Department of Transportation (USDOT), FHWA, 74 FR 165, August 27, 2009.

## Introduction

Liberty Church Road (new). In the DEIS, impacts and costs were shown for construction of a full interchange at Walnut Street; a comparison also was provided for the reduction in costs and impacts if the existing partial interchange is maintained. The DEIS also provided that the Refined Preferred Alternative in the FEIS could include retaining the existing partial interchange at Walnut Street, pending approval by FHWA. Both the formal presentation at the December 6, 2012 public hearing on the DEIS, as well as the printed materials distributed at the hearing, explained the two options for the Walnut Street interchange (retain existing partial interchange and reconstruct to provide fully directional interchange). Public and agency comments were requested on these two options.

From the southern terminus of the project to Sample Road, the project is designed with an urban typical section. From Sample Road to the north end of the project, a rural typical section will be used. The terrain throughout the project area is rolling. Areas with long, upward grades exist, necessitating truck climbing lanes in several different locations within the project limits. The current posted speed limit ranges from 55 mph in the urban section to 60 mph in the rural section. The proposed design speed is 70 mph. The proposed posted speed limit is 55 mph through the urban limits of the city of Bloomington and 70 mph in the rural areas.

Existing SR 37 in the urban section generally consists of two lanes each direction. An auxiliary lane is present between the two most closely spaced urban interchanges (SR 45 and SR 48). Additional auxiliary lanes exist at the intersections and interchanges with approximately 4-foot inside shoulders and 8-9 foot outside shoulders. The existing typical cross section includes an open grass median throughout the corridor. The proposed alternative will utilize three 12-foot lanes in each direction for the urban area with an auxiliary lane between the SR 45 and SR 48 interchanges. Auxiliary lanes will also be included at the interchange terminals. Twelve-foot inside and outside shoulders will be provided in the urban typical sections with the introduction of a concrete median barrier to separate opposing directions of traffic. For the typical section, the limits of the urban/rural section are based on forecasted traffic and continuing development in the area. The project will have an urban section from its southern end to the Sample Road interchange. North of Sample Road a rural typical section will be incorporated.

In the rural section of this project, existing SR 37 is two lanes in each direction with auxiliary lanes at the intersections. The existing typical section includes inside shoulders of approximately 4-foot width and 8-9 foot outside shoulders. It has a typical 60-foot wide open grassy median. The proposed typical section will have two 12-foot lanes in each direction with 4-foot inside and 12-foot outside shoulders and an open grassy median which typically is 60-foot wide.

## Introduction

### 1.3 Analysis Area

This Interchange Selection Report only covers the Walnut Street Interchange in Section 5. The analysis area extends one interchange in each direction along proposed I-69 to include the SR 46 interchange to the south and the Sample interchange to the north. The total analysis area is 5.9 miles in length. SR 46 is 3.4 miles to the south (centerline to centerline) of the Walnut Street Interchange while the Sample interchange is 2.5 miles to the north. A map of the Section 5 corridor with an inset showing the analysis area is shown in Figure 1. All supporting figures are shown at the end of the report.

---

## RESPONSES TO FHWA'S 8-POINT POLICY ON INTERSTATE HIGHWAY ACCESS MODIFICATIONS

---

FHWA's Policy on Access to the Interstate System provides the requirements necessary to justify or substantiate any proposed changes in access to the Interstate System. FHWA's policy statement is printed below. Following the policy statement are the eight specific policy requirements along with a response for each concerning maintaining the existing Walnut Street partially-directional interchange instead of a fully-directional interchange as part of the proposed Preferred Alternative:

*It is in the national interest to preserve and enhance the Interstate System to meet the needs of the 21st Century by assuring that it provides the highest level of service in terms of safety and mobility. Full control of access along the Interstate mainline and ramps, along with control of access on the crossroad at interchanges, is critical to providing such service. Therefore, FHWA's decision to approve new or revised access points to the Interstate System must be supported by substantiated information justifying and documenting that decision. The FHWA's decision to approve a request is dependent on the proposal satisfying and documenting the following requirements.<sup>2</sup>*

**1. The need being addressed by the request cannot be adequately satisfied by existing interchanges to the Interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands (23 CFR 625.2(a)).**

The Tier 1 ROD issued by FHWA in March 2004 approved completion of I-69 as an interstate from Evansville to Indianapolis, via Bloomington. It provides for conversion of SR 37 into a limited access I-69 between Bloomington and Indianapolis. Currently, SR 37 has a partial interchange at Walnut Street. As is discussed in detail in item 3 below, the existing partial interchange along with the adjacent interchanges at Sample Road and SR 46 can adequately distribute the expected design-year traffic volumes for the study area. Further, it is not necessary to add additional access points to the interstate by constructing a full interchange. The study area is presented in Figure 1 (p. 32). The design year for the Section 5 project is 2035.

---

2. Federal Register: August 27, 2009 (Volume 74, Number 165) page 43744.

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

***2. The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative improvements to the Interstate without the proposed change(s) in access (23 CFR 625.2(a)).***

The completion of Section 5 of I-69 responds to the Congressional policy to complete the National I-69 Corridor. This policy was adopted by Congress based on feasibility studies for the corridor. The decision by Congress to designate I-69 as a “high priority corridor” reflects a national commitment to complete this new interstate corridor as part of the National Highway System. For this reason, the Purpose and Need for the Tier 1 EIS for I-69 from Evansville to Indianapolis included only highway alternatives meeting Interstate (freeway) standards. Based on the Tier 1 EIS and ROD, there is a need to complete I-69 as an Interstate highway between Evansville and Indianapolis, including Section 5. This is reflected in Goal 1 of the I-69 Section 5 Purpose and Need (which provides for “Development of a freeway that meets current design standards.” (Section 5 DEIS, Table 2-2)).

The Transportation System Management (TSM) measures listed above are limited in the ability to improve traffic operations in the study area and would not address the need for the capacity improvements and converting existing SR 37 to a limited access interstate as identified in the Purpose and Need. Operational inefficiencies are not expected for the I-69 project, regardless of which Build Alternative is utilized. Therefore, the use of Transportation System Management measures such as ramp metering, mass transit, and HOV facilities are not proposed as this time. These types of improvements are regularly studied by INDOT and the Bloomington/Monroe County MPO (BMCMPPO) to improve travel options and service throughout the region. Opportunities to increase TSM measures in the study area should continue to be explored to maximize the operational improvements resulting from the I-69 project.

***3. An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed***

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

*change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).*

Safety and operational analyses were conducted for three scenarios: 2035 No-Build, 2035 Build with the existing partial interchange at Walnut Street (Alternative 8), and 2035 Build with a full interchange at Walnut Street (Alternative 9). The proposed full interchange design includes a single point urban interchange (SPUI). The operational analysis included the portion of the proposed I-69 corridor (including the ramps at the interchanges) from the SR 46 interchange to the Sample Road interchange. The crash analysis was conducted for the roadway links just to the north and south of the existing Walnut Street partial interchange to determine the effect of the construction of a full interchange on crash rates. Tables 1 through 7 (pp. 7-13) and Figures 2 through 4 (pp. 33-41) show the traffic volumes and Levels of Service (LOS) for the No-Build Scenario, Alternative 8 and Alternative 9, respectively. Crash statistics are shown in Figure 5 (p. 42) and Tables 8 through 9 (pp. 15-16).

### **OPERATIONAL ANALYSIS**

Results of the operational analysis are grouped into two categories: Mainline and Ramps. The discussion of Ramps is further segregated to include the analysis of Ramp Junctions and Ramp Terminals.

Overall, the construction of the Walnut Street SPUI in Alternative 9 is not expected to have a significant impact on traffic volumes of the proposed I-69 mainline when compared to Alternative 8 which includes the existing partial interchange. (See Table 1, p. 7) For both alternatives, the peak hour forecasted volumes on I-69 range from approximately 2,200 to 2,900 on various segments between SR 46 and Sample Rd.; differences between the two alternatives are less than 1 vehicle/minute (less than 50 vehicles in the peak hour) for all segments with the exception of the southbound segment between Sample Road and Walnut Street (approximately 100 vehicle difference).

Traffic volumes on the ramps at the Walnut Street interchange do change noticeably depending upon whether the Build condition utilizes Alternative 8 or Alternative 9 (see Table 2, p. 8). Both provide an acceptable LOS for the ramp movements provided in each alternative.

Traffic volumes on the ramps at the adjacent interchanges (SR 46 and Sample Rd.) would decrease as a result of the construction of the SPUI. Figures 3-1 and 4-1 show that the daily volumes for the SR 46 interchange ramps will decrease by 4,561 while Figures 3-3 and 4-3 show

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

that the daily volumes for the Sample Road interchange ramps will decrease by 3,165. The new movements allowed by the SPUI would serve minimal traffic volumes while the SPUI ramps providing the same movements as the existing partial interchange would carry slightly higher volumes when compared to that alternative. Regardless of the Build alternative constructed at Walnut St., the LOS for the ramp movements provided at the adjacent interchanges are acceptable.

### I-69 Mainline

<b>Table 1: Mainline Capacity Analysis – Peak Hour (Year 2035)</b>				
	<b>Dir.</b>	<b>No. of Lanes</b>	<b>Volume</b>	<b>LOS</b>
<b>No-Build - SR 37/SR 46</b>				
Between SR 46 and Walnut St. Interchanges	NB	2	1291-1361	B
	SB	2	1232-1434	B
Between Walnut St. and Sample Rd. Interchanges	NB	2	1886-1959	C
	SB	2	1674-1752	C
North of Sample Road	NB	2	1836	C
	SB	2	1615	C
<b>Alternative 8 - I-69 – Existing Partial Interchange</b>				
Between SR 46 and Walnut St. Interchanges	NB	3	2274	B
	SB	3	2455	B
Between Walnut St. and Sample Rd. Interchanges	NB	3	2812	B
	SB	3	2922	B
North of Sample Road	NB	2	2667	C
	SB	2	2556	C
<b>Alternative 9 - I-69 - SPUI</b>				
Between SR 46 and Walnut St. Interchanges	NB	3	2231	B
	SB	3	2462	B
Between Walnut St. and Sample Rd. Interchanges	NB	3	2843	B
	SB	3	2821	B
North of Sample Road	NB	2	2694	C
	SB	2	2566	C

In the 2035 No-Build condition, mainline traffic volumes vary between the access points of SR 46, Walnut St. and Sample Road, with Levels of Service (LOS) calculated as LOS B south of Walnut Street and LOS C north of Walnut St.

With the addition of the third lane prescribed in the 2035 Build condition (for either Alternative 8 or Alternative 9), the mainline LOS remains at LOS B south of Walnut St., increases to LOS B between Walnut St. and Sample Rd., and remains at LOS C north of Sample Rd. The

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

interchange type included at Walnut St. (Alternative 8 as compared to Alternative 9) has no significant effect on the volumes of mainline traffic and no effect on the mainline LOS.

### I-69 Ramps

The operational analysis for each interchange is documented to address the conditions at the Ramp Junctions and also the conditions at the Ramp Terminals.

### Walnut Street Interchange

The Walnut Street interchange is currently a partial access interchange with SR 37 that includes an entrance ramp from northbound Walnut Street to northbound SR 37 and an exit ramp from southbound SR 37 to southbound Walnut Street. No-Build 2035 peak hour volumes result in a LOS B for the northbound entrance ramp and LOS C for the southbound exit ramp. (Table 2)

The traffic volumes on these ramps decrease in the Build Alternative 8 scenario when compared to the No-Build scenario. LOS remains unchanged from the No-Build condition.

Under Build Alternative 9, the existing ramps would be supplemented with additional ramps for the northbound exit and the southbound entrance movements. Traffic volumes on the two existing ramps increase slightly in comparison to the No-Build scenario or Alternative 8. The LOS for the northbound entrance ramp remains as LOS B. The LOS for the southbound exit ramp increases to LOS B. The two new ramp movements would also operate at LOS B.

Table 2: Walnut Interchange Ramp Junction Capacity Analysis – Peak Hour (Year 2035)							
	I-69		Ramp		Peak Hour		LOS
	Dir.	No. of Lanes	Type	No. of Lanes	Freeway	Ramp	
<b>No-Build</b>							
NB Ramp	NB	2	Enter	1	1291	667	B
SB Ramp	SB	2	Exit	1	1752	520	C
<b>Alternative 8 – Existing Partial Interchange</b>							
NB Ramp	NB	3	Enter	1	2274	539	B
SB Ramp	SB	3	Exit	1	2922	467	C
<b>Alternative 9 - SPUJ</b>							
NB Ramp	NB	3	Exit	1	2230	212	B
NB Ramp	NB	3	Enter	1	2018	824	B
SB Ramp	SB	3	Exit	1	2821	622	C
SB Ramp	SB	3	Enter	1	2199	263	B

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

As there are no ramp terminals in either the No-Build condition or under Alternative 8, with the re-use of the existing interchange configuration, review of the ramp terminal intersection capacity analysis is not applicable.

Under Alternative 9, the signalized intersection where the SPUI ramps converge is expected to operate at a LOS C. (Table 3)

Table 3: Walnut Street Interchange Ramp Terminal Intersection Capacity Analysis – Peak Hour (Year 2035)												
CROSSROAD INTERSECTIONS	PEAK HOUR											
	EB Approach			WB Approach			NB Approach			SB Approach		
	Left	Thru	Right									
<b>No-Build</b>												
No Intersections for this Option												
<b>Alternative 8 - Existing Partial Interchange</b>												
No Intersections for this Option												
<b>Alternative 9 – SPUI</b>												
Peak-Hour volume	58	174	-	167	275	-	73	-	-	567	-	-
Number of Lanes	2	2	-	2	2	-	1	-	-	2	-	-
Intersection LOS	C											

The interchange type included at Walnut St. (Alternative 8 as compared to Alternative 9) has minimal effect on the volumes of ramp traffic experienced at this location. Changes to the LOS are experienced at only one ramp, as the southbound exit ramp is improved to LOS B as compared to LOS C with the partial interchange. All ramps under either Build alternative function at acceptable LOS.

### SR 46 Interchange

The SR 46 interchange is an existing interchange. There are no improvements planned for this interchange except for minor adjustments to the ramp tie-ins associated with the additional travel lanes in each direction along the I-69 mainline and the inclusion of a signal at the northbound ramp terminus with SR 46.

In the 2035 No-Build scenario, all of the ramp merges and diverges are anticipated to operate at a LOS B with the exception of the diverge from northbound SR 37 to eastbound SR 46, which is expected to operate with a LOS C. (See Table 4, p. 10)

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

The traffic volumes at the SR 46 interchange increase significantly in the Build Alternative 8 scenario (Partial Interchange at Walnut). All of the ramp merges and diverges are still expected to operate at a LOS B with the exception of the diverge from northbound I-69 to eastbound SR 46 and the ramp to northbound I-69, both which are expected to operate with a LOS C.

For Alternative 9 (SPUI at Walnut), the traffic volumes at the SR 46 interchange are very similar to the traffic volumes in Alternative 8. All of the ramp junctions are projected to operate with the same LOS as in the Alternative 8 scenario.

Table 4: SR 46 Interchange Ramp Junction Capacity Analysis – Peak Hour (Year 2035)							
	I-69		Ramp		Peak Hour		LOS
	Dir.	No. of Lanes	Type	No. of Lanes	Volume		
					Freeway	Ramp	
<b>No-Build</b>							
NB Ramp	NB	2	Exit EB	1	2425	648	C
NB Ramp	NB	2	Exit WB	1	1777	510	B
NB Ramp	NB	2	Enter	1	1267	96	B
SB Ramp	SB	2	Exit WB	1	1434	133	B
SB Ramp	SB	2	Exit EB	1	1301	52	B
SB Ramp	SB	2	Enter	2	1249	692	B
<b>Alternative 8 – Existing Partial Interchange</b>							
NB Ramp	NB	3	Exit EB	1	3177	720	C
NB Ramp	NB	3	Exit WB	1	2457	757	B
NB Ramp	NB	3	Enter	1	1700	574	C
SB Ramp	SB	3	Exit WB	1	2455	302	B
SB Ramp	SB	3	Exit EB	1	2153	375	B
SB Ramp	SB	3	Enter	1	1778	1022	B
<b>Alternative 9 - SPUI</b>							
NB Ramp	NB	3	Exit EB	1	3217	701	C
NB Ramp	NB	3	Exit WB	1	2516	747	B
NB Ramp	NB	3	Enter	1	1769	460	C
SB Ramp	SB	3	Exit WB	1	2462	328	B
SB Ramp	SB	3	Exit EB	1	2134	258	B
SB Ramp	SB	3	Enter	1	1876	1014	B

In the 2035 No-Build scenario, the unsignalized intersection of SR 46 with the northbound ramp is expected to operate at a LOS C while the signalized intersection of SR 46 with the southbound SR 37 ramp is anticipated to operate at a LOS A. (See Table 5, p. 11)

The projected volumes for both of the intersections on SR 46 with the ramp termini will warrant traffic signals for Alternative 8. With the signalization, the intersection of SR 46 with the

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

northbound ramp is expected to operate at a LOS A. The intersection of SR 46 with the southbound I-69 ramp is anticipated to continue to operate at a LOS A.

For Alternative 9, all of the ramp intersections are projected to operate with the same LOS as in the Alternative 8 scenario.

**Table 5: SR 46 Interchange Ramp Terminal Intersection Capacity Analysis – Peak Hour (Year 2035)**

CROSSROAD INTERSECTIONS	PEAK HOUR											
	EB Approach			WB Approach			NB Approach			SB Approach		
	Left	Thru	Right									
<b>No-Build</b>												
SB Ramps												
Peak-Hour volume	-	1173	-	498	1729	-	-	-	-	-	-	-
Number of Lanes	-	2	-	2	2	-	-	-	-	-	-	-
Intersection LOS	A											
NB Ramps												
Peak-Hour volume	26	1199	-	-	1768	-	-	-	-	-	-	-
Number of Lanes	1	2	-	-	2	-	-	-	-	-	-	-
Intersection LOS	C											
<b>Alternative 8 – Existing Partial Interchange</b>												
SB Ramps												
Peak-Hour volume	-	1297	-	793	1804	-	-	-	-	-	-	-
Number of Lanes	-	2	-	2	2	-	-	-	-	-	-	-
Intersection LOS	A											
NB Ramps												
Peak-Hour volume	224	1448	-	-	1569	-	-	-	-	-	-	-
Number of Lanes	1	2	-	-	2	-	-	-	-	-	-	-
Intersection LOS	A											
<b>Alternative 9 – SPUI</b>												
SB Ramps												
Peak-Hour volume	-	1371	-	760	1850	-	-	-	-	-	-	-
Number of Lanes	-	2	-	2	2	-	-	-	-	-	-	-
Intersection LOS	A											
NB Ramps												
Peak-Hour volume	245	1383	-	-	1631	-	-	-	-	-	-	-
Number of Lanes	1	2	-	-	2	-	-	-	-	-	-	-
Intersection LOS	A											

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

The interchange type included at Walnut St. (Alternative 8 as compared to Alternative 9) has minimal effect on the volumes of ramp traffic experienced at the SR 46 interchange. There are no changes to the LOS experienced at any of the ramps, when comparing Alternative 8 and Alternative 9, nor are there significant changes to the peak hour volumes at the ramp terminals or the anticipated LOS for these intersections.

### Sample Road Interchange

In the 2035 No-Build scenario, SR 37 has partial access control. Sample Road intersects SR 37 at-grade, with Sample Road being stop-controlled with signage. There are no ramps associated with the No-Build condition. (Table 6)

The Build Alternative 8 scenario has a diamond interchange at this location with a loop ramp providing access from Sample Road to southbound I-69. All ramps are expected to operate with a LOS B.

The Build Alternative 9 scenario has the same interchange configuration as the Alternative 8 scenario and all of the projected volumes are expected to decrease when comparing Alternative 9 to Alternative 8. All ramps are expected to operate with a LOS B.

Table 6: Sample Road Interchange Ramp Junction Capacity Analysis – Peak Hour (Year 2035)							
	I-69		Ramp		Peak Hour		LOS
	Dir.	No. of Lanes	Type	No. of	Volume		
				Lanes	Freeway	Ramp	
<b>No-Build</b>							
No ramps for the existing condition.							
<b>Alternative 8 – Existing Partial Interchange</b>							
NB Ramp	NB	3	Exit	1	2812	339	B
NB Ramp	NB	2	Enter	1	2473	194	B
SB Ramp	SB	2	Exit	1	2556	125	B
SB Ramp	SB	3	Enter	1	2431	506	B
<b>Alternative 9 – SPUI</b>							
NB Ramp	NB	3	Exit	1	2843	276	B
NB Ramp	NB	2	Enter	1	2567	125	B
SB Ramp	SB	2	Exit	1	2566	95	B
SB Ramp	SB	3	Enter	1	2471	370	B

The existing SR 37/Sample Road intersections are expected to operate with a LOS A in the 2035 No-Build condition.

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

The projected volumes for both of the intersections on Sample Rd. with the ramp termini will warrant traffic signals for Alternative 8. With the signalization, the intersections are anticipated to continue to operate at a LOS A.

For Alternative 9, all of the ramp intersections were analyzed using the same assumptions as in the Alternative 8 scenario (signals, cycle length, etc.). All of the ramp intersections are projected to operate with the same LOS as in the Alternative 8 scenario.

**Table 7: Sample Road Interchange Ramp Terminal Intersection Capacity Analysis – Peak Hour (Year 2035)**

CROSSROAD INTERSECTIONS	PEAK HOUR											
	EB Approach			WB Approach			NB Approach			SB Approach		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
<b>No-Build</b>												
SB (No Ramps)												
Peak-Hour volume	-	9	64	28	58	-	-	-	-	28	1582	5
Number of Lanes	-	1 TR	0	0	1 TL	-	-	-	-	1	1	1TR
Intersection LOS	A											
NB (No Ramps)												
Peak-Hour volume	5	37	-	-	41	28	45	1804	37	-	-	-
Number of Lanes	0	1 TL	-	-	1 TR	0	1	1	1TR	-	-	-
Intersection LOS	A											
<b>Alternative 8 – Existing Partial Interchange</b>												
SB Ramps												
Peak-Hour volume	199	58	15	19	152	287	15	20	86	73	30	22
Number of Lanes	1	1 TR	0	1	1 TR	0	0	1 LTR	0	0	1LTR	0
Intersection LOS	C											
NB Ramps												
Peak-Hour volume	75	143	-	-	337	119	121	-	218	-	-	-
Number of Lanes	1	1	-	-	1 TR	0	0	1 LTR	0	-	-	-
Intersection LOS	C											
<b>Alternative 9 – SPUI</b>												
SB Ramps												
Peak-Hour volume	94	53	15	2	102	256	15	20	31	70	4	21
Number of Lanes	1	1 TR	0	1	1 TR	0	0	1 LTR	0	0	1LTR	0
Intersection LOS	C											
NB Ramps												
Peak-Hour volume	32	121	-	-	284	93	76	-	200	-	-	-
Number of Lanes	1	1	-	-	1 TR	0	0	1 LTR	0	-	-	-
Intersection LOS	C											

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

The interchange type included at Walnut St. (Alternative 8 as compared to Alternative 9) has minimal effect on the volumes of ramp traffic experienced at the Sample Road interchange. There are no changes to the LOS experienced at any of the ramps, when comparing Alternative 8 and Alternative 9. Impacts related to the peak hour volumes result the same LOS for the intersection when comparing Alternative 8 to Alternative 9.

### **SAFETY ANALYSIS**

Historic crash data from 2007 to 2011 were compiled and analyzed for the immediate Walnut Street Interchange area. As is shown in Tables 8 through 9 (pp. 15-16), there were 45 crashes in the five year period. There were no fatalities. The crashes were consolidated at five locations shown in Figure 5 (p. 42). The only location that averaged more than one accident per year was location #2, along Walnut Street between the ramps and Bridge 913. A single type of cause is not apparent for these crashes. Many were shown as “backing” crashes. While there is no specified cause noted, these backing movements could be attributed to individuals stopping at the bridge to fish, or taking pictures at the “Welcome to Bloomington” sign that is located at the interchange. Other incidents included head-on and sideswipe crashes, crash types typical for narrow-two-lane roads.

The previously discussed crashes at location # 2 are more associated with Walnut Street than SR 37 and the partial interchange design. It is also important to note that in 2011 the number of crashes at location # 2 decreased to only one crash per year so it is possible that the hazard has been improved. It is expected that the crashes along I-69 will be the same or lower than SR 37 due to improved design standards used for Interstates and the closing of Bottom Road at-grade unsignalized intersection, although volumes will increase.

It is difficult to predict accidents on future facilities, however, there are sound reasons to anticipate that the full interchange would have more crashes than the partial interchange. There will be more conflict points associated with all the additional movements allowed at the interchange. There will be an additional ramp merge and ramp diverge on the I-69 mainline with the full interchange. The full interchange will also have four additional left turn movements and a signalized intersection that could contribute to a higher crash rate.

Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

**Table 8: Existing Crash Data on SR 37 – Severity of Crash**

Location	Year	Severity of Crash		
		Property Damage Only	Injury*	Fatality*
1	2007	1		
	2008			
	2009	2		
	2010	1	1	
	2011	1		
2	2007	9		
	2008	8	1	
	2009	8	1	
	2010	8	2	
	2011	1		
3	2007			
	2008			
	2009			
	2010	1		
	2011			
4	2007			
	2008			
	2009	2		
	2010	1		
	2011			
5	2007			
	2008	1		
	2009			
	2010			
	2011			
Total		40	5	
Total Crashes			45	

\*Number of fatal crashes or injuries with crashes, not total number of fatalities or injuries.

Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

Table 9: Existing Crash Data on SR 37 – Crash Type

Location	Year	Crash Type										
		Ran off Road	Opposite Direction Sideswipe	Head on	Right Angle	Backing Crash	Same Direction Sideswipe	Rear End	Left Turn	Non-Collision	Other	Unknown
1	2007	1										
	2008											
	2009		1	1								
	2010	1			1							
	2011			1								
2	2007			2		5	1					1
	2008	2	1	1	1	3					1	
	2009			2		2	1	2			1	1
	2010	1		2	1	3			1	1		1
	2011								1			
3	2007											
	2008											
	2009											
	2010							1				
	2011											
4	2007											
	2008											
	2009	1						1				
	2010	1										
	2011											
5	2007											
	2008							1				
	2009											
	2010											
	2011											
Total		5	2	9	3	13	2	3	2	1	2	3
											Total Crashes	45

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

### Conceptual Signing

A review of potential signing concepts for both the partial and full Walnut Street interchanges was conducted, in order to determine that the proposed interchange improvements could be signed in accordance with the standards in the Manual on Uniform Traffic Control Devices (MUTCD). There are no apparent problems with signing either alternative in accordance with the MUTCD. There is ample space between adjacent interchanges to sign the merge and diverge movements from the interstate.

Signing the partial interchange will require additional signage to inform drivers of the missing movements at the interchange. Currently, there are overhead signs on Walnut Street to prevent drivers from traveling the wrong way on the southbound off-ramp and to direct traffic onto the northbound on-ramp. To inform southbound drivers that there is no southbound on-ramp at Walnut Street, the following guide sign should be considered along the southbound mainline, north of the partial interchange:

N WALNUT ST  
½ MILE  
NO RE-ENTRY TO I-69 SOUTH  
EXIT ONLY

To inform drivers that there is no northbound off-ramp at Walnut Street the following guide sign should be considered along the mainline, south of the SR 46 interchange:

NO N WALNUT ST EXIT  
USE SR 46 EAST  
NEXT RIGHT

Trailblazing signs will be required to direct motorists back to I-69 via the SR 46 interchange once they exit at the Walnut Partial interchange. These signs will be located at the intersections of Walnut Street and North Old State Road 37; Walnut St. and SR 46 (E. Matlock Road). These trailblazing signs and additional signs required for the SR 46 interchange are shown in Figure 7 (p. 44).

More detailed signing plans will be prepared as part of the final design of the interchange improvements. Those plans will show all guide signs, ground mounted warning and regulatory signs.

**4. The proposed access connects to a public road only and will provide for all traffic movements. Less than “full interchanges” may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)).**

The proposed partial interchange at Walnut Street connects to an existing public road, Walnut Street, which provides access to north Bloomington and provides a continuous route to downtown Bloomington. The proposed partial interchange on I-69 provides a northbound on-ramp to I-69 and a southbound off-ramp from I-69 to Walnut Street. The new interchange does not include ramps to or from I-69 south of the proposed partial interchange. Though the Federal Highway Administration guidelines call for provision of all traffic movements for the proposed interchange, the study area presents unique features and characteristics that call for an exception. There are significant impacts to the environment, project cost, and right-of-way required to provide the missing ramp movements (see Table 10, p. 29). They are discussed in more detail in the “Other Considerations” section of this document, (p. 27). The missing ramp movements serve a fraction of the total interchange volume and these movements and volumes can be accommodated along the existing roadway network and proposed adjacent interchanges at SR 46 and Sample Road.

The existing partial interchange at Walnut Street is scheduled to have the S-line overpass bridge rehabilitated. The project is expected to be advertised for bids in 2013. As part of that project the bridge deck is being replaced and raised to provide adequate vertical clearance of 16'-1" for future I-69. The bridge will be modified to meet or exceed current standards for Federal-aid projects on the Interstate System and limited access facilities. The current Indiana Design Manual (IDM) and AASHTO's *A Policy on Geometric Design of Highways and Streets* (Green Book) guidelines served as the design standards for all design criteria. All of the lanes, shoulders, ramps, and vertical and horizontal alignments to retain the rehabilitated partial interchange will meet or exceed INDOT and AASHTO minimum standards. All lanes and shoulders on the I-69 mainline will be full width and meet a design speed of 70 mph. All ramps connecting to the I-69 mainline will have design speeds of 45 mph or higher at their junction with I-69, with vertical and horizontal alignments that meet or exceed the design speed. All remaining portions of ramps connecting to Walnut Street will have a design speed of a minimum of 35 mph. All ramp terminal spacings exceed INDOT and AASHTO minimum standards. There are no limitations in providing adequate acceleration and deceleration lanes for the Walnut Street interchange merge and diverge ramps with I-69. There are no weave problems created between the Walnut Street interchange and the proposed Sample Road interchange 2.5 miles to the north.

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

The existing vertical grade in both the northbound and southbound directions between Kinser Pike and Griffey Creek is 5%. The maximum vertical grade for new construction/reconstruction of freeways according to both INDOT and AASHTO design criteria is 4%. It is proposed that the existing grade in this area be retained. This will minimize project construction costs. A Level One Design Exception was prepared for retaining an existing grade exceeding the maximum allowable grade. Level Two Design Exceptions were prepared for critical length of grade within this area (north and south of the existing partial Walnut St. interchange). The existing truck climbing lanes will be retained, until such time as the forecasted traffic dictates the need for a third travel lane (anticipated to be between 2030 and 2035). More information on the design exceptions can be found in the Section 5 Tier 2 DEIS in Appendix EE.

***5. The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within transportation management areas, as appropriate, and as specified in 23 CFR part 450, and the transportation conformity requirements of 40 CFR parts 51 and 93.***

The proposed project is consistent with state, local and regional land use transportation plans.

- INDOT Long Range Plan: In June 2007 INDOT issued its 2030 Long Range Plan 2007 Update. In the document, I-69 between Evansville and Bloomington is shown as both a proposed Statewide Mobility Corridor and Commerce Corridor. SR 37 between Bloomington and Indianapolis (which will be upgraded to complete I-69 to Indianapolis) is shown as both a Statewide Mobility Corridor and a Commerce Corridor. In early 2011, INDOT issued for public comment, its 2010-2035 Draft Long-Range Transportation Plan. It is to be finalized in 2013. It also shows I-69 between Evansville and Bloomington as a proposed Statewide Mobility Corridor. SR 37 between Bloomington and Indianapolis (which will be upgraded to complete I-69 to Indianapolis) is shown as a Statewide Mobility Corridor. This plan also designated four high priority corridors, which due to their size, complexity and cost are comprised of multiple projects whose completion will extend beyond 2020. One of these high priority corridors includes Sections 5 and 6 of I-69 between Bloomington and Indianapolis.
- INDOT STIP: I-69 Section 5 is identified in INDOT's 2012-2015 Statewide Transportation Improvement Program (STIP) with the estimated cost to complete the project.

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

- Bloomington/Monroe County MPO (BMCMPPO) Long-Range Transportation Plan: Approximately eight miles of the Section 5 project fall within the boundary of the BMCMPPO Planning Area, beginning at the southern terminus of Section 5 and extending north to the intersection of SR 37 and Kinser Pike. The Walnut Street interchange falls outside of the BMCMPPO's Metropolitan Planning Area (MPA). In March 2006, the BMCMPPO adopted the 2030 Long Range Transportation Plan (2030 Plan). The 2030 Plan was re-adopted in May 2010. The 2030 Plan provides a list detailing specific improvements along the I-69 Corridor recommended by the BMCMPPO for the scenario where I-69 is constructed through Monroe County.
- Bloomington/Monroe County MPO (BMCMPPO) TIP: On March 9, 2012, the BMCMPPO Policy Committee voted to include the construction of the Section 4 portion of I-69 that falls within the BMCMPPO's MPA in the Bloomington/Monroe County MPO Transportation Improvement Program for Fiscal Years 2012-2015. INDOT will request amendment of the current BMCMPPO's TIP to include the portion of Section 5 which falls within the BMCMPPO's MPA prior to using federal funds on post-NEPA activities.
- Monroe County Comprehensive Plan: The plan was adopted by the Monroe County Council on March 20, 2012. The plan states that "State Road 37 was identified by the State of Indiana as a future corridor for the proposed extension of Interstate 69." The plan also notes that "the proposed corridor from Indianapolis to Evansville would utilize both existing highway networks in addition to new terrain construction. The northern segment of the proposed corridor in the County overlays the existing route of SR 37. Interchanges are currently proposed at Sample Road, Walnut Street (Business 37 North), SR 46, SR 48, SR 45, Fullerton Pike, and SR 37 South. Grade separations are planned for Chambers Pike, Kinser Pike, Vernal Pike, Tapp Road, and Rockport Road. Frontage roads are proposed in some areas north of Walnut Street, along both sides of the proposed interstate that will assist with connectivity."
- Morgan County Comprehensive Plan: The plan was completed in February 2010 and contains the county's "statement of policy for the development of public ways, public places, public lands, public structures, and public utilities. Regarding I-69, the study designated the Proposed I-69 project as a priority.
- Federal, State, Local, and Public Support:  
The following are comments to the I-69 Section 5 Draft Environmental Impact Statement concerning the support for maintaining the partial vs. construction of full interchange at Walnut Street:

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

- The Environmental Protection Agency supports the reuse of the partial interchange to significantly reduce the impacts to natural resources and any further requests for environmental permitting. They stated, *“EPA finds the use of the existing partial interchange at Walnut Street (Alternative 8, Option B) preferable to construction to a fully directional interchange on new facilities (Alternative 8, Option A) because it would minimize impacts to wetlands, streams and associated floodplain areas.”*
- United States Department of the Interior favors sustaining the partial interchange, stating, *“With respect to the specific alternatives discussed for Subsection 5D, we recommend that the proposed partial Walnut Street interchange (Alternative 8, Option B) be considered in order to minimize impacts to wetlands, streams and floodplains in the Beanblossom Creek area. We understand that this configuration will require special approval from the Federal Highway Administration in order to move forward.”*
- The Indiana Department of Natural Resources, Division of Fish and Wildlife supports maintaining the partial interchange. They stated, *“Alternative 8B, which maintains the existing partial interchange, is recommended as it results in the lowest amounts of impacts to forested wetland and floodplain resources of all the alternatives.”*
- The Indiana Department of Environmental Management favors maintaining the partial interchange. They stated, *“IDEM supports Option B which would maintain the existing partial interchange at Walnut Street and SR 37. This option would avoid and minimize impacts to wetlands and provide a substantial cost savings.”*
- The Greater Bloomington Chamber of Commerce supports maintaining the partial interchange. They stated, *“Maintaining a partial interchange at North Walnut Street is important for our community and will limit the environmental and cost impacts of a full interchange. We encourage INDOT to continue working with Monroe County officials about specific options on the North Walnut interchange. The local collaboration subgroup has been developing an innovative plan that addresses local needs and concerns and will share its ideas with INDOT.”*
- The Planning Director and City Engineer of the City of Bloomington provided the following input on the partial vs. full interchange at Walnut Street. They stated, *“The City supports the Preferred Alternative Option which retains the partial interchange at Walnut Street with the extension of Sample Road west to Bottom Road (with partial use of Lawson Road) as discussed with INDOT Deputy Director Sam Sarvis in the Chamber of Commerce meeting on December 19, 2012. Essentially, the extension of Sample as requested by Monroe County would satisfy concerns regarding an alternative access to I-69 for residents of Ellettsville and northwest Monroe County. The City is supportive of the County's request and*

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

*also supports retention of the partial interchange at Walnut Street. The partial interchange would allow existing access to Bloomington and IU to be maintained and provide a secondary entrance into Bloomington from the north, which is especially critical during large IU events such as graduation, move-in, and athletic events.”*

- Monroe County Board of Commissioners provided their preference for the partial interchange, subject to an additional local road improvement. They stated, *“We support maintaining the existing partial interchange at North Walnut Street subject to the construction of a new segment of Sample Road from Bottom Road to the planned interchange at Sample Road and from the interchange to Old State Road 37. This is necessary to maintain traffic flow from the Ellettsville area and developments north of Ellettsville and also to access Blucher Pool, a City of Bloomington Utilities maintained sewage treatment plant and provide safe and adequate access to the interchange from the east. If this is not provided, Monroe County must support the construction of the full interchange at Walnut Street which will provide access to Bottom Road via a direct connection.”*
- Bloomington Township Fire Department expressed a preference for Option A stating, *“A full interchange at College Ave (Walnut Street) exit is a must...”* and *“the Walnut Street interchange must be a full interchange to allow access to emergency incidents in both the north and south bound lanes of I69 and to points west in the county accessed by Bottom Road.”*
- Ten individual members of the public provided feedback which varied in support of the various options; five offered support of the partial interchange, four supported the full interchange, and one indicated that neither of the interchanges presented in the DEIS addressed all of their concerns.
  - Partial Interchange Support:
    - The first public individual stated, *“I strongly support the Option B interchange because of the substantially lower cost and minimized impact to this sensitive area. All construction completed in the are[a] of that interchange is important floodplain. A full interchange would result in significant loss of floodplain. Option A would bring an urbanized feel to the area and provide and promote long term growth into sensitive natural areas. Option A displaces more prime farmland and important forested bottomland, which is prime habitat for the Indiana brown bat and other bat species in the area. There are more than enough full interchanges for Bloomington in the current plans. I don't see the current two lanes of Walnut Street being able to sustain the amount of increased traffic resulting from a full interchange. A partial interchange will serve Bloomington well. Build it at the lower cost now, it could always be upgraded in the future!”*
    - The second public individual stated, *“I think personally the partial interchange option with Walnut Street is the best option. It serves*

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

*our local requirements and minimizes the environmental impact on the wetlands in that area.”*

- The third public individual implied support of the partial interchange noting, *“I understand the additional cost of Option A-Sheet 7A of 16.”*
- The fourth public individual stated, *“Maintaining a partial interchange at North Walnut Street is important for our community and will limit the environmental and cost impacts of a full interchange. We encourage INDOT and Monroe County officials to continue working together about specific options on the North Walnut interchange.”*
- The fifth public individual implied support of the partial interchange noting, *“In favor of major interchange at the present ramp a Walnut St. on north side. At least maintaining what we have with up grades.”*
- Full Interchange Support:
  - The first public individual stated, *“Of the Walnut St. options, I prefer Option A - full interchange. Without it, traffic on Walnut will be increased because there is no other route south except Walnut from the east frontage Rd vehicles.”*
  - The second public individual implies support of the full interchange noting, *“the full interchange option retains the gateway to Bloomington and provides access both east, via Old SR 37 and Bethel Lane, and west, via an enhanced Maple Grove Road and Bottom Road connection.”* However the comment goes on to note that a partial interchange may be acceptable, subject to an additional local road improvement.
  - The third public individual stated, *“Interstate 69 having a full interchange at North Walnut St. will provide greater access to that area.”*
  - The fourth public individual stated, *“North Walnut access to I-69 should be a full interchange to allow access from and to all directions, anything less would be substandard and limit access.”*
- Lack of Support for Either Option:
  - The representative from Hoosier Energy REC, Inc. noted that, *“The proposed layout of alternative 8 presents serious concerns for us at four locations along the proposed corridor.”* The comment continues that, *“In regards to accessing I-69 from the proposed access road, the proposed alternative is problematic in both options A and B (concerning North Walnut St. interchange).”*
- Conformity requirements:

Monroe County is in conformity with all National Ambient Air Quality Standards (NAAQS) and thus, conformity requirements do not apply.

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

Additional information on I-69 consistency with state, local and regional transportation plans is contained in the Tier 2 DEIS, Chapter 2, Section 2.2.

***6. In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan (23 U.S.C. 109(d), 23 CFR 625.2(a), 655.603(d), and 771.111).***

This Interchange Selection Report is being coordinated closely with the I-69 Section 5 DEIS which has studied, addressed, and documented all access changes associated with the conversion of SR 37 to I-69. Other interchange locations have been selected for the preferred alternative in close coordination with INDOT and FHWA through a working group and through soliciting public comments. The adjacent interchanges on each side of the Walnut Interchange, those at SR 46 and Sample Road, have been included in the analysis for this Interchange Selection Report. Based upon the analysis of potential interchange locations in the Section 5 DEIS, no other additional interchanges are anticipated for the Section 5 project in addition to those shown for the Preferred Alternative. See DEIS Chapter 3, *Alternatives* (especially Table 3-15, *Section 5 Alternatives Key Access Plan Comparison for Interchange Locations*) for more specific information.

***7. When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements (23 CFR 625.2(a) and 655.603(d)). The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and Interstate access point (23 CFR 625.2(a) and 655.603(d)).***

Maintaining the interchange at Walnut Street is not being proposed as the result of a change in development. It is being proposed because Walnut Street has historically been a major route to downtown Bloomington and would remain so if the interchange remained. The existing partial Walnut Street interchange serves traffic movements to and from Bloomington via existing Walnut Street. Development to the north and west (which would be served by a full interchange alternative accommodating all movements) is unlikely to occur because the majority of the land is located within the Beanblossom Valley floodplain, the Maple Grove Road Rural Historic District or along steep terrain; future traffic volumes to this area will be small.

## Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications

The adopted land use plans of Monroe County also discourage the referenced development to which the full interchange would provide new access. Refer to Tables 2 and 3; Figures 2-2, 3-2, and 4-2 for future traffic volumes at the Walnut Street Interchange. The Kinser Pike overpass, constructed south of the Walnut St. interchange, would also provide access and connectivity to the east and west sides of I-69 and is located adjacent to the majority of the developable land in the immediate study area.

- As shown in Figures 2 and 3, an additional 11,567 vehicles per day will use the Walnut Street interchange ramps if a full interchange replaces the partial interchange. Since no significant additional development is anticipated if full interchange is built and there is sparse existing development in the existing interchange area, the additional traffic associated with the full interchange due to changes in travel patterns from the partial interchange scenario. After reviewing results from the corridor travel demand model used for this analysis, it appears that there is a swapping of local and regional traffic using Walnut Street versus using I-69.
- Under the partial interchange scenario local traffic, between Bloomington and the rural areas north and east of the Walnut Street interchange, uses Walnut Street and not I-69 to make their trips. While more regional traffic such as that headed to and from Bloomington from areas north of Monroe County is using I-69 to the SR 46 Interchange to get to/from downtown Bloomington.
- Under the full interchange scenario, local traffic diverts to I-69 and the Walnut Street interchange to travel between Bloomington and the rural areas to the north and east of the Walnut Street interchange instead of using Walnut Street. While the regional traffic from areas north of Monroe County use the Walnut Street Interchange to access downtown Bloomington instead of using the SR 46 interchange. This regional traffic diverts to Walnut Street because the local traffic has diverted to I-69 leaving Walnut Street with under-utilized capacity. With the full interchange, traffic is also diverted from local roads west of Sample Road to the full Walnut Street interchange and Bottom Road extension.

There are no apparent transportation system improvements or planned developments that would warrant the additional ramps and movements associated with a full interchange at Walnut Street.

***8. The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing (23 CFR 771.111).***

## **Responses to FHWA 8-Point Policy on Interstate Highway Access Modifications**

The proposed partial interchange at Walnut Street is an option in the preferred Build alternative being recommended in the I-69 Section 5 DEIS (referred to in that document as Preferred Alternative 8B), as prepared by INDOT. During the development of the DEIS, the project team mapped environmental constraints, conducted detailed environmental analyses to assess impacts, developed avoidance and minimization alternatives, conducted coordination with resource agencies, and developed compensatory mitigation and NEPA documentation. The Notice of Availability for the DEIS was published in the Federal Register on October 26, 2012. The comment period on the DEIS ended January 2, 2013. The project team is currently addressing and responding to these comments and preparing a joint FEIS/Record of Decision for Section 5 of the I-69 project. A comparison of environmental impacts for the partial versus full interchange at Walnut Street is discussed in the next section.

---

## OTHER CONSIDERATIONS

---

In addition to FHWA's eight points discussed above, several other items should be considered by FHWA when making a decision on accepting the partial interchange as the preferred option for the Walnut Street interchange. These include environmental impacts, right-of-way impacts and costs, and construction costs, and potential historic resource impacts. (See Table 10, p. 29)

### **Environmental Impacts**

As noted in the Section 5 DEIS, Chapter 6, Subsection 5D begins at approximately 0.38-mile north of Kinser Pike along existing SR 37, running approximately 2.4 miles, ending 0.63-mile south of the existing intersection of SR 37 and Sample Road. This subsection includes the Walnut Street Interchange. Environmental impacts provided in Table 10 reflect those for this entire subsection. The partial interchange has significantly fewer environmental impacts than the full interchange. As listed below there are fewer wetlands, streams, and floodplain impacts.

- The partial interchange alternative impacts 4.1 acres of wetland, whereas the full interchange alternative impacts 8.4 acres. Reusing the partial interchange avoids 4.3 acres of wetland impacts.
- The partial interchange alternative impacts 12,757 linear feet of streams. It also has 9,133 linear feet of stream relocations. The full interchange alternative impacts 13,862 linear feet of streams, and has 9,848 linear feet of stream relocations. Reusing the partial interchange avoids 1,105 linear feet of stream impacts while avoiding 715 linear feet of stream relocations.
- The partial interchange alternative impacts 61.9 acres of floodplain, whereas the full interchange alternative impacts 88.1 acres. Reusing the partial interchange avoids 26.2 acres of floodplain impacts.

As shown above, several environmental resource agencies cited their preference for the partial interchange due to this reduction in aquatic impacts.

### **Right-of-Way**

Maintaining the partial interchange avoids 27.7 acres of right-of-way acquisition and also avoids impacts to 10.9 acres of farmland and 3.8 acres of upland forest impacts when compared to the full interchange. Reusing the partial interchange also avoids one additional residential displacement. The partial interchange avoids \$5.2M in additional land acquisition costs required for the construction of the full interchange. The right-of-way impacts of each alternative are shown in Figure 6 (p. 43).

## **Other Considerations**

### **Construction Cost**

The partial interchange at Walnut Street avoids approximately \$39.3 million in additional construction, design, utility, and administrative costs required for the full interchange. Construction of a full interchange at Walnut Street would require redesigned structures and approaches to reduce the existing skew while avoiding a significant hill, re-routed use of historic Monroe County Bridge No. 913, and wetlands on the east of SR 37.

### **Historic Aspects**

Retaining the partial interchange will maintain the northern historic access for the established “Gateway” into Bloomington and Indiana University. Providing the partial interchange will preserve and avoid impacts to the historic Bridge Monroe No. 913 as compared to the full interchange construction. It is desirable to maintain the use of the Monroe County Bridge No. 913 as part of the local road system in response to concern expressed by the SHPO over potential “demolition through neglect” should the bridge cease to be an integral component of county infrastructure if the full interchange is constructed.

## Other Considerations

<b>Table 10: Changes in Section 5 Subsection D - Impacts to Resources, Full vs. Partial Walnut Street Interchange</b>		
<b>Impacts/Design Criteria*</b>	<b>With Full Interchange</b>	<b>With Partial Interchange</b>
Costs		
Right-of-Way Costs (\$M)	12.69M	7.50M
Construction/Design/Utility/ Admin Cost (\$M)	106.96M	67.69M
Total Cost (\$M)	119.65M	75.19M
Right-of-Way (ac)	176.12	148.44
Displacements (#)		
Residential	17	16
Institutional	0	0
Business	0	0
Total Displacements	17	16
Noise Impacts (#)	3	3
Section 4(f)	None	None
Total Wetland (ac)**		
Aquatic Bed Wetland	0.14	0.13
Emergent Wetland	3.19	2.31
Forested Wetland	4.99	1.55
Scrub/Shrub Wetland	0.07	0.07
Total Wetland Impacts	8.39	4.06
<p>* 2015 Dollars, excluding mitigation costs, \$M = million dollars, ac = acres, LF = linear feet</p> <p>** Total Natural Stream Impacts are the Total Stream Impacts minus concrete gutters, culverts, dump rock gutters, and roadside ditches</p> <p>Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits. The limitations of this table are from Subsection 5D of the Section 5 Draft Environmental Impact Statement. Subsection 5D begins at approximately 0.38-mile north of Kinser Pike along existing SR 37 approximately 2.4 miles ending 0.63-mile south of the existing intersection of SR 37 and Sample Road. This subsection directly includes the Walnut Street Interchange.</p>		

## Other Considerations

<b>Table 10: Changes in Section 5 Subsection D - Impacts to Resources Full vs. Partial Interchange (cont.)</b>		
<b>Impacts/Design Criteria*</b>	<b>With Full Interchange</b>	<b>With Partial Interchange</b>
Total Streams (lf)**		
Ephemeral	11658	10825
Intermittent	0	0
Perennial	2204	1932
Total Stream Impacts	13862	12757
Total Natural Stream Impacts**	6139	5867
Stream Relocations (lf)**	9848	9133
Floodplain (ac)	88.09	61.86
Karst Features (#)	3	3
Karst Features (ac)	0.2	0.2
Farmland (ac)	13.2	2.3
Managed Land (ac)	0.01	0.01
Upland Forest (ac)**	42.53	38.78
Core Forest (ac)	1.21	1.32
<p>* 2015 Dollars, excluding mitigation costs, \$M = million dollars, ac = acres, LF = linear feet</p> <p>** Total Natural Stream Impacts are the Total Stream Impacts minus concrete gutters, culverts, dump rock gutters, and roadside ditches</p> <p>Note: All impacts are by preliminary right-of-way and not necessarily the amount to be acquired, except wetland impacts which are by construction limits. The limitations of this table are from Subsection 5D of the Section 5 Draft Environmental Impact Statement. Subsection 5D begins at approximately 0.38-mile north of Kinser Pike along existing SR 37 approximately 2.4 miles ending 0.63-mile south of the existing intersection of SR 37 and Sample Road. This subsection directly includes the Walnut Street Interchange.</p>		

---

## CONCLUSION

---

The existing Walnut Street interchange on SR 37 serves only southbound exiting and northbound entering traffic. FHWA's guidelines<sup>3</sup> state that interchanges on newly-constructed interstate highways should serve all directions of travel. This project consists of "upgrading" SR 37 to I-69, not constructing a new interstate highway. Therefore, this interchange selection report provides justifications for retaining the existing partially-directional interchange at Walnut Street instead of providing a fully-directional interchange at this location. Approval from the Federal Highway Administration to include the existing interchange in the proposed Preferred Alternative in the Section 5 FEIS/Record of Decision is also requested. This request is based upon significant reductions in resource impacts and costs; public input; and the ability to continue to serve two of the four traffic movements at this facility. It also reflects the low levels of additional traffic served by a fully-directional interchange, compared with the significant increases in costs and impacts, as well as the adopted land use plans of Monroe County which seeks to discourage development in areas to which a full interchange would provide new access.

As presented in this document, both Alternative 8 with the partial interchange at Walnut Street and Alternative 9 with the full interchange are expected to operate at acceptable LOS throughout the study area. Traffic volumes are expected to increase for both alternatives over the No-Build condition due to increase in overall traffic using I-69 passing through the study area with only a slight decrease in LOS for some movements. However, all movements remain acceptable. There is expected to be little difference in the level of service provided throughout the study area between the two alternatives (8 and 9).

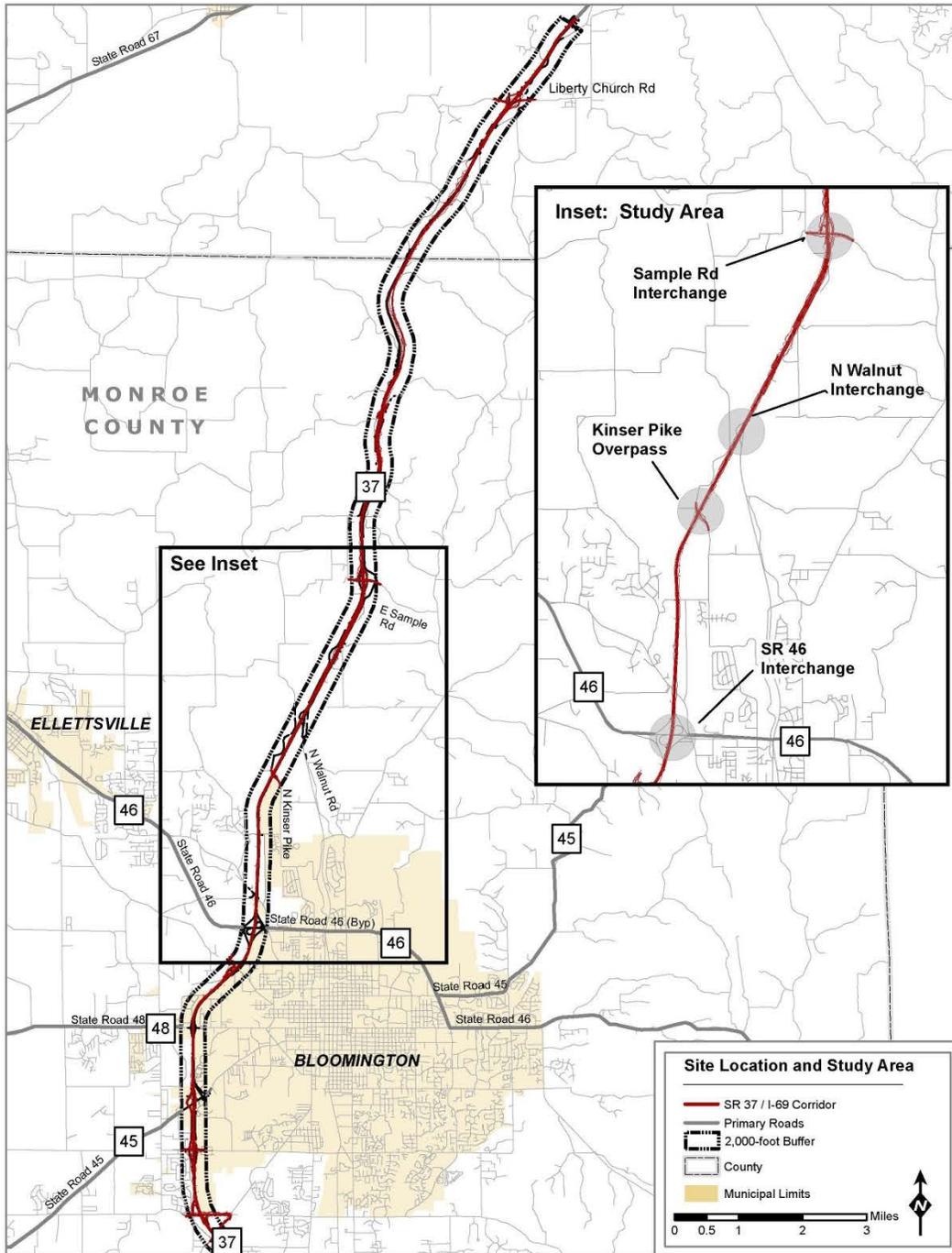
The partial interchange at Walnut Street is recommended to be included in the FEIS Refined Preferred Alternative, on the basis of reusing existing infrastructure, avoiding environmental impacts, and cost. Based on the above justifications, it is recommended that the FHWA approve the reuse of the partial interchange at Walnut Street.

---

(3) *Access to the Interstate System*, U.S. Department of Transportation (USDOT), FHWA, 74 FR 165, August 27, 2009.

Figures

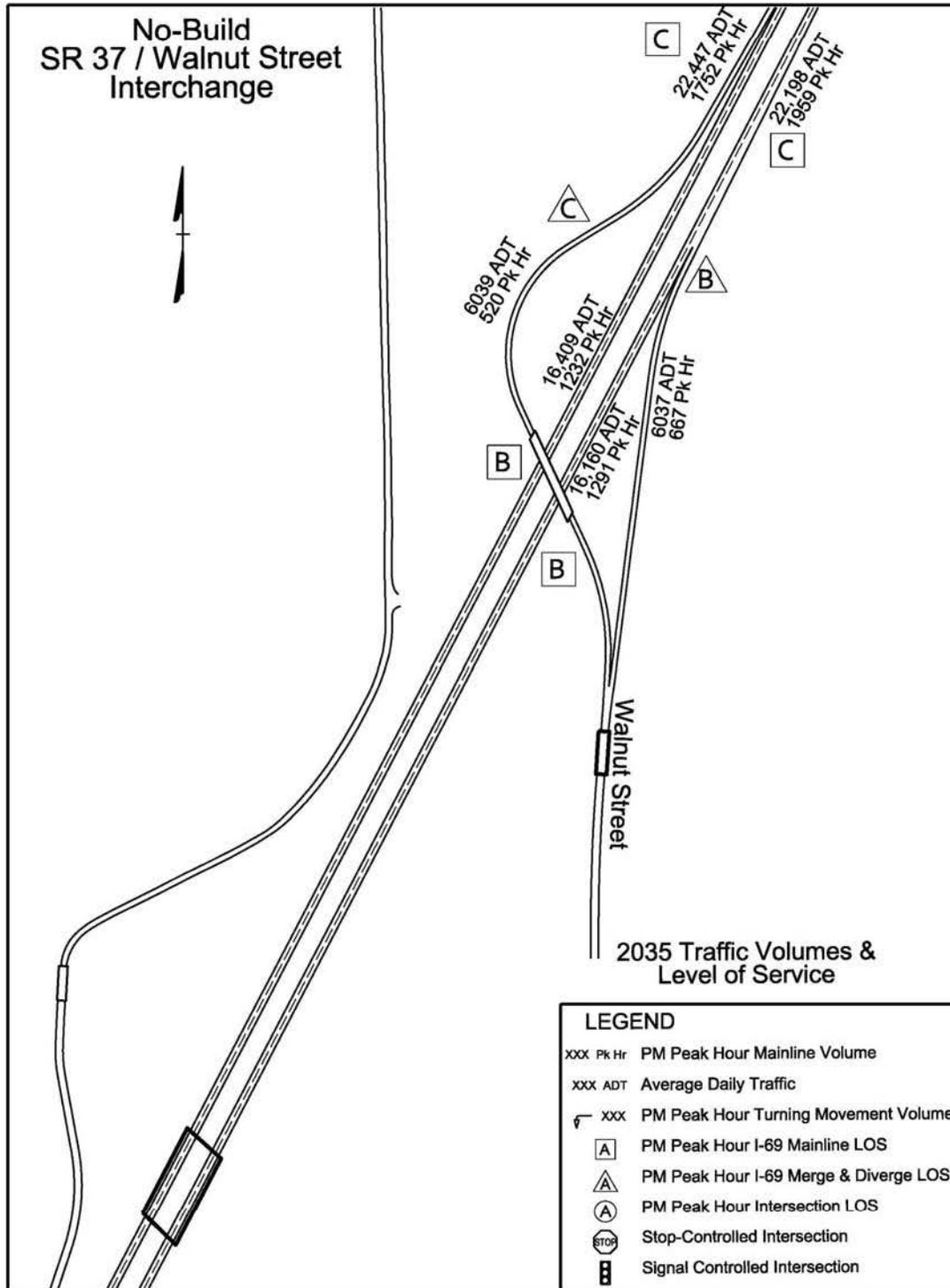
Figure 1: Location Map and Study Area





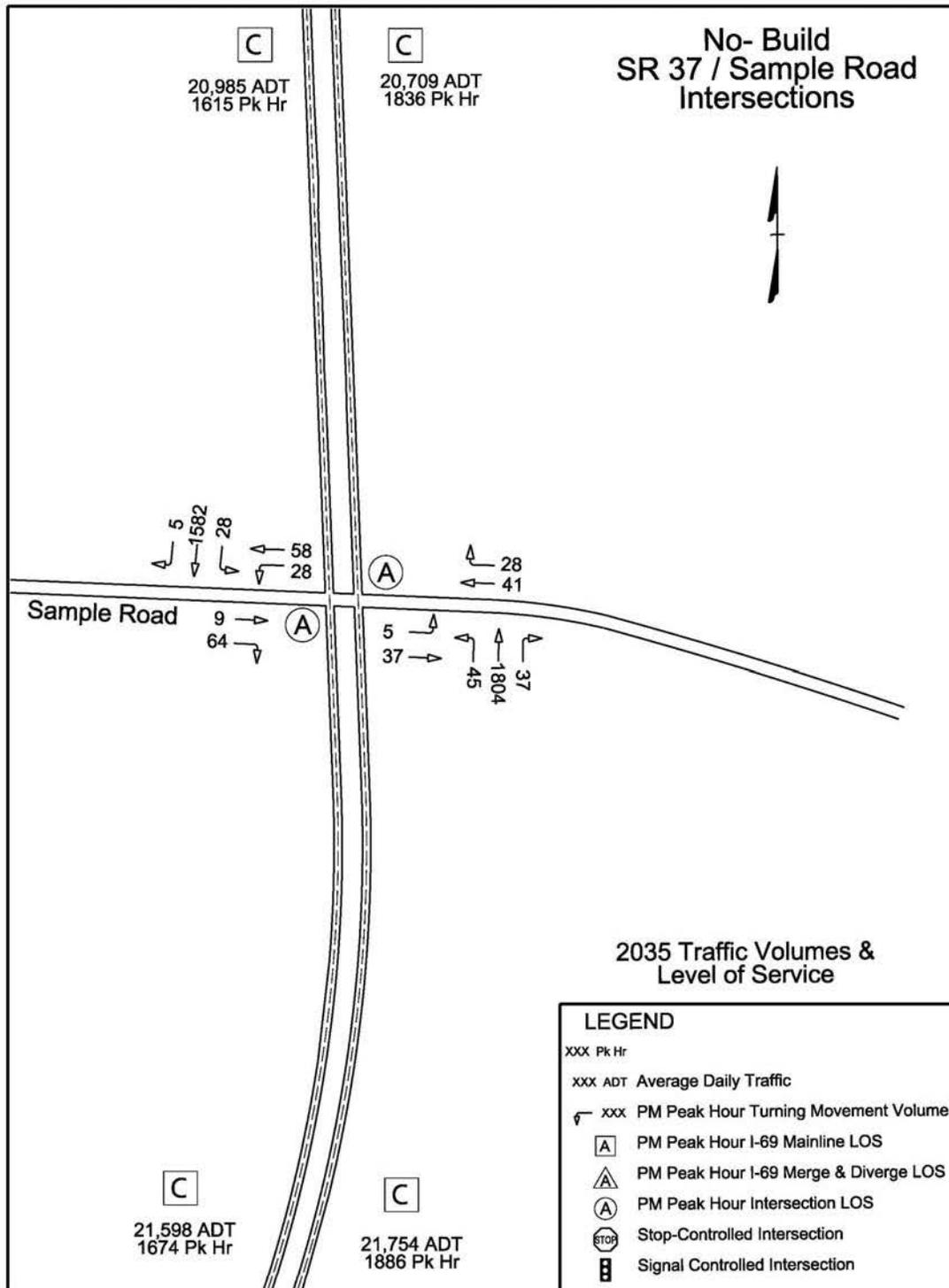
Figures

Figure 2-2: 2035 No-Build Traffic Volumes and LOS (Walnut Street Interchange)



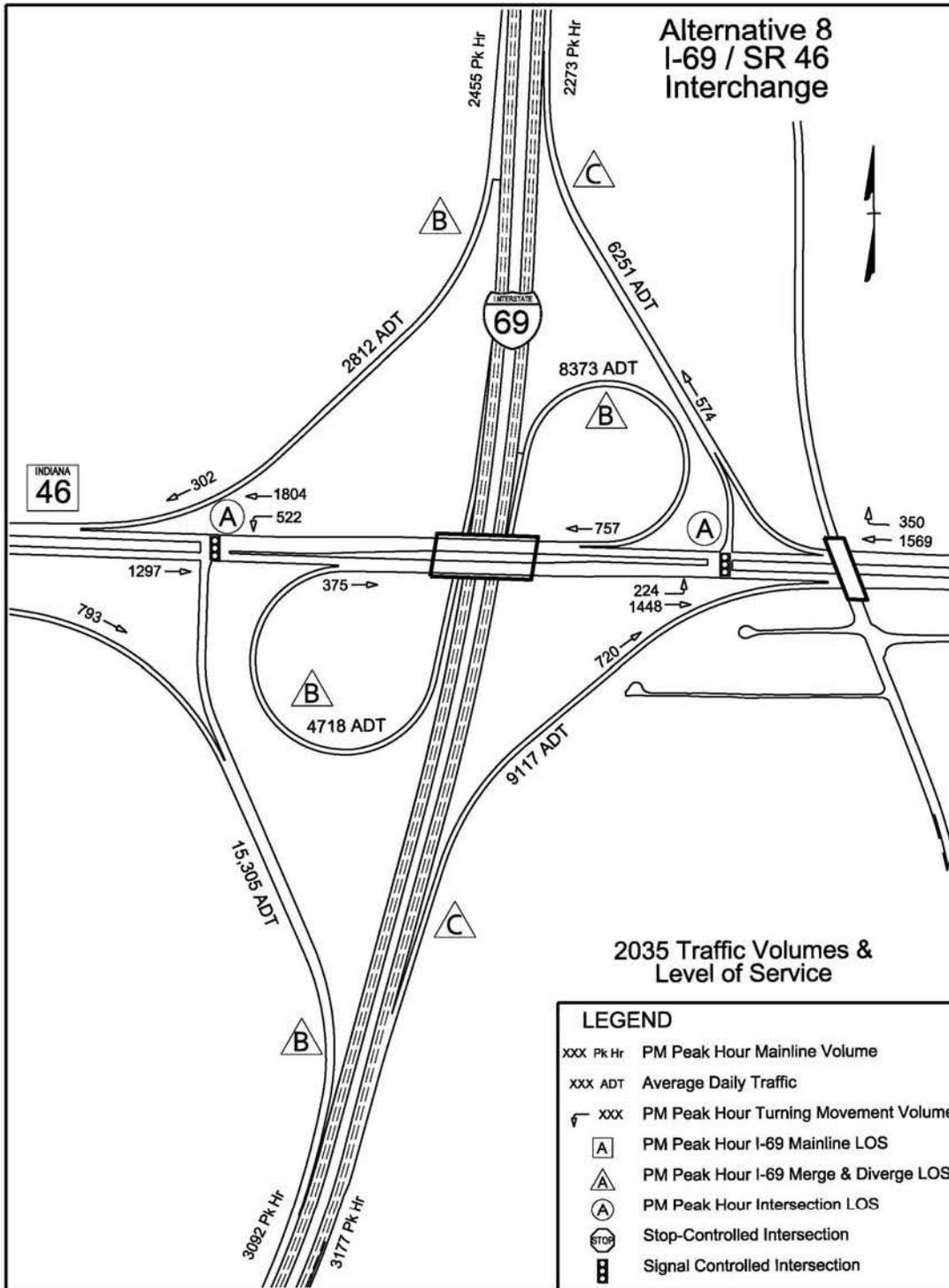
Figures

Figure 2-3: 2035 No-Build Traffic Volumes and LOS (Sample Road Intersection)



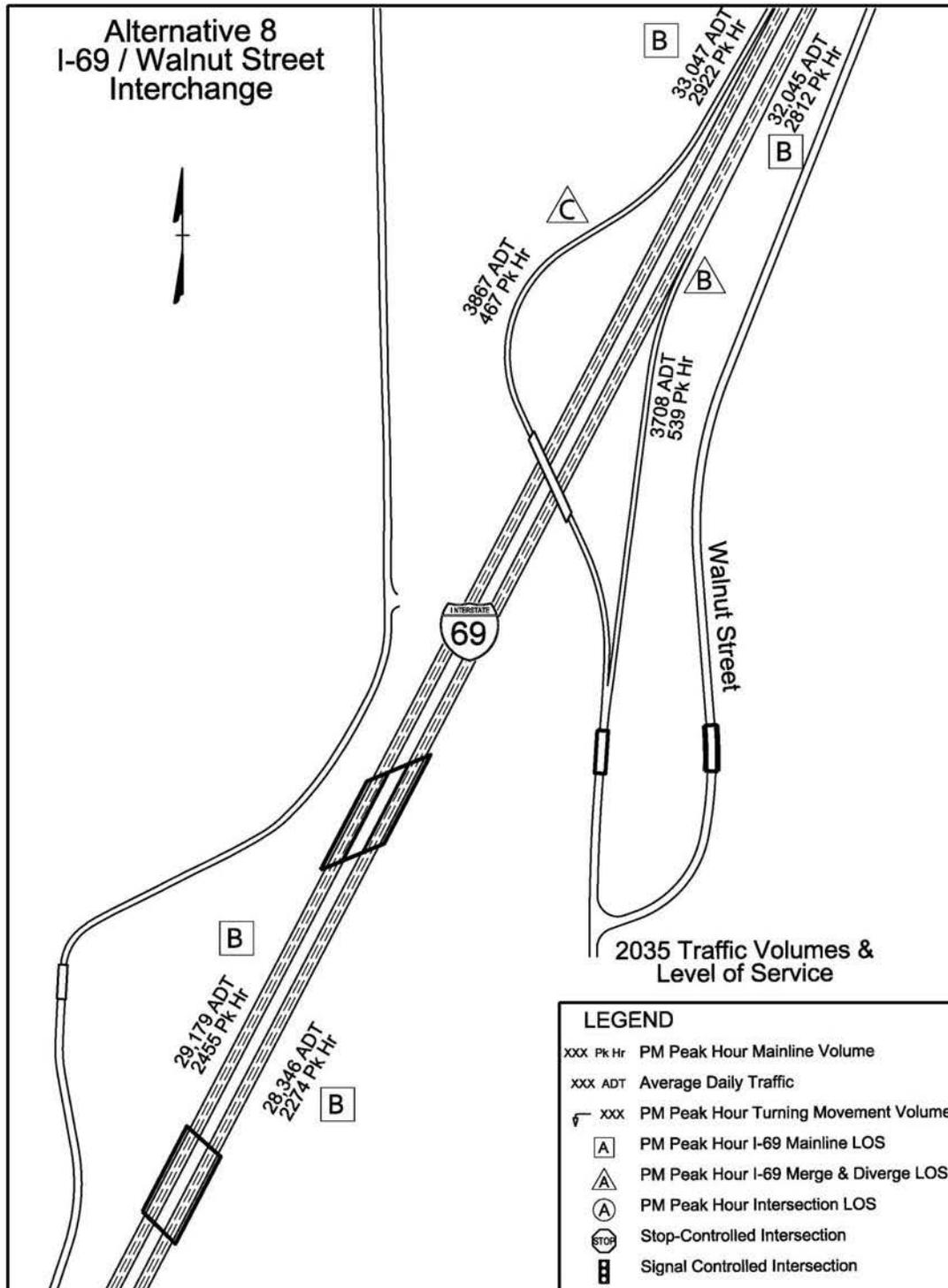
Figures

Figure 3-1: 2035 Build Alternative 8 Traffic Volumes and LOS (SR 46 Interchange)



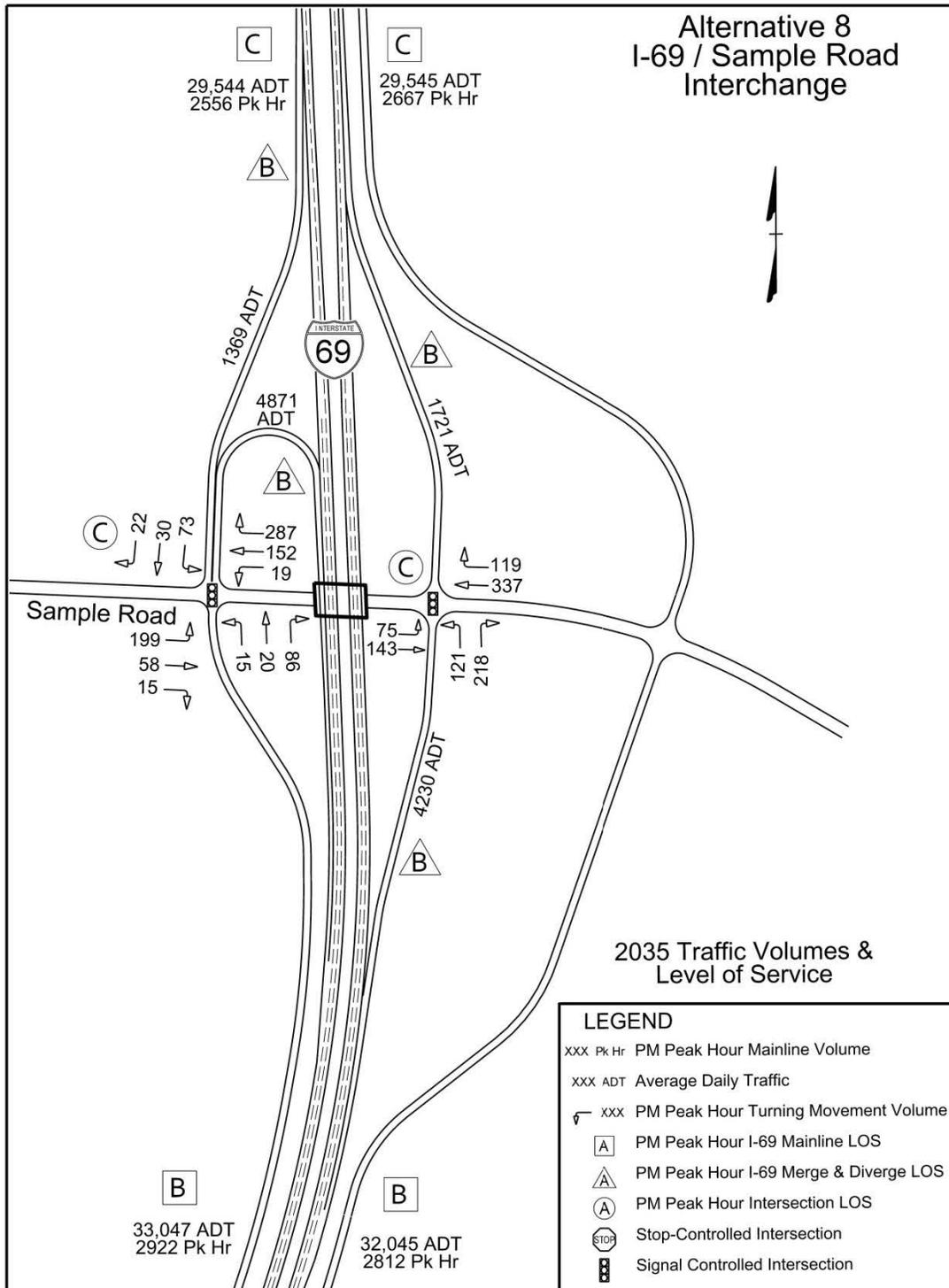
Figures

Figure 3-2: 2035 Build Alternative 8 Traffic Volumes and LOS (Walnut Street Interchange)



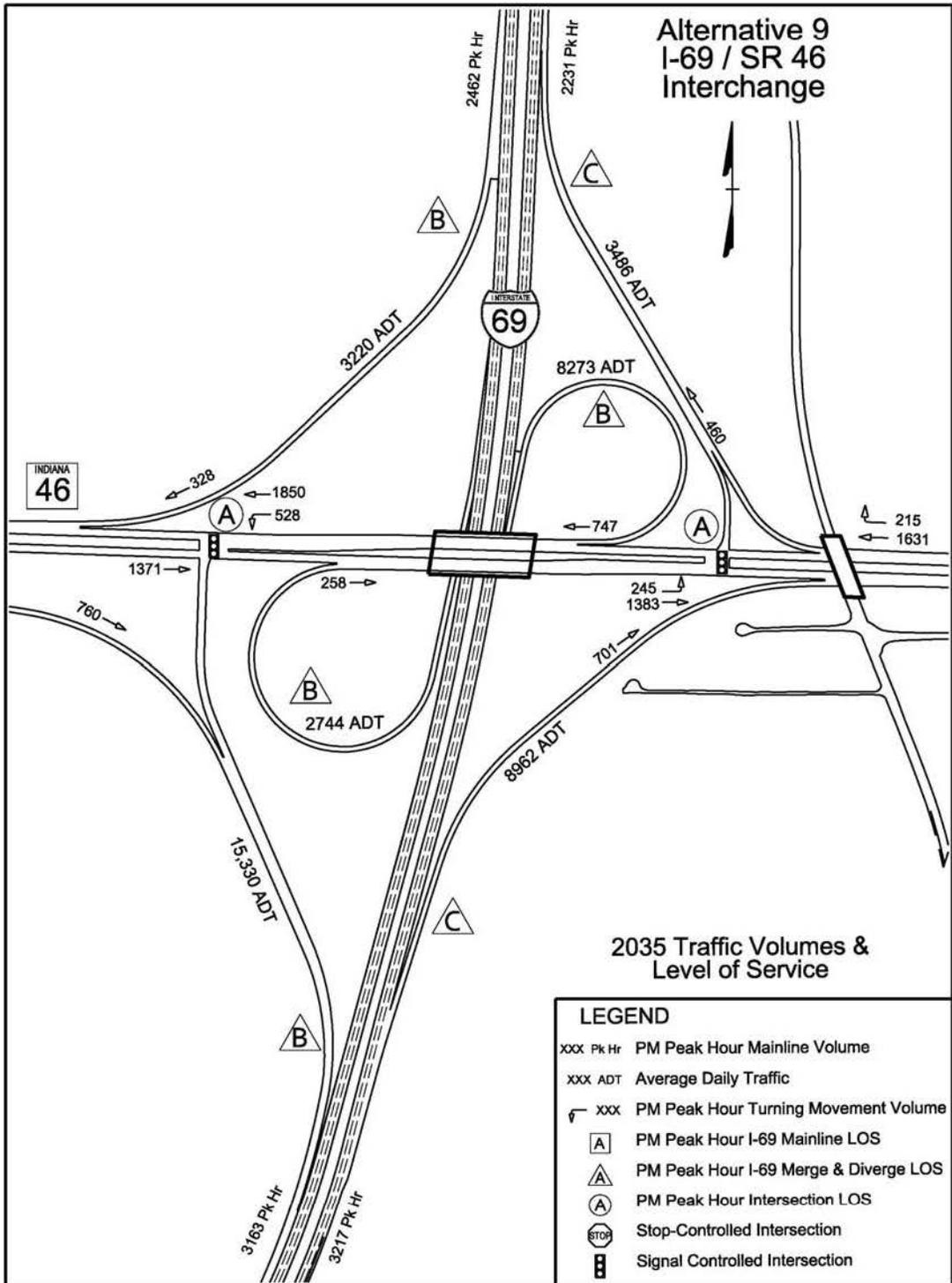
Figures

Figure 3-3: 2035 Build Alternative 8 Traffic Volumes and LOS (Sample Road Interchange)



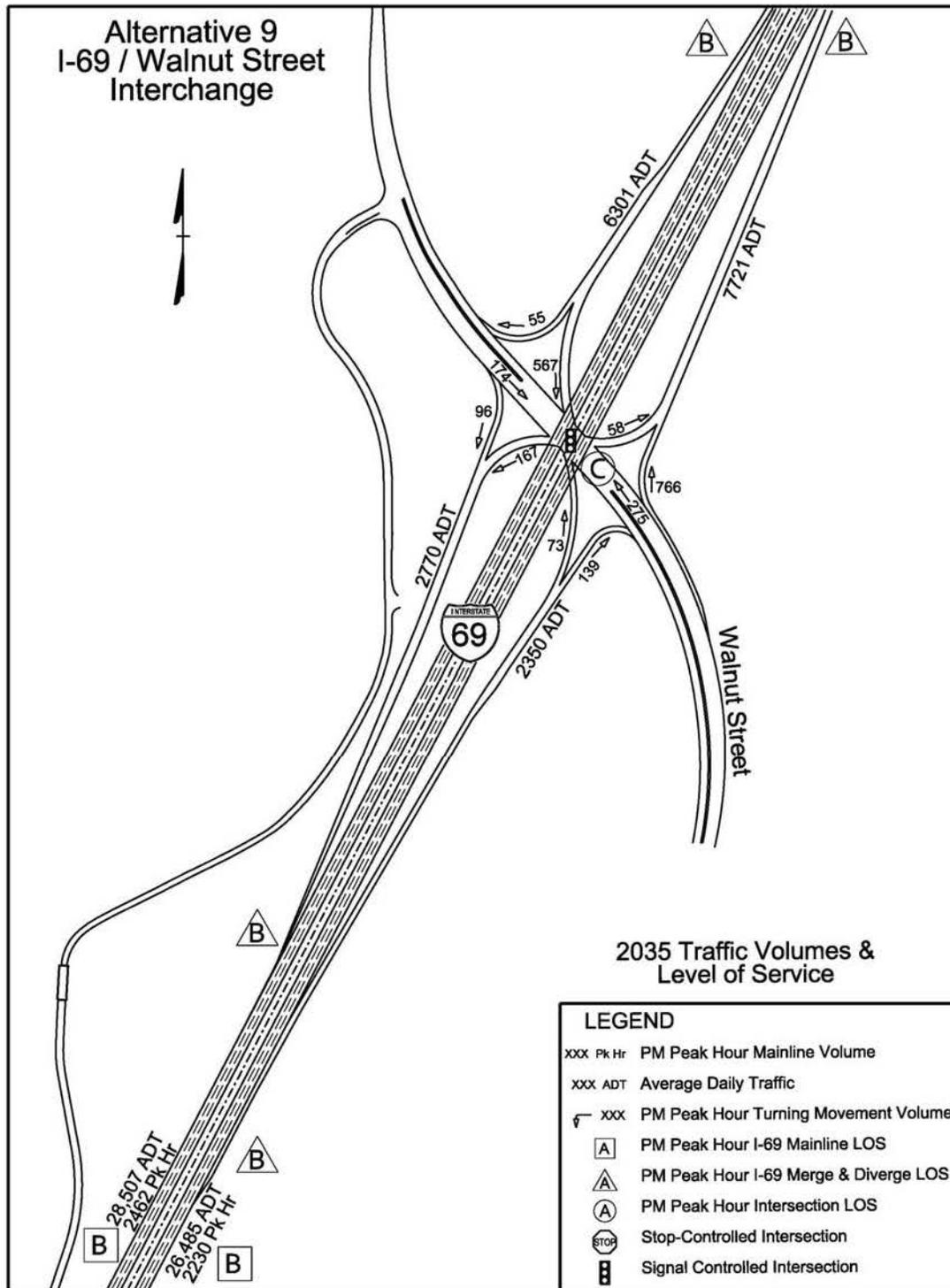
Figures

Figure 4-1: 2035 Build Alternative 9 Traffic Volumes and LOS (SR 46 Interchange)



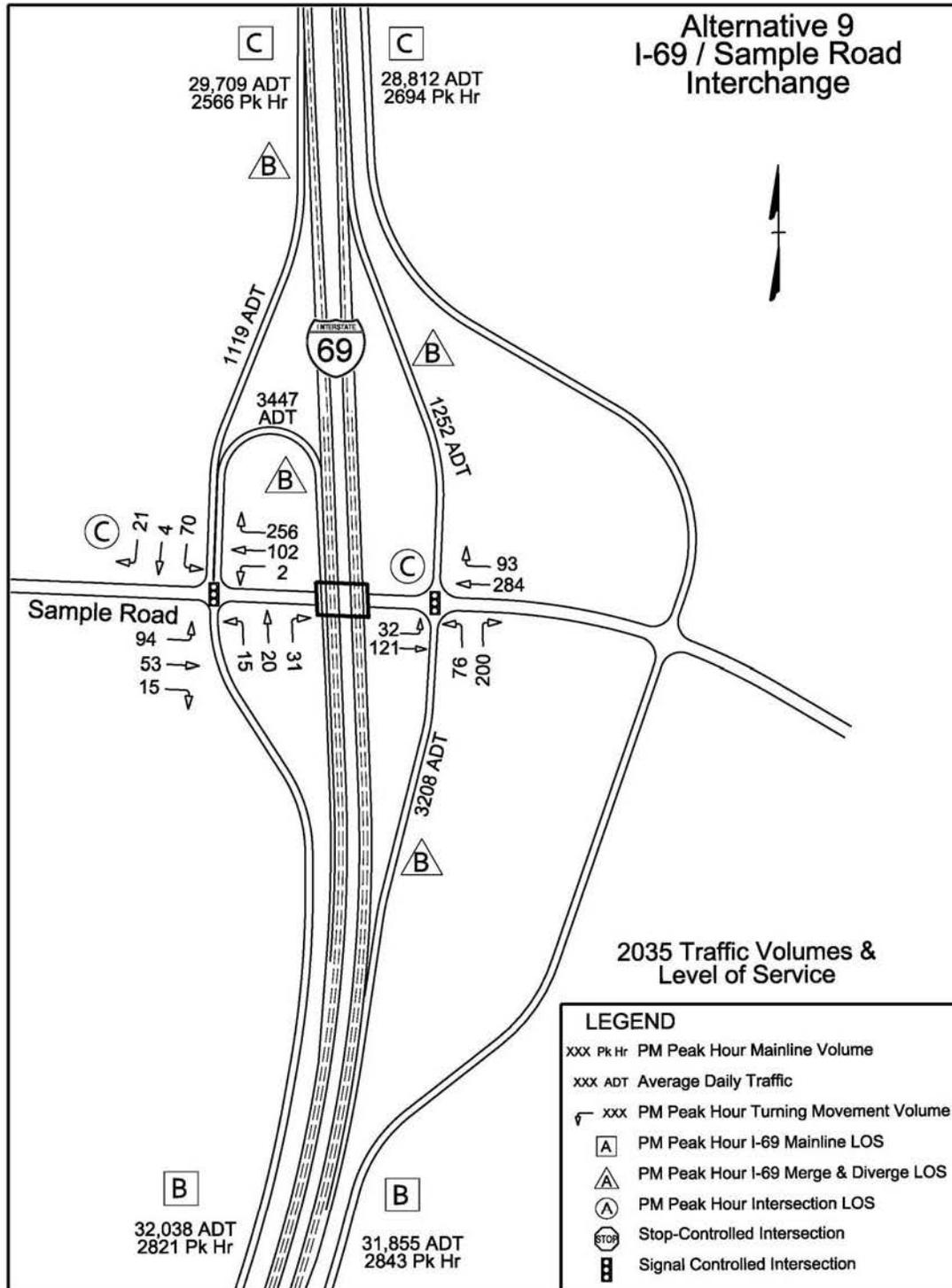
Figures

Figure 4-2: 2035 Build Alternative 9 Traffic Volumes and LOS (Walnut Street Interchange)



Figures

Figure 4-3: 2035 Build Alternative 9 Traffic Volumes and LOS (Sample Road Interchange)



Figures

Figure 5: Existing Crash Data on SR 37

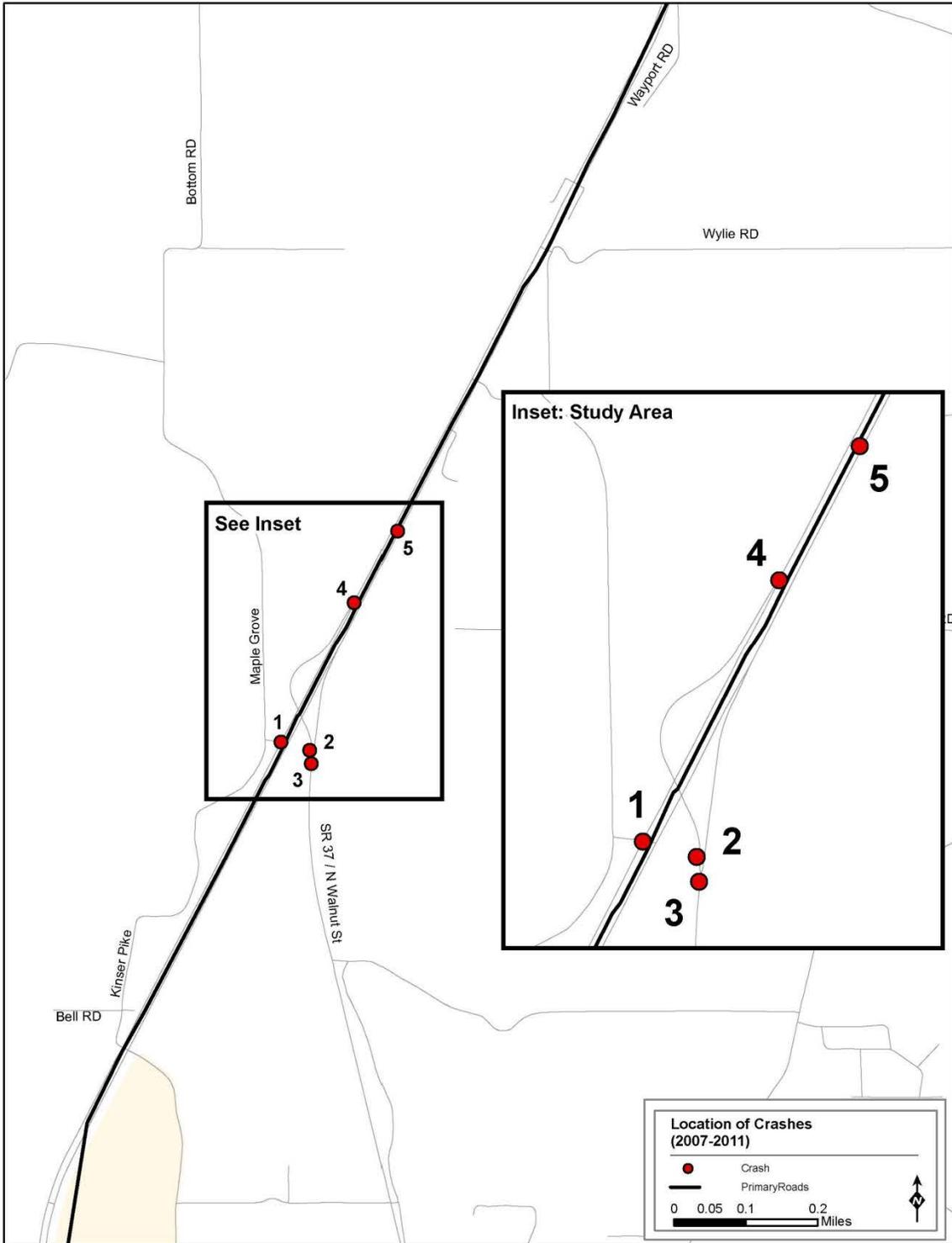
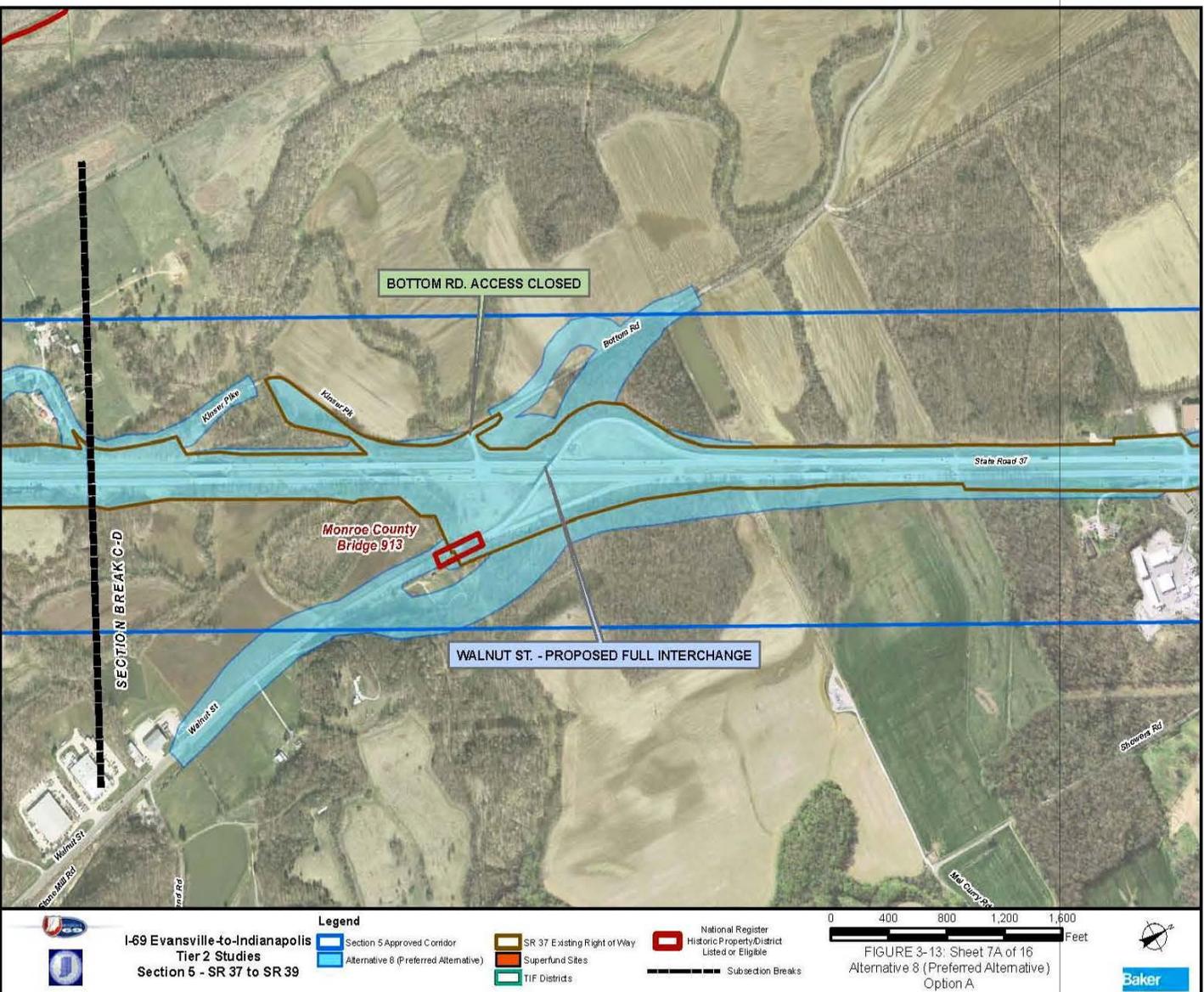


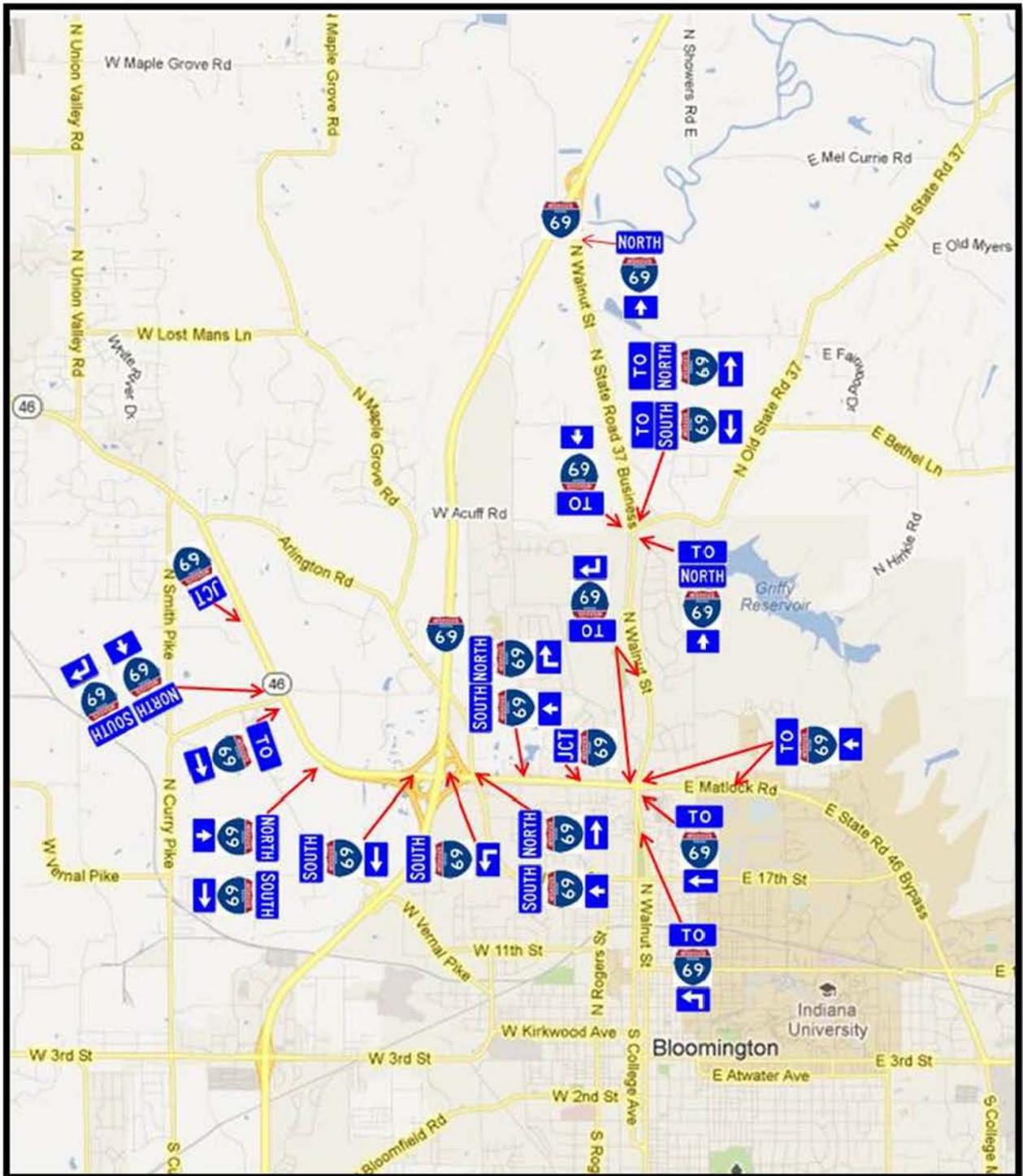
Figure 6: Right-of-way Footprint for Alternatives



Alternative 8 (Partial Interchange) footprint shown in brown  
Alternative 9 (Full Interchange) footprint shown in blue

Figures

Figure 7: Advanced Interstate 69 Guide Signs for Alternative 3 (Partial Interchange)\*



\*Please note these signs are preliminary and are subject to change. Additional signage will be considered at the interchanges and on I-69 as the design progresses.



**I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES**

**Section 5—Final Environmental Impact Statement**

---

**APPENDIX RR  
WALNUT STREET INTERCHANGE SELECTION REPORT**

**TECHNICAL REPORT ATTACHMENT**

---

**ATTACHMENT A**

**FHWA Email  
Documenting  
Concurrence**

## James, Margaret

---

**From:** Bgeorge@dot.gov  
**Sent:** Wednesday, February 27, 2013 9:02 AM  
**To:** SFlum@indot.IN.gov  
**Cc:** michelle.allen@dot.gov; TSEEMAN@indot.IN.gov; DBUTTS@indot.IN.gov; Hamman, Mary Jo; Robert.Dirks@dot.gov; Jay.DuMontelle@dot.gov  
**Subject:** RE: I-69, Section 5 - Walnut St. Interchange Selection Report  
**Attachments:** Walnut St Partial Interchange Selection\_Feb2013.pdf

Good morning, Sandra.

On February 14<sup>th</sup>, 2013, the Indiana Department of Transportation (INDOT) submitted a proposal to the Federal Highway Administration (FHWA) for concurrence. The proposal is to retain the existing partially-directional interchange (IC) at State Route 37 (SR-37) and Walnut Street, instead of providing a fully-directional IC at this location. The existing Walnut Street IC on SR-37 is within Section 5 of the proposed I-69 corridor project, and serves only southbound exiting and northbound entering traffic. This section of the proposed I-69 is intended to reconstruct the existing SR-37 corridor to meet Interstate standards with full access control.

FHWA has reviewed this proposal, and during our review, we noted that the request for FHWA concurrence is based upon significant reductions in resource impacts and costs; public input; and the ability to continue to serve two of the four traffic movements effectively at this facility. It also reflects the low levels of additional traffic served by a fully-directional IC, compared with the significant increases in costs and impacts, as well as the adopted land use plans of Monroe County which seeks to discourage development in areas where a full interchange would provide new access.

Consequently, FHWA concurs to retain the existing partially-directional IC at SR-37 and Walnut Street, instead of providing a fully-directional IC at this location. The FHWA concurrence is based on the understanding by both agencies that:

1. Functional sign package shall be used to mitigate the driver expectancy violation caused by this proposal; and installation of these signs shall be included in the ROD as environmental commitment.
2. When safety and/or additional traffic dictates reconstruction of the roadway at this location, a fully-directional IC shall be constructed to replace the partially-directional IC

Should you have questions, please, do not hesitate to contact me.

Bren J. George-Nwabugwu

FHWA - Indiana Division

Phone: (317) 226-7342; Cell: (317) 985-8997; Fax: (317) 226-7341

### FHWA Values



---

**From:** Flum, Sandra [<mailto:SFlum@indot.IN.gov>]  
**Sent:** Thursday, February 14, 2013 10:56 AM  
**To:** George, Bren (FHWA)  
**Cc:** Allen, Michelle (FHWA)  
**Subject:** I-69, Section 5 - Walnut St. Interchange Selection Report

Bren,  
Attached is INDOT's request for concurrence to continue the use of a Partial Interchange at Walnut Street in Bloomington, as part of the I-69 project. As part of INDOT's work plan this year, the bridge deck will be replaced along with other improvements at the partial interchange. We look forward to holding a discussion about the attached document next week, as you are available.

I appreciate your review and response.  
Sandra

*Sandra A. Flum, MPA  
Project Manager  
INDOT  
317-234-7248 office  
317-650-9237 cell*