Appendix EE: I-69 Tier 2, Section 6 Conceptual Alternatives Screening Report, March 29, 2016

Tier 2 Environmental Impact Statement

I-69 Section 6

Martinsville to Indianapolis

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Executive Summary

The purpose of the I-69 Section 6 Preliminary Alternatives Screening Report is twofold:

1) Identify the route alternative(s) for consideration in the Environmental Impact Statement (EIS) for the project, and

2) Define the alternative alignments within the identified corridor(s) that will be advanced in the EIS for further study as reasonable alternatives.

To accomplish these objectives, the report is presented in two parts. Part 1 evaluates preliminary alternatives. Part 2 reviews alternative alignments within the selected route to define components of alternatives to be evaluated in the EIS.

Background

The I-69 Evansville to Indianapolis Tier 1 Final Environmental Impact Statement (FEIS) was published on December 5, 2003 and the Tier 1 Record of Decision (ROD) was approved on March 24, 2004. The Tier 1 ROD selected a corridor centered on existing State Road (SR) 37 for advancement into the Section 6 Tier 2 studies. The Tier 1 ROD permitted consideration of additional alternatives outside the selected corridor to avoid significant impacts. In 2006, efforts in Section 6 were minimized to include only critical management and public outreach activities while other sections were being completed.

On October 15, 2014, the Federal Highway Administration (FHWA) published a Notice of Intent (NOI) in the *Federal Register* to advise the public and resource agencies that Tier 2 studies in Section 6 were resuming.[1] Due to the potential for increased impacts and/or changed conditions along SR 37, the NOI established a scoping process to determine whether to consider alternatives outside the selected Tier 1 corridor. The NOI also confirmed that an alternative using SR 37, within the Tier 1 approved corridor, would be included in the Tier 2 EIS for Section 6. With the SR 37 alternative identified as one of the alternatives, the question in Part 1 was whether to advance other alternatives for study in the Tier 2 EIS.[2]

Part 1 – Preliminary Alternative Route Selection

Based on public input and changed conditions in the corridor, alternatives located in part or entirely outside the SR 37 corridor were considered initially as conceptual alternatives. In addition to the 26 conceptual alternatives that deviate from the SR 37 corridor, Alternative C is identified and corresponds to the SR 37 corridor that was selected in Tier 1. Based on qualitative screening,

[1] The Notice of Intent published in the Oct. 15, 2014, *Federal Register*, which announced the resumption of studies in Section 6 provides that alternatives already considered within the Tier 1 approved corridor (SR 37) will remain under consideration for the study.

[2] The 2004 Tier 1 Record of Decision (ROD) selected corridor is Alternative 3C for I-69 from Evansville to Indianapolis. The Section 6 portion of the Tier 1 Alternative 3C corridor is centered on SR 37 between Martinsville and Indianapolis. Because Alternative 3C represents the alternative within the approved Tier 1 corridor, it will be carried forward as an alternative throughout the DEIS.

conceptual alternatives were reduced to 13 plus Alternative C. Five preliminary alternatives were eventually evaluated for performance measures, human and environmental impacts, and costs**.**

The five preliminary alternatives all originate just south of SR 39 in Martinsville and follow the SR 37 corridor for at least 9 miles. From this point, they vary in alignment and interchange connection points with I-465. The preliminary alternatives evaluated are as follows.

- **Alternative C:** Follows SR 37 from south of SR 39 to I-465.
- **Alternative B:** Follows SR 37 for about 9 miles then leaves SR 37 on new alignment near Henderson Ford Road, crossing SR 67 between Bethany and Brooklyn, to a point on I-70 west of Plainfield, then along I-70 to I-465.
- **Alternative D:** Follows a route similar to Alternative B, with a variation in the route to cross SR 67 just south of Mooresville.
- **Alternative K3:** Follows SR 37 for about 17 miles, then extends westerly from a point just south of SR 144 on new terrain to cross the White River, then parallel to SR 37 on the west side of the river to interchange with I-465 at Mann Road.
- **Alternative K4:** Follows a route similar to K3, except that it leaves SR 37 about 6 miles closer to Martinsville (just north of Cragen Road) before crossing the White River and proceeding north to interchange with I-465 at Mann Road.

Each preliminary alternative was evaluated based on its ability to meet purpose and need performance measures identified for the project. Alternatives were also evaluated based on relative cost, with Alternative C used as a baseline for comparison. Additionally, impacts to the natural and human environment were compared. The natural environment includes resources such as streams, wetlands and forests. The human environment includes historic properties, archeological sites and land parcel impacts.

The quantitative information developed to describe the performance, relative cost, and impacts of the five preliminary alternatives was presented at three public meetings held November 30, December 2 and December 3, 2015. Over 900 comments were received during the public comment period.

Based on technical review of the quantitative information, it was determined that the preliminary alternatives outside the SR 37 corridor would either be more costly with no notable advantage in performance or environmental impact (Alternatives K3 and K4), or that their cost and environmental impacts would be similar, with lower performance (Alternatives B and D).

Over 85 percent of comments supporting one of the five preliminary alternative routes supported Alternative C, utilizing the existing SR 37 corridor. Additional detail is provided in Appendix E.

Part 1 Conclusion

The quantitative information presented in Part 1 was used along with public and agency input to determine that Alternatives B, D, K3 and K4 should be eliminated from further consideration. All reasonable alternatives advanced for evaluation in the Tier 2 EIS will follow the Alternative C route (SR 37). This corresponds to the alternative selected in the I-69 Tier 1 Record of Decision (ROD), known as Alternative 3C.

Part 2 – Alternative Alignment Definition

Part 2 of this report completes the process of defining reasonable alternatives to be studied in the EIS. Instead of comparing alternative routes as in Part 1, alternate roadway configurations (referred to as alternative alignments) are evaluated for use within the SR 37 corridor.

The refinement of alternative alignments involves the definition of typical roadway sections, interchange types and locations, roadway crossing locations, and preliminary local service road configurations. Maps of these alternative alignments, coupled with pertinent impact data, are included in Part 2 of the report and will be presented for public and agency comment. The alternatives refinement process included the following activities.

1. Define the basic design criteria. These are geometric parameters and dimensions, design speeds, level of service, and access control measures for the I-69 mainline and local service roads. State and federal standards are used to define these criteria. In some cases, exceptions to optimal design standards are considered to minimize costs or impacts of alternative alignments.
2. Define and locate environmental resources that might affect the roadway layouts. These include wetlands and waterways, historic properties, recreational and community resources, cemeteries and forested areas. Property acquisition to provide new right of way is also identified for each alternative alignment.
3. Develop mainline design options for I-69, including median widths, shoulder widths, shifts to avoid environmental resources, and other details associated with the specific alignment of the freeway itself.
4. Identify local service road configurations, including points of access to I-69 and types of interchanges, and crossings or linkages to maintain local roadway continuity. A range of factors are considered, including local road importance, traffic volumes, school bus and emergency vehicle routes, and the desire to maintain existing property access.
5. Present the alternative alignments to local governments, resource agencies and the public, and carry forward, modify, or eliminate alternative alignments in response to information gathered and input received.

This report documents steps 1 through 4 above, including a subsection by subsection review of the entire corridor, identifying key elements related to the definition of the alternative alignments for potential evaluation as reasonable alternatives in the EIS. Alternative alignments are defined by mainline treatment (on sections between interchanges), interchange types and locations, crossing locations, and local service road configurations.

The alternative alignments are numbered based on the mainline treatment, but the combination of other components would affect their overall function and , it is likely that the preferred alternative in the EIS will include a mix of components from different alternative alignments. The mainline portions of the alternative alignments are described below.

- Alternative Alignment C1 – Desirable Design Criteria. This alternative alignment would be designed to meet the minimum design criteria for a new freeway and meet higher standards (called “desirable” design criteria) where practical. Since the existing median width of SR

37 does not meet these standards, at least one side of SR 37 (serving one direction of traffic) would need to be reconstructed throughout the corridor while the other side would be reused.

- Alternative Alignment C2 – Narrow Median, Standard Shoulders and Side Slopes. This alternative alignment would be designed to maximize pavement reuse. The existing SR 37 center median width would be retained, but outside shoulders and ditches would be reconstructed to meet interstate standards for shoulder width, side slopes and clear zones.

- Alternative Alignment C3 – Narrow Median, Narrow Shoulders, Existing Ditches. This alternative alignment would maximize the reuse of existing SR 37 pavement, shoulders and ditches. Design exceptions would require approval by FHWA and/or INDOT for features such as shoulder width, obstruction free zones along the roadway and other geometric design elements.

Through Martinsville, Alternative Alignment C1 would be raised so that bridges could be used over cross streets and impacts to adjacent properties could be minimized. All of the alternative alignments would also be raised between Southport Road and I-465 for the same purpose of minimizing impacts to adjacent properties and serving crossroads at their current elevation.

The alternative alignments differ with respect to interchange locations and types, bridges for crossroads, and the configuration of local service roads in addition to the mainline treatments. The alternative alignments are described in detail in Part 2 of the report and detailed maps are provided in an appendix for review by agencies and the general public.

Following public and agency review of this report, the alternative alignments will be carried forward for detailed evaluation in the EIS. The process for defining the preferred alternative will include an analysis of the mainline for the length of the project. It will be important to maintain consistent median width, side slopes and shoulder width through long segments of the corridor. These features are generally not impacted by decisions regarding interchange, crossing and service road components. Interchange location and design, and crossing and service road components will be evaluated in a subsection by subsection review since the best option will depend on local factors.

PRELIMINARY ALTERNATIVE ROUTE SELECTION

Preliminary Alternatives Screening Report

Part 1 of 2

1 Introduction

The I-69 Evansville to Indianapolis Tier 1 Final Environmental Impact Statement (FEIS) was published on December 5, 2003 and the Tier 1 Record of Decision (ROD) was approved on March 24, 2004. The Tier 1 ROD selected a corridor centered on existing State Road (SR) 37 for Section 6 Tier 2 studies. The Tier 1 ROD also permitted consideration of alternatives outside the selected corridor to avoid significant impacts. In 2006, efforts in Section 6 were minimized to include only critical management and public outreach activities while other sections were being completed.

On October 15, 2014, the Federal Highway Administration (FHWA) published a Notice of Intent (NOI) in the *Federal Register* to advise the public and resource agencies that Tier 2 studies in Section 6 were resuming.[3] Due to the potential for increased impacts and/or changed conditions along SR 37, the NOI established a scoping process to determine whether to consider alternatives outside the selected Tier 1 corridor. The NOI also confirmed that an alternative using SR 37, within the Tier 1 approved corridor, would be included in the Tier 2 Environmental Impact Statement (EIS) for Section 6. Therefore, throughout this report, a SR 37 alternative is included in the total number of conceptual and preliminary alternatives[4].

Based on public input and changed conditions in the corridor, alternatives located in part or entirely outside the SR 37 corridor were considered as conceptual alternatives. In addition to the 26 conceptual alternatives that deviate from the SR 37 corridor, Alternative C is identified and corresponds to the SR 37 corridor selected in Tier 1. One or more versions of Alternative C will be carried forward throughout the DEIS. Based on qualitative screening, the number of conceptual alternatives was reduced to 13 plus the SR 37 corridor (Alternative C). Five preliminary alternatives were eventually evaluated for performance measures, human and environmental impacts, including Alternative C, and costs (see maps in **Appendix A).**

The Section 6 *Preliminary Alternatives Screening Report* is prepared in support of the Tier 2 Environmental Impact Statement (EIS) for Section 6 of the I-69 Evansville to Indianapolis project. This portion of the report (Part 1 of 2) reviews the route alternatives from the conceptual screening process to determine which one(s) should advance. Part 2 identifies alignment alternatives and design features within the selected route(s). These options will be reviewed with project stakeholders, resource agencies and the public for comments and feedback. The purpose of this process is the development and selection of reasonable alternatives to be studied in detail in the Section 6 EIS.

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[3] The Notice of Intent published in the Oct. 15, 2014, *Federal Register*, which announced the resumption of studies in Section 6 provides that alternatives already considered within the Tier 1 approved corridor (SR 37) will remain under consideration for the study.

[4] The 2004 Tier 1 Record of Decision (ROD) selected corridor is Alternative 3C for I-69 from Evansville to Indianapolis. The Section 6 portion of the Tier 1 Alternative 3C corridor is centered on SR 37 between Martinsville and Indianapolis. In this report, the alternative that uses the selected Tier 1 corridor is referred to as Alternative C. Because Alternative C represents the alternative within the approved Tier 1 corridor, it will be carried forward as an alternative throughout the DEIS. In this report, four other alternative routes outside the Tier 1 corridor are being evaluated to determine if any of them should be carried forward along with Alternative C.

The process of ultimately selecting an alternative for design and construction in the Record of Decision (ROD) includes a series of screening activities (**Figure 1-1**) that define and evaluate alternatives in increasing detail. Major milestones include the following.

- Develop conceptual alternatives. (Completed February 2015)
- Refine conceptual alternatives. (Completed May 2015)
- Refine conceptual alternatives, screen to preliminary alternatives. (Completed June 2015)
- Refine preliminary alternatives and screen to reasonable alternative route(s). (Screening Report, Part 1)
- Develop alignment alternatives within reasonable alternative(s). (Screening Report, Part 2)
- Refine and evaluate reasonable alternatives and publish the DEIS. (First quarter, 2017)
- Identify selected alternative in the FEIS/ROD. (First quarter, 2018)

Figure 1-1: Alternatives Evaluation and Screening Process

This part of the report describes the refinement of the preliminary alternative routes and screening to reasonable alternatives based on the ability to meet the project purpose and need, impacts, and cost. Reasonable alternatives are defined in greater detail in Part 2, with alignment alternatives, typical sections, grade separations, interchanges, and local service roads. Preliminary right of way limits have been developed based on these features.

The preliminary alternatives reviewed in this report were selected from a larger group of initial conceptual alternatives. The process of narrowing 27 conceptual alternatives to five preliminary

alternatives is described in the *Preliminary Alternatives Selection Report,* dated June 30, 2015[5], which is available on INDOT's website at http://www.i69indyevn.org/.

1.1 Project Overview

The corridor selected in the I-69 Tier 1 EIS is located along existing SR 37 in Morgan, Johnson and Marion counties. Section 6, which is 27 miles long, begins just south of the SR 39/SR 37 interchange in Martinsville and continues northward to I-465 in Indianapolis.

1.2 Tier 1 Environmental Impact Statement

On March 24, 2004, the Federal Highway Administration (FHWA) approved a Tier 1 Record of Decision (ROD) for the Indianapolis-to-Evansville section of I-69. The Tier 1 ROD made the following determinations.

- Build an Interstate highway, I-69, between Evansville and Indianapolis.
- Build the highway in the selected "corridor," known as Alternative 3C.
- Separate the Tier 2 phase of the project into six separate sections.
- Prepare Tier 2 environmental impact statements for each of the six sections.

The purpose of the I-69 Tier 1 EIS and ROD was to identify a corridor for I-69, to be followed by the development of alternative alignments within the selected corridor in a separate Tier 2 EIS for each section. The Tier 1 ROD identified a corridor that generally is 2,000 feet wide and centered on SR 37 through nearly all of Section 6 (Alternative 3C), from south of SR 39 to I-465 on the southwest side of Indianapolis.

FHWA and INDOT recognized the potential for increased impacts and/or changed conditions in the corridor since the Tier 1 ROD was issued in 2004. They initiated a scoping process that addressed these issues when studies for the Section 6 Tier 2 EIS resumed in late 2014. The scoping process was designed to obtain input and identify issues related to considering Tier 2 alternatives outside of the approved corridor. The scoping process was also designed to inform the agencies about current local needs for the Section 6 project area.

The scoping process included resource agency and public meetings, comparison of 2003 and 2015 development patterns along SR 37, assembly and review of baseline traffic data, and a review of environmental impacts using existing Geographic Information System (GIS) data. FHWA concluded from this scoping process that not only would Tier 1 Alternative 3C (Alternative C in this report) be carried forward throughout the Section 6 Tier 2 EIS process, but that alternatives outside the corridor would also be reviewed to determine whether they should be considered as reasonable alternatives in the EIS.

[5] *Preliminary Alternatives Selection Report for Tier 2, Section 6 (Martinsville to Indianapolis) of the I-69 Evansville to Indianapolis Project*, June 30, 2015 http://www.in.gov/indot/projects/i69/2343.htm

The Tier 1 ROD permitted alternatives outside the selected corridor to be considered when necessary to avoid significant impacts within the corridor while still connecting the Tier 2 termini designated in the Tier 1 ROD. Further, the Tier 1 ROD notes that these alternatives may be outside the Tier 1 corridor for much or most of their length. This was also stated in the Notice of Intent published on October 15, 2014, to advise the public and resource agencies that Tier 2 studies for Section 6 were resuming.[6] Thus, the evaluation of preliminary alternatives outside the SR 37 corridor for Section 6 is consistent with the flexibility provided by the Tier 1 ROD.[7]

1.3 Purpose and Need

The purpose and need of a project establishes the basis for developing a range of reasonable alternatives in a National Environmental Policy Act (NEPA) evaluation, and facilitates the selection of a preferred alternative. For a transportation project, the purpose and need statement describes the transportation and transportation-related needs that a project should address. Purpose and need statements also identify performance measures that are used to assess the relative ability of alternatives to address the project needs. A preferred alternative is determined by assessing the relative costs and impacts of various alternatives, as well as their relative abilities to satisfy the purpose and need.

The draft purpose and need statement for I-69 Section 6 establishes goals and performance measures used to evaluate alternatives for this section of I-69.[8] Marion, Hendricks, Morgan and Johnson counties comprise the study area for the Section 6 purpose and need. The draft purpose and need statement is available on the project website www.i69indyevn.org. The Section 6 goals and their performance measures are summarized in **Table 1-1**. A more detailed description of these performance measures is provided in **Section 4.2** of this report. Some or all of the alternatives may be similar in their abilities to meet some of these goals.

2 Preliminary Alternatives Development

This section briefly describes the conceptual alternatives screening process, the selection of preliminary alternatives for further analysis, and the refinement of those alternatives prior to more detailed evaluation in this report.

2.1 Conceptual Alternatives Screening

Twenty-seven initial conceptual alternatives for I-69 Section 6 were developed, 13 of which were screened out qualitatively due to environmental or engineering requirements. The remaining 14 alternatives, which included Alternative C, were evaluated based on transportation

[6] Notice of Intent published October 15, 2014, *Federal Register, Vol. 79, No. 199,* pp. 61926-7
[7] See Tier 1 ROD at 2.3.5 (Potential to Consider Alternatives Outside Selected Corridor).
[8] *Draft Purpose and Need Statement for Tier 2, Section 6 (Martinsville to Indianapolis) of the I-69 Evansville to Indianapolis Project*, April 16, 2015.

Table 1-1: I-69 Section 6 Draft Tier 2 Goals and Performance Measures

PROJECT GOAL	PERFORMANCE MEASURES
Goal 1: Improve the transportation linkage between Martinsville and Indianapolis	Completion of Section 6 of I-69.
	Travel time savings between the northern limit of I-69 Section 5 and I-465 in Indianapolis compared to the no build scenario.
Goal 2: Improve personal accessibility in the Section 6 study area[9]	Travel time savings between major travel destinations in the Section 6 study area compared to the no build scenario.
Goal 3: Reduce future traffic congestion on the highway network of the Section 6 study area	Reduction of traffic congestion on area roadways compared to the no build scenario.
Goal 4: Improve traffic safety in the Section 6 study area	Reduction of crashes in the Section 6 study area compared to the no build scenario.
Goal 5: Support growth in economic activity in the Section 6 study area	Increases in personal income, total employment, and employment in key employment categories in the Section 6 study area compared to the no build scenario.
Goal 6: Facilitate freight movements in the Section 6 study area	Reduction in daily truck vehicle hours of travel (VHT) in the Section 6 study area compared to the no build scenario.
Goal 7: Support intermodal connectivity to locations in the Section 6 study area	Travel time between key entry points into the study area and major intermodal centers compared with the no build scenario.

benefits, environmental impacts, and potential cost. This process and results are described in a conceptual alternatives evaluation report.[10]

For the conceptual alternatives screening process, a 400-foot-wide footprint represented the potential impact area of the I-69 mainline, including associated local service roads. This footprint was widened at potential interchanges, which were identified at major road crossings and in consideration of appropriate interchange spacing standards. INDOT's freeway curvature standards were applied, but specific highway alignments and elevations were not calculated at the conceptual stage since the details necessary to establish this information had not yet been defined.

2.2 Preliminary Alternatives Selection

A Preliminary Alternatives Selection Report[11] narrowed the 14 conceptual alternatives identified in the Conceptual Alternatives Evaluation Report. Four of the five preliminary alternatives were

[9] I-69 Section 6 study area includes Morgan, Johnson, Hendricks and Marion counties.
[10] *Conceptual Alternatives Evaluation Report for Tier 2, Section 6 (Martinsville to Indianapolis) of the I-69 Evansville to Indianapolis Project*, May 18, 2015 http://www.in.gov/indot/projects/i69/2343.htm

outside the Tier 1 approved corridor (Alternative C). This screening was based on qualitative and quantitative analysis, and input from resource agencies and the public. Alternative C was analyzed at the same level of detail and used for reference in the screening.

2.3 Preliminary Alternatives Refinement

During the preliminary alternatives screening process, the alternatives and the evaluation measures were defined in greater detail. Adjustments to alignments to avoid major impacts identified during the conceptual screening process are described in **Section 3**. Minor adjustments also were made to all alternatives as design tools helped refine the alignment and elevations of pavement sections. These tools were used to estimate preliminary construction limits and right of way needs for each preliminary alternative. A description of tools used to refine the alternatives and how they were applied is provided in **Table 1-2**.

3 Preliminary Alternative Descriptions

The five preliminary alternatives recommended for further consideration, as refined for this evaluation, are shown in the maps found in **Appendix A**. All preliminary alternatives originate just south of SR 39 in Martinsville and follow the SR 37 corridor for at least 9 miles. From this point, they vary in alignment and interchange connection points with I-465.

The preliminary alternatives evaluated in this report are as follows:

- **Alternative C:** Follows SR 37 from SR 37 to I-465; adjacent land use includes commercial to the south and north, with agricultural, forest and scattered residential in between.
- **Alternative B:** Follows SR 37 for about ⅓ of its length, with ⅓ new terrain between SR 37 and I-70 and ⅓ along I-70; adjacent land use includes commercial to the south but is largely rural in the new terrain portion with agricultural, forest and residential land uses.
- **Alternative D:** Follows SR 37 for about ⅓ of its length, with ⅓ new terrain between SR 37 and I-70 (center section east of Alternative B) and ⅓ along I-70; adjacent land use includes commercial to the south but is largely rural in the new terrain portion with agricultural, forest and residential land uses.
- **Alternative K3:** Follows SR 37 for about ⅔ of its length with ⅓ on new terrain west of SR 37 to I-465 at Mann Road; adjacent land use includes commercial to the south but is largely rural in the new terrain portion with agricultural, forest and residential land uses.
- **Alternative K4:** Follows SR 37 for about ½ of its length with ½ on new terrain west of SR 37 to I-465 at Mann Road; adjacent land use includes commercial to the south but is largely rural in the new terrain portion with agricultural, forest and residential land uses.

[11] *Preliminary Alternatives Selection Report for Tier 2, Section 6 (Martinsville to Indianapolis) of the I-69 Evansville to Indianapolis Project*, June 30, 2015 http://www.in.gov/indot/projects/i69/2343.htm

Table 1-2: Refinement Tools for Preliminary Alternatives

TOOL	APPLICATION
Design Standards	Preliminary design standards were based on the 2013 INDOT Design Manual (IDM). Where IDM standards were not available/appropriate, standards were used from the American Association of State Highway and Transportation Officials (AASHTO) A Policy of Geometric Design of Highways and Streets (2011) or A Policy on Design Standards, Interstate System (2005). Design standards were generally based on roadway functional classification[12].
Traffic Modeling	I-69 mainline lane requirements and adjustments to other roadways were based on preliminary horizon year (2045) travel forecasts from the I-69 Corridor Travel Model for each alternative. The model also provided traffic-related performance measures to evaluate performance on purpose and need goals.
Interchange, Grade Separation, Local Service Roads	Concepts were defined based on traffic forecasts and general IDM design criteria for interchanges, grade separations for crossing roadways, local roadway realignments and cul-de-sacs, and major access points for each preliminary alternative. Locations and configurations of these elements are subject to refinement as this route screening process continues.
Preliminary Geometric Design	Bentley InRoads[13] was used to detail alignments and elevations in context of local terrain. Typical roadway sections were used with calculated alignments to define approximate construction limits, supporting a more site-specific estimate of right of way. Conceptual interchange layouts, access roads, and local roadway changes also defined right of way needs. More detailed delineations of alignment and right of way were used to reduce cost, avoid environmentally sensitive areas where possible, better define access to properties, establish continuity for the existing road system; and minimize residential and commercial relocations. This provided a reliable basis for evaluating preliminary alternatives to determine which should be refined for further study.

The preliminary alternatives are described more fully below. Alternatives B and D and Alternatives K3 and K4 are described together because they would use the same alignment over most of their routes.

3.1 Alternatives B and D

Alternatives B and D use the same approach alignment and interchange connection at I-70, and both require a new bridge over the White River. The alignment of the alternatives differs in the center of the new terrain section. Alternative B crosses SR 67 between Bethany and Brooklyn. Alternative D crosses SR 67 further north, at the south end of Mooresville.

[12] "Functional classification is the process by which streets and highways are grouped into classes according to the character of the service they are intended to provide. Basic to this process is the recognition that individual roads and streets do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads." From *Highway Functional Classification: Concepts, Criteria and Procedures*. FHWA, Revised March, 1989, p. II-1.

[13] Bentley Systems, Inc. civil engineering design software use for roads, drainage and bridge design.

Alternative B follows SR 37 from just south of SR 39 in Martinsville for about 9 miles. Adjacent land use through Martinsville is largely commercial with some residential. North of Martinsville, the terrain becomes more rolling with forest interspersed with some residential. Rectangular ponds associated with the Indiana Department of Natural Resources (IDNR) Cikana Fish Hatchery and Ozark Fisheries, Inc. are located east of SR 37 and the Martinsville Golf Club is to the west.

Near Henderson Ford Road, Alternative B leaves SR 37 and heads northwest on new terrain with a new bridge across the White River and portions of its floodway. Land use in this area is primarily agricultural with scattered residences and woodlots. Alternative B proceeds north and crosses North Gray Road and East Rinker Road. It diverts northwest at East Centenary Road and crosses White Lick Creek and its forested riparian corridor. It crosses a railroad and SR 67 south of Mooresville, then crosses Keys Road, Bethel Road and SR 42.

Alternative B continues northwest over primarily agricultural land as well as some scattered residences and forested areas, then crosses Greencastle Road and County Line Road, and intersects with I-70 west of Plainfield. The Alternative follows I-70 to I-465. Alternative B has 11 miles of new terrain freeway, 9 miles of reconstructed arterial (SR 37), and 10 miles of existing freeway (I-70), for a total length of 30 miles.

Alternative D is the same as Alternative B on its south end, following SR 37 between SR 39 in Martinsville and a planned interchange near Henderson Ford Road (about 9 miles). Adjacent land use is the same as Alternative B in this area.

Near Henderson Ford Road, Alternative D leaves SR 37 on the same alignment as Alternative B, crossing the White River and its floodway. Land use in this area is primarily agricultural with scattered residences and woodlots. Alternative D crosses North Gray Road, East Rinker Road, and East Centenary Road, then diverts northwest on a different alignment than Alternative B after crossing Dayhuff Road. It proceeds west and crosses White Lick Creek and its forested riparian corridor, followed by a railroad and a commercial area along SR 67 south of Mooresville.

Alternative D crosses SR 42, Greencastle Road and County Line Road before connecting with I-70 west of Plainfield at the same location as Alternative B. Land use in this area is primarily agricultural land as well as some scattered residences and forested areas. The Alternative follows I-70 to I-465. Alternative D has 12 miles of new terrain freeway, 9 miles of reconstructed arterial (SR 37), and 10 miles of existing freeway (I-70), for a total length of 31 miles.

At the end of conceptual screening, the most significant refinement to the preliminary alternatives was made to Alternative B, shifting the interchange point with existing SR 37 to be the same as Alternative D. The original location (2 miles north) would result in a greater area of floodplain impacts at the White River crossing without providing any significant operational benefit. An adjustment after conceptual screening was also made to the alignment of Alternative D at White Lick Creek to provide a more perpendicular crossing which would reduce the floodway impact.

Alternatives B and D were retained in conceptual screening due to their abilities to meet purpose and need Goal 1 (improved transportation linkage) by providing quicker trips to the Indianapolis International Airport, lower cost, and potentially lower impacts to residential, commercial and industrial properties compared with Alternative C. The public also showed some interest in a western alternative during the conceptual alternatives screening process.

3.2 Alternatives K3 and K4

Alternatives K3 and K4 use the SR 37 corridor for the first 12 miles north of SR 39, where Alternative K4 leaves SR 37 near Cragen Road, crosses the White River, and extends northward. Alternative K3 continues in the SR 37 corridor for another 5 miles before leaving SR 37 just south of SR 144, crossing the White River, and heading northwest to join the K4 corridor. From that point, Alternatives K3 and K4 use the same alignment for 7 miles to link with I-465 near the existing Mann Road interchange.

Alternative K3 follows SR 37 from just south of SR 39 in Martinsville for about 17 miles to just south of SR 144 where it leaves SR 37 and heads north and east for about 10 miles and ties into I-465 along Mann Road. Adjacent land use through Martinsville is largely commercial with some residential. From SR 252 north of Martinsville, the terrain becomes more rolling with forest interspersed with some residential. Rectangular ponds associated with the IDNR Cikana Fish Hatchery and Ozark Fisheries, Inc. are located east of SR 37 and the Martinsville Golf Club is to the west. At roughly Egbert Road, the terrain flattens and land use is largely agricultural as SR 37 parallels the White River floodplain to the west. Land use is primarily residential at the proposed K3/SR 37 interchange.

Alternative K3 heads northwest after leaving SR 37 and crosses the White River and portions of the floodway with a new bridge, then crosses SR 144. Sand/gravel quarry ponds exist north and south of SR 144 in this area. Alternative K3 then turns to the north, crossing over agricultural land parallel to Mann Road to the west. It then crosses over Mann Road and continues over agricultural and wooded land. Alternative K3 crosses the Mann Road/Southport Road intersection and proceeds east of Mann Road over agricultural, forest, and residential land. It ties into I-465 with a new interchange east of Mann Road. Alternative K3 has 10 miles of new terrain freeway and 17 miles of reconstructed arterial (SR 37), for a total length of 27 miles.

Alternative K4 follows SR 37 from just south of SR 39 in Martinsville for about 12 miles to just north of Cragen Road where it leaves SR 37 and heads north and east for about 14 miles and ties into I-465 along Mann Road. Adjacent land use on this section is the same as Alternative K3. The K4/SR 37 interchange is within the White River floodplain and land use is primarily agricultural. Alternative K4 heads north, crossing the White River and portions of the floodway with a new bridge. The route passes through a large forested block, followed by crossings of Rinker Road and Centenary Road. It then turns northeast, crossing Kitchen Road. Land use in this area is largely agricultural with some forest.

Alternative K4 crosses a residential area near East Watson Road, followed by forest and SR 144. It then crosses over Mann Road and continues on the same alignment as Alternative K3 to I-465. Alternative K4 has 14 miles of new terrain freeway and 12 miles of reconstructed arterial (SR 37), for a total length of 26 miles.

Alternatives K3 and K4 were retained in conceptual screening due to meeting purpose and need Goal 1 and having potential lower impacts in some categories compared with Alternative C. Alternative K4 would have lower community resource impacts.

3.3 Alternative C

Alternative C follows SR 37 from just south of SR 39 in Martinsville for about 26 miles to Edgewood Avenue in Indianapolis where it leaves SR 37 and heads northwest for about approximately 1 mile to tie to I-465. Adjacent land use through Martinsville is largely commercial with some residential. From SR 252 north of Martinsville, the terrain becomes more rolling with forest interspersed with some residential. Rectangular ponds associated with the IDNR Cikana Fish Hatchery and Ozark Fisheries, Inc. are located east of SR 37 and the Martinsville Golf Club is to the west. At roughly Egbert Road, the terrain flattens and land use is largely agricultural as SR 37 parallels the White River floodplain to the west.

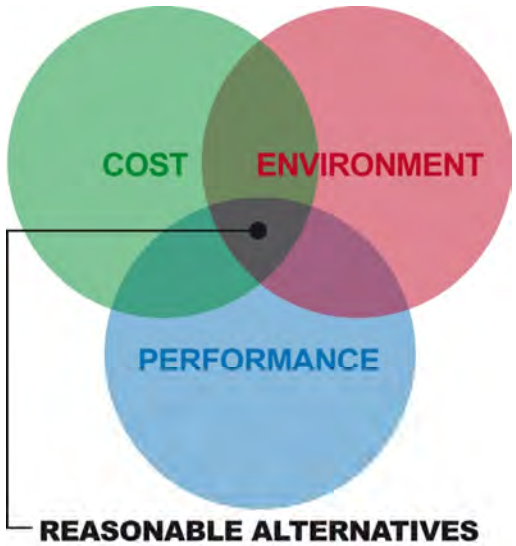
Residential development increases further north, especially once SR 37 crosses into Johnson County. Residential subdivisions are common north of Fairview Road and commercial development is prevalent north of Southport Road. Alternative C crosses commercial development and sand/gravel quarry ponds as it leaves SR 37 and heads west to connect to I-465 with a new interchange west of SR 37. Alternative C has about 1 mile of new terrain freeway and 26 miles of reconstructed arterial (SR 37), for a total length of 27 miles.

The conceptual screening process identified Alternative C as among the best alternatives for satisfaction of project purpose and need. Alternative C would be neither the most costly nor the least costly alternative. It could have among the lowest impacts to wetlands, floodway, and agricultural and forested land, but it could require the largest number of commercial property relocations.

4 Preliminary Alternatives Screening Methodology

The conceptual screening process is based on costs, performance, and environmental impacts of each alternative. Quantitative and qualitative measures narrowed the alternatives to the most promising set of preliminary alternatives for further screening. In the preliminary alternative screening process, the same criteria are used, but alternatives are refined, and cost, performance and environmental impact measures are more detailed (**Figure 1-2**).

Figure 1-2: Alternatives Screening Criteria



Relative cost is defined first to provide context for reviewing the other measures. An alternative that performs the same as another and has similar impact would be eliminated if it had a substantially higher cost. Performance is measured next to describe how well an alternative meets the project purpose and need. Then the impact of each alternative on the

natural and human environment is evaluated based on a range of factors that are weighed against an alternative's cost and performance.

The approach for evaluating cost, performance and environmental impact of the alternatives is described in subsequent sections.

4.1 Relative Cost

Capital cost estimates for the preliminary alternatives were developed to define the relative level of expenditure for major project elements at a planning level of detail. Many uncertainties exist at this stage of project development. However, greater cost detail will be provided in the DEIS on those alternatives studied in the DEIS.

Relative cost means that preliminary alternatives are compared as a percentage of the cost of Alternative C. Alternative C is the baseline cost at 100 percent. The alternatives that cost more or less than Alternative C are shown as greater or less than 100 percent.

Items accounted for in estimating the relative cost alternatives include roadway pavement, drainage, earthwork, interchanges, overpasses, land acquisition, residential and business relocations, utility relocations and mitigation of environmental impacts. Consideration is given to reuse of existing infrastructure (such as pavement and structures) to reduce capital costs.

The costs of land acquisition and relocation services are estimated using the defined preliminary alternative right of way lines (**Section 2.3**). These estimates are based on the number of parcels affected, acreage of land to be acquired, and the presence of existing structures. Costs of items such as damage payments to property owners are not included in the estimates at this stage.

Preliminary estimates of environmental mitigation costs are calculated to include property acquisition, construction expenditures, and monitoring. Mitigation requirements are based on calculated impacts and mitigation ratios required by the *Tier 1 Revised Programmatic Biological Opinion* (as amended), the *Wetlands Memorandum of Understanding (1991)*, and other mitigation ratios used in previous sections of I-69 for forest and wetlands. Details of the cost estimating methodology used for preliminary alternatives are provided in **Appendix C.**

All alternatives will affect traffic movements on area roadways, which may result in additional improvement needs outside the corridor. In most cases, the cost of these improvements is not included in the relative cost of alternatives. Because of their high relative cost and association with specific alternatives, however, there are two exceptions: improvement costs for SR 37 and added travel lane costs for I-465 and I-70. These are described below.

4.1.1 SR 37 Infrastructure Improvement Costs

If an alternative that diverts from SR 37 is ultimately selected, the remaining portion of SR 37 that is not part of I-69 must continue to meet safety, capacity, and maintenance requirements of users. Thus, program costs for Alternatives B, D, K3 and K4 include items such as added travel lanes in high-volume areas, intersection improvements, signal improvements, and pavement and bridge

rehabilitation on SR 37. If SR 37 is upgraded to I-69 through the selection of Alternative C, these costs would be included in the overall Alternative C program cost.

4.1.2 I-465 and I-70 Widening

Due to the generation of additional traffic, some widening along I-70 and I-465 may be required for some alternatives. Alternatives B and D would access I-70 at a new interchange about 4 miles west of the existing SR 267 interchange at Plainfield. Traffic forecasts show that the section between these two interchanges should be widened from 4 to 6 lanes to meet 2045 traffic projections. Sections of I-70 east of this segment have been recently upgraded and additional lanes would not be required. With Alternative C, auxiliary lanes would be needed between the new I-69/I-465 interchange and the Mann Road interchange, a distance of about one mile.

Capital costs associated with these widened interstate sections are included as part of the overall program cost for the affected alternatives. See Section 3.6 of **Appendix C** for further explanation.

4.2 Performance (Purpose and Need)

Purpose and need evaluation criteria measure how well an alternative performs in achieving the goals in the I-69 Tier 2 Section 6 Purpose and Need Statement (**Table 1-1**). The I-69 Corridor Travel Model is used to provide preliminary horizon year (2045) travel forecasts for each alternative for comparison to the no build scenario. The no build scenario assumes that the portion of I-69 between Evansville and Martinsville is completed, along with improvements included in the fiscally constrained transportation improvement programs of INDOT and the Indianapolis Metropolitan Planning Organization (MPO).

The I-69 Corridor Travel Model analysis generates estimates for five performance measures for each alternative when compared with the no build scenario (**Table 1-3**).

4.3 Environmental Impacts

Environmental impacts of the preliminary alternatives are assessed using GIS data from the IndianaMap website[14] and GIS data provided by counties and resource agencies.[15] The conceptual screening process relied on the IndianaMap data alone. For the preliminary alternatives evaluation, many of the structures were field verified by windshield surveys,[16] ensuring that the data is complete and up to date.

[14] http://www.indianamap.org/
[15] Some GIS data provided by resource agencies, such as recorded threatened or endangered species areas and wellhead protection areas are confidential and are not publically available.
[16] Windshield surveys involve driving roads within the areas affected by the preliminary alternatives. Structures (houses, businesses, barns, potential historic structures, etc.) were confirmed and mapped on aerial photography using an iPad and ArcCollector software.

Table 1-3: I-69 Corridor Travel Model Performance Measures

CRITERION	MEASURE OF PERFORMANCE
Traffic Safety	Regional traffic safety is measured by the reduction in annual crashes at a system level throughout the four-county study area. Addresses Goal 4 (improve traffic safety in the Section 6 study area).
Peak Hour Travel Time	The travel time from the end of I-69 Section 5 at SR 39 to key destinations within the region is compared with travel time in the no build scenario to identify representative travel time savings for each alternative. Travel time savings to Indianapolis International Airport, downtown Indianapolis, and I-69 on the northeast side of Indianapolis are measured. Addresses Goals 1 (improve the transportation linkage between Martinsville and Indianapolis) and 2 (improve personal accessibility in the Section 6 study area).
Regional Traffic Congestion	Roadways are considered congested when operating at level of service (LOS) "E" or "F" in urban portions of the corridor and LOS "D", "E", or "F" in rural areas. This measure is an estimate of the total reduction in daily vehicle-miles[17] of congested travel in the four-county study area for each alternative compared with no build scenario conditions. Addresses Goal 3 (reduce existing and forecasted traffic congestion on the highway network in the Section 6 study area).
Regional Freight Truck Travel	The vehicle-hours[18] of regional freight truck travel within the four-county study area roadway network are compared with the no build scenario to identify total vehicle-hours saved. Addresses Goal 6 (facilitate movement of freight in the Section 6 study area). Facilitating freight movement is a goal for the I-69 project at a national level.
Regional Economic Impact of I-69	Additional wages earned and regional gross domestic product resulting from the I-69 Section 6 project are evaluated using TREDIS, a suite of tools that assess economic impacts, benefits and costs of transportation policies, plans and projects from alternative perspectives. It uses travel model assignments to assess the economic benefits of transportation improvements. TREDIS uses the I-69 Corridor Travel Model network and Freight Analysis Framework (FAF) of INDOT to evaluate the cumulative additional economic benefits over a 20-year period within the four-county study area. Addresses Goal 5 (support growth in economic activity in the Section 6 study area).

The locations of homes, businesses, hospitals, churches, cemeteries, potential historic structures and other readily observable structures were documented to identify impacts that require avoidance or minimization. The field information was used to update GIS information and provide more accurate impact calculations.

[17] A vehicle mile of travel (VMT) is one vehicle traveling one mile. It is a measure commonly used to capture volume and distance of traffic operating in a transportation network.
[18] A vehicle hour of travel (VHT) is one vehicle traveling for one hour. It is a measure commonly used to capture volume and travel time for vehicles operating in a transportation network.

Natural and human impacts of preliminary alternatives are estimated for each of the resource categories as described below. Impacts are determined using right of way footprints developed as part of the preliminary alternatives refinement described in **Section 2.3**.

1. **Floodplains/Floodways**
   Floodplain and floodway impacts are determined for each preliminary alternative using Federal Emergency Management Agency (FEMA) GIS data.

2. **Wetlands**
   Wetland impacts are identified using National Wetlands Inventory (NWI)[19] mapped wetlands.

3. **Streams**
   Stream impacts are calculated using National Hydrography Dataset (NHD)[20] GIS data. Impacted streams are categorized as previously disturbed (i.e. culverts, bridges, roadside ditches, riprap, agricultural tiles or ditches) or not previously disturbed by transportation or agricultural activities. Impacts to Indiana Department of Environmental Management (IDEM) 303(d) listed impaired streams are also considered as part of the stream analysis.

4. **Wellhead Protection Areas**
   Wellhead protection areas crossed are identified using GIS data provided by IDEM.[21]

5. **Agriculture**
   Farmland impacts are determined using National Land Cover Database (NLCD) GIS data.

6. **Forest**
   Forest impacts are identified based on the NLCD GIS data. In part, forested areas serve as a surrogate for locations with potential impacts to Indiana bats and northern long-eared bats. Impacts to forested areas are used to determine mitigation requirements under Section 7 of the Endangered Species Act. Direct impacts to existing Indiana bat mitigation areas were considered to be a fatal flaw and these alternatives were discarded during conceptual screening (See Conceptual Alternatives Evaluation Report).[10]

7. **Mitigation Area Requirements**
   Compensatory mitigation is required for unavoidable impacts to wetlands and forested habitat. Required mitigation acreage is determined by applying established land area ratios by type of habitat. For wetland impacts, mitigation ratios used for previous I-69 sections are 2:1 for emergent wetland and 3:1 for scrub-shrub and forested wetland. For non-wetland forest impacts, mitigation ratios for this project are 3:1, with a minimum of 1:1 consisting of forest restoration, and a maximum of 2:1 consisting of preservation of existing forested areas. Stream mitigation estimates are based on a 1:1 for linear feet of impact.

[19] The National Wetland Inventory (NWI) provides a baseline data regarding wetland and deep water habitat location, extent, and type. These maps are produced from high altitude imagery and image interpretation. The accuracy of this data can vary. This data is used for preliminary planning only and is not intended to represent delineated wetlands. Wetland determinations will be completed for the reasonable alternatives in the EIS.
[20] The NHD includes flow lines and ditches that may not be regulated streams.
[21] Wellhead protection area locations are considered confidential and are not shown on maps.

8. Recreational Properties

Potential recreational facility impacts of preliminary alternatives are identified based on GIS data field verified during the windshield surveys. Publicly owned recreational facilities are considered as Section 4(f) resources for this screening, pending additional investigation and coordination.

9. Trails

Impacts to existing and planned trails are determined using existing GIS data, field verification using windshield surveys and coordination with local officials.

10. Historic Properties

Historic sites and districts eligible or potentially eligible for the National Register of Historic Places (NRHP) are determined from the State Historic Architectural and Archaeological Research Database (SHAARD) and windshield surveys and are considered Section 4(f) resources. The feasibility of avoiding each historic site is considered. Historic sites where an apparent avoidance alternative, or a Section 106 "no adverse effect" finding or a Section 4(f) *de minimis* determination is likely are noted.

11. Recorded Archaeology Sites

Archaeological sites are identified from Indiana Department of Natural Resources Division of Historic Preservation and Archaeology (DHPA) records. Only archaeological sites eligible for the NRHP and determined to be important for preservation in place are considered Section 4(f) resources.

12. Public Facilities/Institutions

Public facilities/institutions include school properties, religious facilities and cemeteries. These facilities are identified based on GIS data and have been field verified during the windshield surveys of the project area.

13. Property Acquisition

Properties with a potential to be acquired are identified according to direct impact or loss of access. They are estimated by placing the right of way footprints of the preliminary alternatives over GIS parcel data with zoned land uses. Property acquisitions are summarized by acreage according to the following zoning types: residential (single-family or multi-family units); commercial (commercial building, billboard); industrial (industrial building, quarry); and agricultural. Individual properties are identified as potential acquisitions for cost and impact estimation, but specific properties are not disclosed due to the preliminary level of design applied at this level of screening.

14. Potential Relocations

As with property acquisitions, direct impacts and loss of access are used to identify potential relocations for each land use category. Individual structures are identified for each preliminary alternative for cost and impact estimation. Potential relocations are categorized by the following land use types: residential (single-family or multifamily units); commercial (commercial building); industrial (industrial building, quarry); agricultural; billboards; and other (school, church, cemetery, public facilities, etc.).

5 Preliminary Alternatives Screening Results

Screening of the preliminary alternatives is based on relative costs, project performance against purpose and need goals, and environmental impacts. Due to the common segments over much of their alignment, Alternatives B and D reviews are presented together, and Alternatives K3 and K4 reviews are presented together in this section. The alternatives carried forward will be defined in greater detail in Part 2 of this report, and they will be evaluated separately in the DEIS. Reasonable alternatives with common alignments may also be combined to reduce cost, improve performance, and/or reduce environmental impact.

5.1 Relative Cost

Relative cost provides a context for evaluating the preliminary alternatives with respect to other screening factors. An alternative providing similar performance and resulting in similar impacts compared with another alternative may be eliminated if it does so at higher cost.

As described in **Section 4.1**, a relative cost basis is used to compare the alternatives, using Alternative C as a baseline.[22] For each preliminary alternative, costs are estimated for construction, right of way (including relocations), major utilities, environmental mitigation, and required improvements to other routes. Estimates for Alternatives B, D, K3 and K4 are then expressed as a percentage, with Alternative C providing the 100 percent baseline.

The relative costs of the preliminary alternatives are shown in **Figure 1-3**. The costs for Alternatives B and D are estimated to be up to 6 percent lower than Alternative C, and the costs for Alternatives K3 and K4 are estimated to be 20 to 27 percent higher than Alternative C.

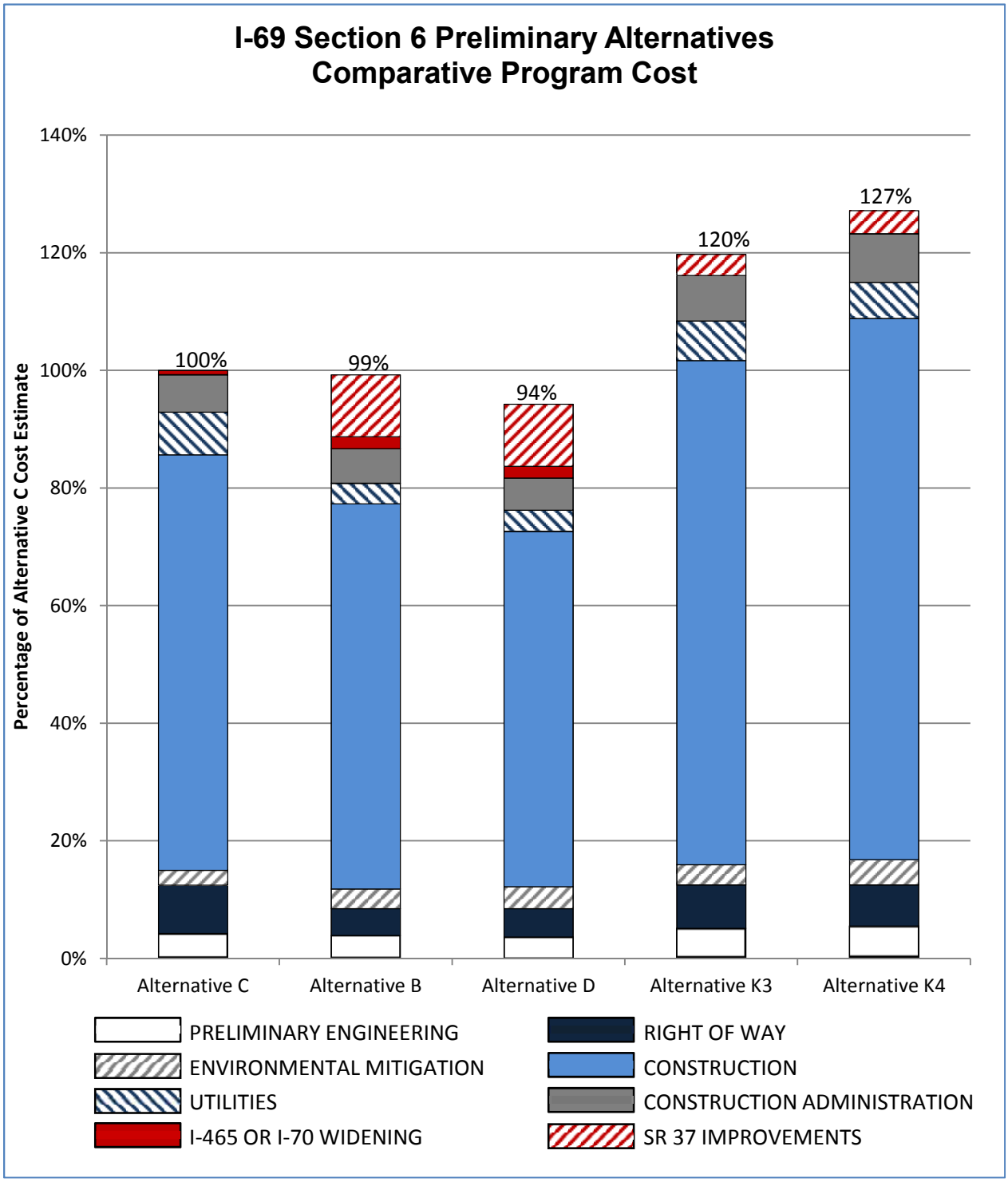
Alternatives B and D have lower relative costs since they minimize the amount of new freeway construction by using 10 miles of I-70 for part of the route to I-465. The cost difference would be greater if Alternatives B and D did not require a new major bridge across the White River.

The construction savings of Alternatives B and D is offset by somewhat higher environmental mitigation costs and the cost of infrastructure replacement and upgrades on SR 37 north of where I-69 would leave SR 37. Traffic forecasts show that a larger number of users would continue to use SR 37 with Alternative B or D, meaning that significant investment would be required on SR 37 in addition to the cost and impact of constructing a new freeway on another alignment.

Alternatives K3 and K4 have higher relative costs because they are comparable in length to Alternative C, but include substantial new terrain freeway construction with a new major bridge across the White River. Alternatives K3 and K4 would entail higher mitigation costs than Alternative C. They would also require infrastructure improvements along the segment of existing SR 37 that remains in place, although to a lesser extent than Alternatives B and D.

[22] The baseline is arbitrary. Alternative C was chosen as a baseline because it is the selected corridor in the Tier 1 FEIS and ROD.

Figure 1-3: Comparative Costs of the Preliminary Alternatives



Because Alternatives K3 and K4 are the highest cost, they should be studied further only if they outperform Alternative C with respect to performance and have lower environmental impacts. This is the topic of the next section.

5.2 Project Performance

All of the preliminary alternatives meet the project purpose and need, but they do so to different degrees. As discussed in **Section 4.2**, the performance of alternatives is evaluated by quantifying measures that describe relative achievement of the project purpose and need goals (**Table 1-1**). An alternative that does not perform as well as others may not warrant major investment or justify negative impacts to the natural or human environment.

Using the performance measures described in **Section 4.2**, the relative effectiveness of the alternatives in achieving project goals (and meeting the project purpose and need) is shown in **Table 1-4**.

An important goal of the I-69 project is to improve public safety (Goal 4). The greatest safety benefits will occur on SR 37 as a result of upgrading all or part of the facility to interstate (freeway) standards. Studies on Indiana roadways show that accident rates on freeways are roughly half that of the rates experienced on rural principal arterials[23]. To the extent that vehicles divert to I-69 from other routes (i.e. US 31, SR 67, local roads), additional crash reduction will occur on those facilities if existing SR 37 is upgraded to interstate standards.

Achievement of this goal is represented by an estimate of annual crash reduction compared to conditions without Section 6 of I-69 (no build scenario). To estimate the full safety benefits of the I-69 alternatives on the transportation network, the I-69 Corridor Travel Model is used to estimate the number of annual system crashes with and without I-69. In this way, crash reductions on parallel facilities are considered as well as those on SR 37. Generally, the alternatives that shift the greatest volume of traffic from arterials and local roadways to I-69 provide the greatest safety benefit.

Alternative C performs the best in this measure, reducing total annual crashes in the four-county study area by 1,379. Alternatives K3 and K4 perform reasonably well with an estimated 1,225 and 1,235 fewer crashes, respectively. Alternatives B and D are less effective, reducing annual crashes by 238 and 357, respectively. The safety benefit is lower on these alternatives because more traffic would continue to use SR 37 in its existing condition, and less traffic would be diverted to I-69 from alternate routes.

The goals of improving service in the corridor (Goals 1 and 2) can be measured by reduced travel times for users. As shown by the sample trips measured in **Table 1-4**, all the alternatives improve travel time over the no build scenario. The 69-minute trip from SR 39 in Martinsville to I-69 in northeast Indianapolis would be reduced by 12 to 13 minutes with Alternatives C, K3 and K4 and

[23] *Transportation Decision Making: Principles of Project Evaluation and Programming*, Sinha, Kumares C. and Labi, Samuel, 2011.

Table 1-4: Purpose and Need Performance Measures

		ALT C	ALT B	ALT D	ALT K3	ALT K4
Length of Alternative						
New Terrain Freeway		1 mile	11 miles	12 miles	10 miles	14 miles
Reconstructed SR 37 Corridor		26 miles	9 miles	9 miles	17 miles	12 miles
Existing Interstate Highway		0 mile	10 miles	10 miles	0 mile	0 mile
Total Distance, SR 39 to I-465		27 miles	30 miles	31 miles	27 miles	26 miles
Performance Measures[1]						
Regional Traffic Safety						
Annual reduction in crashes[2]		1,379 crashes	238 crashes	357 crashes	1,225 crashes	1,235 crashes
Peak Hour Travel Time						
Sample Trips:	No Build Travel Time	Time Savings[3]				
SR 39 - Indianapolis Airport	39 minutes	3 minutes	10 minutes	10 minutes	6 minutes	7 minutes
SR 39 - Downtown Indianapolis	50 minutes	11 minutes	10 minutes	10 minutes	12 minutes	13 minutes
SR 39 - I-69 Northeast	69 minutes	13 minutes	7 minutes	7 minutes	12 minutes	13 minutes
Regional Traffic Congestion						
Reduction in Congested VMT[3]		603,000 VMT	233,000 VMT	300,000 VMT	566,000 VMT	577,000 VMT
Regional Freight Truck Travel						
Daily Hours of Freight Truck Travel Saved[4]		4,200 hours	1,200 hours	1,500 hours	4,100 hours	4,200 hours
Regional Economic Impact of I-69						
Increase in Wages[5]		$ 1.7 Billion	$ 0.8 Billion	$ 0.8 Billion	$ 1.5 Billion	$ 1.4 Billion
Increase in Regional Gross Domestic Product[6]		$ 2.4 Billion	$ 1.1 Billion	$ 1.0 Billion	$ 2.1 Billion	$ 1.9 Billion

[1] It is expected that improvements to SR 37 necessitated by Alternatives B and D would also improve the function of SR 37.
[2] Freeways experience roughly half the accident rates of other roadway classifications in terms of accidents per vehicle mile traveled.
[3] Travel routes are the shortest path chosen by a typical driver, not necessarily using I-69.
[4] Travel routes are the shortest path chosen by a typical driver, not necessarily using I-69.
[5] Congested travel is defined for a typical weekday as level of service (LOS) E or F in urban areas, or LOS D, E or F in rural areas.
[6] Cumulative additional wages earned over a 20-year period by the population of the four-county study area.
[7] Cumulative additional regional gross domestic product created over a 20-year period within the four-county study area.

by 7 minutes with Alternatives B and D. Time savings for the 50-minute trip from SR 39 to downtown Indianapolis would be similar for the alternatives, ranging from 10 minutes with Alternatives B and D to 13 minutes with Alternative K.

The greatest reduction in travel time from SR 39 to the Indianapolis International Airport would be provided by Alternatives B and D, reducing the 39 minute trip by 10 minutes. With a less direct route to the airport, the savings would be less for the other alternatives, with 3 minutes[24] saved with Alternative C and 6 to 7 minutes saved for Alternatives K3 and K4.

Overall, Alternatives B and D provide less travel time savings to destinations other than the airport compared with the other alternatives. Alternatives K3 and K4 provide better travel time savings to the airport and similar time savings to downtown Indianapolis and I-69 northeast compared with Alternative C.

Reducing roadway congestion is identified by Goal 3. Estimates are provided in **Table 1-4** for reductions in system vehicle miles traveled (VMT) under congested conditions. As with accident reduction, the I-69 Corridor Travel Model is used to capture the improved service levels not only on SR 37, but also on parallel and local routes where flow is improved by the diversion of traffic from these roads to I-69. Total study area congestion reduction is computed by comparing system conditions with and without I-69.

Alternative C is the most effective for this measure, reducing daily congested travel by about 603,000 VMT. Alternatives K3 and K4 are nearly as effective, reducing congested VMT by about 566,000 and 577,000, respectively. Alternatives B and D are less effective, reducing congested VMT by about 233,000 and 300,000, respectively. The reduced benefit from Alternatives B and D is due largely to the fact that many motorists would continue to use SR 37. Even though congested, it would provide a more direct path for many trips.

Improvements for regional truck travel address Goal 6 (facilitating freight movements in the study area). This goal achievement is measured by daily hours of freight truck travel saved. As shown in **Table 1-4**, Alternative C and Alternative K4 are the most effective, reducing daily truck travel by about 4,200 hours compared with the no build scenario. Alternative K3 performance is similar, at 4,100 hours of reduction. Alternatives B and D are less effective, saving about 1,200 and 1,500 hours, respectively.

Goal 5 is to support growth in economic activity in the Section 6 study area. The achievement of this goal is measured by estimates of the increase in wages and by the increase in regional gross domestic product, as determined by the economic analysis tool, TREDIS.

The greatest economic benefit is provided by Alternative C, with a $1.7 billion increase in wages and a $2.4 billion increase in gross domestic product over a 20-year period. Economic activity performance measures for Alternatives K3 and K4 are somewhat less than Alternative C at $1.4 to $1.5 billion in increased wages and $1.9 to $2.1 billion in increased gross domestic product.

[24] In the no build scenario, the quickest path to the airport is SR 39 to SR 67 to Ameriplex Parkway. With Alternative C, the quickest path would be I-69 to I-465 to I-70, which would save 3 minutes for the trip.

Alternatives B and D are about half as effective, with $800 million in additional wages and $1.0 to $1.1 billion in increased gross domestic product.

A transportation project in an urban area is best able to support economic development by reducing congestion and travel time. The strong performance of Alternative C on economic development tracks with its ability to provide the largest amount of congestion relief and travel time reduction.

In summary, Alternatives C, K3 and K4 provide similar travel time savings and truck travel savings. Alternatives B and D provide a more direct and quicker path to the airport, but they perform poorly compared to the other alternatives in all purpose and need categories. The largest shortfalls occur in crash reduction and daily hours of freight travel saved, where the other alternatives perform better by a factor of 3 or more. The congestion relief and regional economic benefit of Alternatives B and D are estimated to be about half that of Alternatives C, K3 and K4.

Overall, Alternative C performs the best with respect to purpose and need goals. Given their close proximity to Alternative C, Alternatives K3 and K4 are nearly as effective. Alternatives B and D are clearly less effective in serving purpose and need goals.

5.3 Environmental Impact

For this level of screening, environmental impacts are defined to a level of detail that is appropriate for understanding how the alternatives are likely to affect the natural and human environment, and to identify differences between alternatives. Refinements of reasonable alternatives and all impact and performance measures will be made in the DEIS, where the objective is to fully identify environmental impacts of reasonable alternatives.

As described in **Section 1.2**, the Tier 1 ROD allows for evaluating alternatives outside the preferred corridor (Alternative C) if they avoid significant impacts within the corridor while still connecting the designated termini for Section 6 (SR 39 in Martinsville to I-465 in Indianapolis). In recognition of this and to facilitate review, separate comparisons with Alternative C are provided here for Alternatives B and D and for Alternatives K3 and K4.

Given the large number of impact measures included in the environmental impact review, they are categorized as either natural environment impacts or human environment impacts. The preliminary alternatives are compared in each of these categories in subsequent sections.

5.3.1 Natural Environment Impacts

Impacts to the natural environment are categorized as water resources, land resources and mitigation area requirements. Mitigation area requirements are included because they impact properties beyond the immediate project area and add to the cost of implementation. These requirements differ according to the type of resource impacted by the project.

5.3.1.1 Preliminary Alternatives B and D Compared with Alternative C

Natural environment impacts of Alternatives B and D are shown in **Table 1-5**. The same measures are shown for Alternative C for comparison.

Table 1-5: Natural Environment Impacts – Alternatives C, B and D

	ALT C	ALT B	ALT D
Water Resources[25]			
Floodplains			
Floodway	72 acres	178 acres	178 acres
Floodplain (Excludes Floodway)	403 acres	225 acres	233 acres
Total	**475 acres**	**403 acres**	**411 acres**
Wetlands			
NWI Wetlands (Excludes Open Water)[26,27]	9 acres	19 acres	18 acres
Streams and Rivers			
Streams and Rivers Impacted[27]	177,000 feet	150,000 feet	154,000 feet
Undisturbed	4,000 feet	20,000 feet	19,000 feet
Previously Disturbed	173,000 feet	130,000 feet	135,000 feet
IDEM 303(d) Impaired Stream	1,600 feet	3,000 feet	2,600 feet
Wellhead Protection Area			
Wellhead Protection Area	440 acres	0 acres	0 acres
Land Resources[25]			
Vegetation/Land Cover			
Agricultural	342 acres	1,073 acres	1,010 acres
Forested[27]	143 acres	229 acres	274 acres
Mitigation Area Requirements[25]			
Upland Forest (3 x the non-wetland forest)	413 acres	638 acres	776 acres
Emergent Wetlands (2 x impacted area)	6 acres	6 acres	6 acres
Forested Wetlands (3 x impacted area)	16 acres	49 acres	46 acres
Total	**435 acres**	**693 acres**	**828 acres**
Stream Impacts (1 x impacted length)	177,000 feet	150,000 feet	154,000 feet

With respect to water resources, Alternative C has a larger area of total floodplain impact than Alternatives B and D (403 acres versus 225 or 233 acres, respectively), meaning that they would affect more of the area into which floodwaters might reasonably be expected to reach. Alternatives B and D also impact a larger area of floodway (178 acres versus 72 acres) than Alternative C, meaning that they impact more of the area in which water actively flow during flood events. Because floodway impacts affect the flow of the water itself, they are a more critical

[25] Impacts from improvements to SR 37 that would be needed for Alternatives B and D are not included in these estimates of natural environment impacts. In general, all of the impact categories for Alternatives B and D would increase if SR 37 improvement impacts were included. It is expected that improvements to SR 37 necessitated by Alternatives B and D would improve the function of SR 37.
[26] NWI = National Wetlands Inventory
[27] Used to determine mitigation area requirements. The relative cost of mitigation is included in the cost estimate.

measure. Alternatives B and D impact a larger area of floodway since they require a new bridge crossing of the White River where the floodway area is located.

Alternative C would cross 440 acres of wellhead protection area (most already impacted by existing SR 37 and local roadways). Alternatives B and D do not cross wellhead protection areas.

The area of wetlands impacted by Alternatives B and D is roughly twice that of Alternative C (18 or 19 acres versus 9 acres). Total linear feet of streams impacted is greater for Alternative C. The linear feet of undisturbed stream impacted is about 5 times greater for Alternatives B and D (19,000 or 20,000 feet versus 4,000 feet for Alternative C).

With respect to land resources, Alternatives B and D impact more acres of farmland and forest than Alternative C. About three times as much agricultural land would be impacted for either Alternative B or D (1,073 or 1,010 acres versus 342 acres for Alternative C). Forested area impacted would be 143 acres for Alternative C, 229 acres for Alternative B and 274 acres for Alternative D.

The differences in wetland and land resource impacts are reflected in the forest and wetland mitigation area requirements for the alternatives, which are about 60 percent and 90 percent greater for Alternatives B and D (693 and 828 acres), respectively, than for Alternative C (435 acres).

Overall, the water resource impacts of Alternatives B and D are greater than Alternative C. Alternatives B and D would impact more floodway, wetlands, and undisturbed streams; but would impact fewer linear feet of streams. Alternatives B and D would not cross wellhead protection areas. The land resource impacts and mitigation area requirements of Alternatives B and D are greater than Alternative C.

In summary, Alternatives B and D do not provide a notable advantage over Alternative C with respect to avoiding or minimizing effects on the natural environment.

5.3.1.2 Preliminary Alternatives K3 and K4 Compared with Alternative C

Table 1-6 shows natural environment impacts of Alternatives K3 and K4. The same measures are shown for Alternative C for comparison. Alternatives K3 and K4 would impact larger areas of floodway than Alternative C, though the difference with Alternative K3 is less pronounced (106 acres versus 72 acres for Alternative C). Both Alternatives K3 and K4 would impact a smaller combined area of floodplain and floodway (394 and 444 acres versus 475 acres for Alternative C). The greater floodway area of Alternatives K3 and K4 is adjacent to the White River, where a new bridge would be required.

Wetland impacts of Alternative K3 are greater than Alternative C (12 acres versus 9 acres), and at 19 acres, Alternative K4 has more than double the wetland impact of Alternative C. Total stream and river impacts are similar for the alternatives, but undisturbed stream impacts for Alternatives K3 and K4 are 3 to 5 times greater than those of Alternative C (13,000 and 20,000 feet versus 4,000 feet for Alternative C).

All of the alternatives would cross wellhead protection areas, though the area is about 20 percent less with Alternatives K3 and K4.

Table 1-6: Natural Environment Impacts – Alternatives C, K3 and K4

	ALT C	ALT K3	ALT K4
Water Resources[28]			
Floodplains			
Floodway	72 acres	106 acres	182 acres
Floodplain (Excludes Floodway)	403 acres	288 acres	262 acres
Total	**475 acres**	**394 acres**	**444 acres**
Wetlands			
NWI Wetlands (Excludes Open Water)[29,30]	9 acres	12 acres	19 acres
Streams and Rivers			
Streams and Rivers Impacted [30]	177,000 feet	172,000 feet	171,000 feet
Undisturbed	4,000 feet	13,000 feet	20,000 feet
Previously Disturbed	173,000 feet	159,000 feet	151,000 feet
IDEM 303(d) Impaired Stream	1,600 feet	3,900 feet	3,200 feet
Wellhead Protection Area			
Wellhead Protection Area	440 acres	375 acres	326 acres
Land Resources[28]			
Vegetation/Landcover			
Agricultural	342 acres	837 acres	975 acres
Forested [30]	143 acres	238 acres	319 acres
Mitigation Area Requirements[28]			
Upland Forest (3 x the non-wetland forest)	413 acres	686 acres	910 acres
Emergent Wetlands (2 x impacted area)	6 acres	6 acres	6 acres
Forested Wetlands (3 x impacted area)	16 acres	28 acres	47 acres
Total	**435 acres**	**720 acres**	**963 acres**
Stream Impacts (1 x impacted length)	177,000 feet	172,000 feet	171,000 feet

Because they utilize new alignment for much or some of the route, Alternatives K3 and K4 have more impacts on land resources than Alternative C. Alternative K3 would impact over 2 times and Alternative K4 almost 3 times the amount of agricultural land (837 and 975 acres versus 342 acres for Alternative C). Forested area impacted is 238 acres and 319 acres for Alternatives K3 and K4, respectively, compared with 143 acres for Alternative C.

[28] Impacts from improvements to SR 37 that would be needed for Alternatives K3 and K4 are not included in these estimates of natural environment impacts. In general, all of the impact categories for Alternatives K3 and K4 would increase if SR 37 improvement impacts were included. It is expected that improvements to SR 37 necessitated by Alternatives K3 and K4 would improve the function of SR 37.
[29] NWI = National Wetlands Inventory
[30] M = Used to determine mitigation area requirements. The relative cost of mitigation is included in the cost estimate

Mitigation area requirements for Alternative K4 are the greatest of any of the alternatives, at about 963 acres. Mitigation area requirements for Alternative K3 are estimated to be 720 acres. Forest and wetland mitigation requirements for Alternative K4 are more than twice the 435 acres required for Alternative C.

Overall, Alternatives K3 and K4 have water resource impacts that are greater than those of Alternative C. Alternative K3 and K4 impact more floodway but less total floodplain than Alternative C. Wetland impacts are greater for Alternative K3 and much greater for K4 compared with Alternative C. More linear feet of stream are affected by Alternative C. Alternatives K3 and K4 affect more linear feet of previously undisturbed streams. The land resource impacts and mitigation area requirements are greater than Alternative C for Alternative K3 and K4.

In summary, Alternatives K3 and K4 are not likely to result in fewer negative environmental impacts across natural environment resource types than Alternative C.

5.3.2 Human Environment Impacts

Impacts to the human environment are described for recreational properties and trails, historic properties, archaeological sites, public facilities, property acquisition, and relocations. As with the impacts to the natural environment, the focus is on differences between the alternatives, and separate comparisons with Alternative C are provided for Alternatives B and D, and for alternatives K3 and K4.

5.3.2.1 Preliminary Alternatives B and D Compared with Alternative C

Human environment impacts of Alternatives B and D are shown in **Table 1-7**. The same measures are shown for Alternative C for comparison. All of the alternatives have some degree of impact on the same recreational properties. Alternative C could impact a planned extension of the Little Buck Creek Trail of the Indianapolis Greenways System, but the planned trail could be accommodated in the I-69 project to mitigate the impact. This would be evaluated in coordination with the Indianapolis Department of Parks and Recreation as the EIS is prepared. Alternatives B and D would not impact any existing or planned trails.

More potential historic properties are impacted with Alternatives B and D than Alternative C. Alternatives B and D impact five properties included in or potentially eligible for the National Register of Historic Places (NRHP). Preliminary investigations indicate three of these potentially historic property impacts would be difficult to avoid and are possible Section 4(f) uses.

Alternatives B and D affect fewer recorded archaeological sites (5 and 14, respectively) than Alternative C (26), although this may be due in part to a larger number of investigations conducted in and along the SR 37 corridor in the past. This measure may change with further investigation of the new alignment portions of Alternatives B and D. The potential impact on public facilities is similar for these three alternatives.

The greatest differences in these three alternatives with respect to human environment impacts relate to right of way acquisition and relocations required for project implementation. At 1,476 and 1,488 acres respectively, Alternatives B and D require approximately 50 percent more new right of way than Alternative C (1,056 acres). Most of this additional land is zoned agricultural.

Table 1-7: Human Environment Impacts – Alternatives C, B and D

	ALT C	ALT B	ALT D
Recreational Properties[1]	● = *Denotes impact*		
Cikana Fish Hatchery	●	●	●
Martinsville Golf Course[2]	●	●	●
Southwestway Park - Mann Property[4(f)]			
Whispering Meadows Horse Ranch[2]	●	●	●
Trails[1]			
Existing and Planned Trails[4(f)]	563 feet	0 feet	0 feet
Historic Properties [1,4(f)]			
Listed in NRHP [3]	0	0	0
Potentially Eligible for NRHP[4]	0	3	3
Potentially Eligible, Possible Avoidance[5]	2	1	2
Total	**2**	**4**	**5**
Recorded Archaeology Sites[1]			
Potentially Eligible	0	0	0
Not Eligible	6	1	10
Eligibility Unknown	20	4	4
Total	**26**	**5**	**14**
Public Facilities[1]			
School Properties[6]	8 acres	8 acres	8 acres
Religious Facilities	17 acres	12 acres	10 acres
Cemeteries	1 location	1 location	1 location
Property Acquisition (by Zoning)[1]			
Residential	234 acres	175 acres	200 acres
Commercial	207 acres	106 acres	113 acres
Industrial	105 acres	1 acre	1 acre
Agricultural	510 acres	1,194 acres	1,174 acres
Total	**1,056 acres**	**1,476 acres**	**1,488 acres**
Relocations[1]			
Residential	279	232	264
Commercial	96	42	47
Industrial	12	3	3
Agricultural	4	15	16
Billboards	44	27	27
Other[7]	8	10	6
Total	**443**	**329**	**363**

[1] Impacts from improvements to SR 37 that would be needed for Alternatives B and D are not included in these estimates of human environment impacts. In general, all impact categories for Alternatives B and D would increase if SR 37 improvement impacts were included. It is expected that improvements to SR 37 necessitated by Alternatives B and D would improve the function of SR 37.
[2] Recreational facilities that are not publicly owned
[3] NRHP=National Register of Historic Places. Adverse effect and Section 4(f) use anticipated; no apparent avoidance alternative
[4] Eligible/potentially eligible; adverse effect and Section 4(f) use expected; no apparent acceptable avoidance alternative
[5] Eligible/potentially eligible; avoidance alternative, no adverse effect, or a *de minimis* Section 4(f) finding likely
[6] All alternatives impact approximately 8 acres of Martinsville High School property but no school buildings are impacted
[7] Other includes school, church, cemetery, public facilities, etc.
4(f) = Potential Section 4(f) impact

With respect to developed (non-agriculturally zoned) land, Alternative C would require the acquisition of more than twice as much property as Alternatives B and D, particularly commercial and industrial properties (312 acres for Alternative C versus 107 for Alternative B and 114 acres for D). This is not unexpected because land along SR 37 is some of the most developed property in the vicinity of the project.

The number of relocations for each alternative is also related to the degree of development, because relocations are, by definition, structures or other types of improvements located on land that is acquired or impacted. Alternative C has more relocations (443 versus 329 for Alternative B and 363 for Alternative D), although the difference is not significant in all categories. There are almost as many residential relocations for Alternatives B and D (232 and 264, respectively) as for Alternative C (279), reflecting the increasing development along these planned routes. As expected, there are more agricultural relocations for Alternatives B and D (15 and 16, respectively) than for Alternative C (4).

Consistent with the land acquisition impacts, Alternative C has more commercial and industrial relocations than Alternatives B and D (108 versus 45 and 50 for Alternatives B and D).

Overall, the alternatives have similar impacts to the human environment except in the key area of land acquisition and relocations. There is a trade-off among the alternatives, with more land required to be converted to transportation use with Alternatives B and D, especially farmland, compared with Alternative C. Although they acquire more property, Alternatives B and D require fewer acres of developed property, particularly commercial and industrial land, and require fewer relocations.

5.3.2.2 Preliminary Alternatives K3 and K4 Compared with Alternative C

Table 1-8 shows the human environment impacts of Alternatives K3 and K4. The same measures are shown for Alternative C for comparison. The impacts on three of the four recreational properties would be the same. The fourth property, Southwestway Park of the Indianapolis Park System, could be potentially impacted by Alternative K3 or K4, but not by Alternative C. Alternative C could impact a planned extension of the Little Buck Creek Trail of the Indianapolis Greenways System. The potential to integrate the trail into the I-69 project would be evaluated in coordination with the Indianapolis Department of Parks and Recreation as the EIS is prepared.

Historic property impacts would likely be low with any of these alternatives, but Alternatives K3 and K4 would impact the Nicholson-Rand House near Southport and Mann Roads, which is listed on the NRHP, and the impact appears to be unavoidable. Section 4(f) requires that all steps be taken to avoid this impact. Currently, the largest number of recorded archaeological sites is for Alternative C (26 versus 15 and 12 for Alternatives K3 and K4), though this may be due to more previous surveys along the SR 37 corridor and this could change with further investigation of other corridors. None of the archaeological sites impacted by any of the alternatives have been previously determined eligible for the National Register; however, for the majority of them the eligibility status is currently unknown based on the DHPA records.

The effect on public facilities is about the same for all the alternatives. All of the alternatives follow SR 37 near Martinsville High School, where a parking lot and lawn would be impacted.

Table 1-8: Human Environment Impacts – Alternatives C, K3 and K4

	ALT C	ALT K3	ALT K4
Recreational Properties[1]	● = *Denotes impact*		
Cikana Fish Hatchery	●	●	●
Martinsville Golf Course[2]	●	●	●
Southwestway Park - Mann Property[4(f)]		●	●
Whispering Meadows Horse Ranch[2]	●	●	●
Trails[1]			
Existing and Planned Trails[4(f)]	563 feet	0 feet	0 feet
Historic Properties [1,4(f)]			
Listed in NRHP [3]	0	1	1
Potentially Eligible for NRHP[4]	0	0	2
Potentially Eligible, Possible Avoidance[5]	2	2	2
Total	**2**	**3**	**5**
Recorded Archaeology Sites[1]			
Potentially Eligible	0	0	0
Not Eligible	6	5	4
Eligibility Unknown	20	10	8
Total	**26**	**15**	**12**
Public Facilities[1]			
School Properties[6]	8 acres	8 acres	8 acres
Religious Facilities	17 acres	15 acres	15 acres
Cemeteries	1 location	none	none
Property Acquisition (by Zoning)[1]			
Residential	234 acres	357 acres	384 acres
Commercial	207 acres	106 acres	94 acres
Industrial	105 acres	12 acre	1 acre
Agricultural	510 acres	955 acres	1,077 acres
Total	**1,056 acres**	**1,430 acres**	**1,556 acres**
Relocations[1]			
Residential	279	474	450
Commercial	96	67	46
Industrial	12	6	6
Agricultural	4	6	24
Billboards	44	39	28
Other[7]	8	10	10
Total	**443**	**602**	**564**

[1] Impacts from improvements to SR 37 that would be needed for Alternatives K3 and K4 are not included in these estimates of human environment impacts. In general, all impact categories for Alternatives K3 and K4 would increase if SR 37 improvement impacts were included. It is expected that improvements to SR 37 necessitated by Alternatives K3 and K4 would improve the function of SR 37.
[2] Recreational facilities that are not publicly owned
[3] NRHP=National Register of Historic Places. Adverse effect and Section 4(f) use anticipated; no apparent avoidance alternative
[4] Eligible/potentially eligible; adverse effect and Section 4(f) use expected; no apparent acceptable avoidance alternative
[5] Eligible/potentially eligible; avoidance alternative, no adverse effect, or a *de minimis* Section 4(f) finding likely
[6] All alternatives impact approximately 8 acres of Martinsville High School property but no school buildings are impacted
[7] Other includes school, church, cemetery, public facilities, etc.
4(f) = Potential Section 4(f) impact

Impacts to the school's grounds are not anticipated to result in a Section 4(f) use. Alternative C currently impacts one cemetery, but efforts will be investigated to avoid this impact. Alternatives K3 and K4 do not pass through or near any known cemeteries.

Because Alternatives K3 and K4 are located on new alignment for half or more of their route, they differ from Alternative C in the amount and type of property to be acquired. Alternatives K3 and K4 require roughly 50 percent more new right of way than Alternative C (1,430 and 1,556 acres, respectively, versus 1,056 acres for Alternative C). Much of this is agricultural, with 955 and 1,077 acres required for Alternatives K3 and K4, respectively, compared to 510 acres for Alternative C.

The next largest category of zoned land use required is residential. Alternatives K3 and K4 require more acres of residential property than Alternative C, requiring 357 and 384 acres, respectively, compared with 234 acres for Alternative C. Alternatives K3 and K4 would require less commercial property, at 106 and 94 acres, respectively, compared to 207 acres for Alternative C. Alternative C requires 105 acres of industrial property and one to 12 acres for the other alternatives.

The number of relocations is greater for alternatives K3 and K4, with the largest difference in residential relocations, which are 70 percent greater (474 relocations) for Alternative K3 and 60 percent greater (450 relocations) for Alternative K4, compared with 279 relocations for Alternative C. A larger number of commercial relocations is required for Alternative C at 96, compared with 67 and 46 for Alternatives K3 and K4, respectively. Commercial relocations are fewer for Alternatives K3 and K4 and the number of agricultural relocations is greater.

Overall, the alternatives have similar impacts to many aspects of the human environment. Alternatives K3 and K4 have potential impacts on Southwestway Park and one NRHP-listed historic property that would not occur with Alternative C. Alternative C could affect more archaeological sites, though that is not yet certain, as well as one cemetery.

The biggest differences in comparing Alternatives K3 and K4 with Alternative C are land acquisition and relocations. Alternatives K3 and K4 require that more land be converted to transportation use. These alternatives require more agricultural property and more residential property, resulting in a larger number of residential relocations. Alternative C requires more commercial and industrial property, causing a greater number of relocations in those categories.

6 Selection of Reasonable Alternatives

The screening process provides quantitative data for the preliminary alternatives with respect to cost, performance and environmental impacts based on a range of descriptive elements and performance measures. This information was presented at three public meetings in November and December, 2015 and was placed on the project website to solicit public feedback prior to completing the screening process. Comments were solicited through December 17, 2015.

The quantitative data and public input provide a logical basis for deciding which routes should be carried forward as reasonable alternatives. The remainder of this section describes the offsetting benefits or impacts that were identified, along with the recommendation that has emerged regarding preliminary alternative routes to be carried forward and refined as reasonable alternatives in the Tier 2 EIS.

6.1 Public Meetings and Comments

Maps and descriptions of the preliminary alternatives and the quantitative information included in this report were presented at the following public information meetings:

- November 30, 2015, Perry Meridian High School – 402 attendees signed in
- December 2, 2015, Mooresville High School – 1,053 attendees signed in
- December 3, 2015, Martinsville High School – 361 attendees signed in

Information presented at the meetings was also posted on the project website and displayed at the project office. Comments were encouraged at the public meetings, at the project office, and by mail or email. A total of 995 comments were received within the comment period from November 19 to December 17.

Comments ranged from preference for an alternative to narratives, pictures and maps associated with specific design features. All comments were reviewed by members of the study team[31] and statistics were compiled to capture overall trends with respect to alternative selection. This information is summarized in **Appendix E**.

The review of the alternatives and the recommendations provided in the remainder of this chapter are driven largely by the quantitative data presented in this report. A review of the public input summary in **Appendix E** indicates that the conclusions are shared by a majority of those participating in the project's public involvement process.

6.2 Preliminary Alternatives B and D

6.2.1 Cost

The overall program cost for Alternative B is about the same as Alternative C, and Alternative D is estimated to be about 6 percent less than Alternative C. Based on cost, Alternatives B and D should be advanced if their performance is similar or better than Alternative C, and/or if they have similar or less environmental impact than Alternative C.

6.2.2 Performance

Although they meet the purpose and need because their performance measures are positive compared with the no build scenario, Alternatives B and D perform poorly compared to Alternative C. They fall far below Alternative C in crash reduction, congestion relief, hours of truck travel saved and economic benefit. The only performance advantage of Alternatives B and D is travel time to the airport since they provide a more direct route to that destination.

[31] The study team consists of INDOT project management and engineering/environmental professionals from INDOT, FHWA, HNTB Corporation and Lochmueller Group.

6.2.3 Environmental Impact

Alternatives B and D do not provide a net advantage over Alternative C with respect to the human and natural environment. Alternatives B and D would impact larger areas of wetlands and forests, and they may impact the federally listed bats under Section 7 of the Endangered Species Act. Alternatives B and D would impact three potentially historic properties that could result in a Section 4(f) use.

Alternatives B and D would require the acquisition of more acres of property than Alternative C. Much of this is agricultural property, but a large number of residences would also be impacted, similar to Alternative C. Although Alternative C would impact more commercial and industrial properties, economic forecasts show that overall increases in regional wages and gross domestic product are greater for Alternative C.

Overall, Alternatives B and D would not provide an environmental impact benefit compared with Alternative C, with respect to the natural or the manmade environment.

6.2.4 Recommendation

Overall, Alternatives B and D would provide only a small cost advantage, while performing poorly with respect to purpose and need goals, and providing little or no environmental benefit over Alternative C. As a result, Alternatives B and D are not recommended for carrying forward as reasonable alternatives in the Section 6 Tier 2 EIS.

6.3 Preliminary Alternatives K3 and K4

6.3.1 Cost

Alternatives K3 and K4 are the most expensive of the preliminary alternatives, with overall program costs that are 20 percent higher for Alternative K3 and 27 percent higher for Alternative K4. Based on cost, Alternatives K3 and K4 should not be advanced unless their performance is superior to Alternative C, and/or they have less environmental impact than Alternative C.

6.3.2 Performance

Alternatives K3 and K4 perform relatively well with respect to all performance measures, but still fall below the performance of Alternative C. Given their comparatively high cost and lack of performance benefits compared with Alternative C, Alternatives K3 and K4 need to offer significant environmental benefits to warrant advancement as alternatives in the EIS.

6.3.3 Environmental Impact

Alternatives K3 and K4 have greater floodway, wetland and land resource impacts than Alternative C. With more forest impacts, these alternatives could also result in impacts to federally listed bats under Section 7 of the Endangered Species Act. Alternatives K3 and K4 would impact a historic property listed on the NRHP, resulting in a Section 4(f) use.

Alternatives K3 and K4 would require 50 percent more acres of property to be acquired than Alternative C, primarily agricultural and residential uses. Alternative C impacts less residential property than Alternatives K3 and K4, but it impacts more commercial and industrial properties. Even with these acquisitions, economic forecasts show that overall increases in regional wages and gross domestic product are higher for Alternative C.

6.3.4 Recommendation

Because their costs are significantly higher than Alternative C, Alternatives K3 and K4 need to provide commensurate benefits to be advanced in the EIS. They do not provide a performance benefit over Alternative C, and they do not avoid significant environmental impacts when compared with Alternative C.

For these reasons, Alternatives K3 and K4 are not recommended for advancement and refinement as reasonable alternatives in the Section 6 Tier 2 EIS.

6.4 Recommended Reasonable Alternatives

This study has evaluated the five preliminary alternatives with respect to cost, performance and environmental impact. This evaluation establishes that the alternatives outside the SR 37 corridor are either more costly with no notable advantage in performance or environmental impact (Alternatives K3 and K4), or their cost and environmental impacts are similar with much lower performance (Alternatives B and D).

In summary, the screening process has confirmed that reasonable alternatives for the Tier 2 Section 6 EIS should be confined to the SR 37 corridor, the corridor selected in the I-69 Tier 1 ROD. Alternative C should be carried forward for additional refinement.

In Part 2 of this report, Alternative C is further developed and evaluated. Alternatives are identified for road alignments within the corridor, lane configurations and dimensions, grade separations, interchanges, and local service roads. These will be reviewed with the community advisory committees, resource agencies and the public, and a set of reasonable alternatives will be defined for evaluation and selection of a preferred alternative in the Tier 2 EIS.

ALTERNATIVE ALIGNMENT DEFINITION

Preliminary Alternatives Screening Report

Part 2 of 2

1 Alternative Refinement

Part 1 of the this report includes a quantitative comparison of five route alternatives with regard to performance, impacts to the natural and human environment, and relative cost. This information was used along with public and agency input to determine that Alternatives B, D, K3 and K4 should be eliminated from further consideration. All alternative alignments advanced for evaluation in the DEIS will thus follow the Alternative C route (SR 37). This corresponds to the alternative selected in the I-69 Tier 1 Record of Decision (ROD), known as Alternative 3C.

Part 2 of this report describes alternative alignments that include project components within the Alternative C route. Instead of comparing alternative routes as in Part 1, Part 2 defines alternative roadway alignments and configurations within the SR 37 corridor (hereinafter called the "approved Tier 1 Corridor" or the "SR 37 Corridor"). The purpose of alternative alignments in Part 2 is to define project features that will provide a basis for defining the preferred alternative in the EIS. The preferred alternative is expected to include a combination of features from Part 2 alignment alternatives.

With the route identified, alternative alignments are defined by typical sections, interchange types and locations, roadway crossing locations, and preliminary local service road configurations. Maps of these alternative alignments, coupled with pertinent impact data, will be presented for public and agency comment. The alternative refinement process includes the following activities:

1. Design Criteria. Define the basic design criteria. These are geometric parameters and dimensions, design speed, level of service, and access control measures for the I-69 mainline and local service roads.

2. Environmental Constraints. Define and locate environmental resources potentially affected by the roadway layouts. Part 1 of this report describes these resources for the corridor. This stage of the study focuses on how the resources can be avoided or minimized as alternative alignments are defined.

3. Freeway Mainline Design. Develop and evaluate alternative alignments for I-69. Horizontal and vertical alignments are refined using transportation design software (Bentley InRoads)[32] to apply pertinent design criteria and plot roadway layouts on aerial mapping. Objectives are to avoid environmentally sensitive areas wherever possible, and minimize residential and commercial impacts.

4. Linkages and Crossings. Identify local service road configurations, including points of access to I-69 and interchange types. Review roadway closures, grade separations, and local service road changes to maintain access and circulation in the area surrounding I-69. Objectives are to provide adequate access to properties and continuity for the road system.

[32] Bentley InRoads is civil engineering design software for roads, drainage and bridge design, provided by Bentley Systems, Inc.

5. Public and Agency Review. Present the preliminary alternative alignments to resource agencies and the public, and carry forward, modify or eliminate alternative alignments in response to information gathered and input received.

1.1 Design Criteria

Design criteria set the parameters for defining the layout of alternative alignments. They are typically presented in terms of "desirable" and/or "minimum" for a wide range of roadway features including lane, shoulder and median width; side slopes and clear zones; and vertical grades and horizontal curvature. Design criteria also define the anticipated travel speed and the desirable and minimum quality of traffic operation.

Design criteria for I-69 Section 6 alternative alignments are taken from the 2013 Indiana Department of Transportation Design Manual (IDM) as updated, the American Association of State Highway and Transportation Officials (AASHTO) "A Policy on Geometric Design of Highways and Streets" (2011), and the AASHTO "A Policy on Design Standards, Interstate System" (2005).

Specifically, the I-69 mainline utilizes the design criteria for new or reconstructed freeways in Chapter 53 of the IDM. Design criteria for other state and local roads impacted by the project are also provided in appropriate sections of the IDM, based on the functional classification of the roadway, whether it is a new or existing road, and the area type where it is located (rural or urban).

When a proposed roadway feature does not meet the minimum design criteria specified in the AASHTO policy documents, a "design exception" must be justified and approved by the Indiana Department of Transportation (INDOT) and the Federal Highway Administration (FHWA). The justification must consider the cost and safety impacts of the design exception and show that it is impractical to meet the minimum design criteria.

Justification requirements differ for exceptions to "Level 1" design criteria, those most critical to highway safety and performance, and "Level 2" design criteria, which are important but not critical. Some subsections of the I-69 Section 6 alternative alignments would require design exceptions for specific design features. Review of alternative alignment subsections is presented in **Section 2.2**.

1.2 Environmental Constraints

Potential impacts were reviewed using GIS data and the right of way footprints for each alternative alignment. Since the alternative alignments are all located within the SR 37 corridor, the differences in environmental impacts among alternative alignments are less than the differences among the preliminary alternatives B, C, D, K3 and K4 that were reviewed in Part 1 of this report. Nevertheless, environmental impacts are a key element in the definition of alternative alignments.

Efforts were made during the development of alternative alignments to minimize impacts to wetlands, floodplains, potential Section 4(f) resources, and relocations. Differences in impacts among alternative alignments and how environmental resources affect their definition are

described by alternative alignment subsection in **Section 2.2**. A summary of the impacts of each alternative alignment is provided in **Table 2-10**, which is located in **Section 2.3**.

Generally, environmental impacts are determined using the same data sets and methodology used in Part 1 of the screening process. This is described in Part 1 of this report. For some resources, the methodology for calculating impacts changed slightly in Part 2. Due to the additional detail of the alternative alignments and the slight changes in methodology, the impacts shown in the tables in Part 2 do not exactly match the impacts identified for Alternative C in Part 1 of the report. An explanation of the methodology changes is provided below.

- Wetlands: Wetland impacts are identified using National Wetlands Inventory (NWI)[33] mapped wetlands. Where field observations are inconsistent with NWI mapping (i.e. where a parking lot is now located) those wetlands were removed from the data set and not counted as impacts.
- Streams: Stream impacts are calculated using National Hydrography Dataset (NHD)[34] GIS data. Impacted streams are categorized as disturbed (i.e. culverts, bridges, roadside ditches) or undisturbed by previous transportation activities. In the Part 1 evaluation, disturbance included previous agricultural disturbance. This measure is simplified in Part 2 to only include disturbance due to previous transportation-related activities because all alternatives are along the SR 37 corridor, which has largely been disturbed due to the construction of SR 37.
- Historic Properties: Historic sites and districts eligible for the National Register of Historic Places (NRHP) are determined based on field surveys by qualified professional historians and consultation with the State Historic Preservation Office (SHPO) and consulting parties. Direct impacts to historic properties are included in the environmental impact tables because they could represent a possible Section 4(f) use. Other possible impacts to historic properties, such as visual or noise effects, will be determined in consultation with the SHPO and consulting parties as part of the Section 106 process and documented in the EIS.
- Landlocked Parcels: Acres of landlocked property are determined for each zoned land use (residential, agricultural, commercial, and industrial). Landlocked parcels are those that will no longer have access to a public road due to construction of I-69. Landlocked parcels are determined by reviewing aerial photography and digital county parcel data within the road design software. Parcels that would no longer have access are identified as impacted. Landlocked parcel impacts are included since they represent possible property acquisition.

1.3 Mainline Design

The I-69 mainline is the component of the project between interchanges. Development of mainline attributes of the alternative alignments begins with the existing SR 37 centerline and application of

[33] The National Wetland Inventory (NWI) provides baseline data regarding wetland and deep water habitat location, extent, and type. These maps are produced from high altitude imagery and image interpretation. The accuracy of this data can vary. This data is used for preliminary planning only and is not intended to represent delineated wetlands. Wetland determinations will be completed for the reasonable alternatives in the EIS.
[34] The NHD includes flow lines and ditches that may not be regulated streams.

interstate design standards to define conceptual project limits. Horizontal and vertical alignments are based on a 70 mph design speed, except where the I-69 mainline connects to I-465 via a system interchange with a 55 mph design speed. Median barriers and guardrails are not used in the development of alternative alignments. These features could later be added during the EIS if justified by a safety analysis or if necessary to avoid or minimize impacts. Retaining walls are used to minimize impacts to adjacent property at specific locations.

Aerial photography and GIS base mapping, existing rights of way, surface elevations, environmental resources, and parcel boundaries are used to identify potential constraints. Much of the GIS data is from existing sources, although existing building structure types and locations have been field verified. Using the typical sections described in **Section 2.1**, the right of way needs and impacts are reviewed throughout the corridor, and minor shifts in the alignment are made to minimize impacts with each of the alternative alignments. These are described in **Section 2.2**.

1.4 Linkages and Crossings

Linkages and crossings are components of the project that involve local roads and access points. Currently there are approximately 75 streets, ramps, roads, or driveways with access to existing SR 37 in Section 6. After construction of I-69, direct access to I-69 will be via interchanges only and all other access points will be eliminated. Any crossings of I-69 will be provided via grade separations (underpasses or overpasses). All other access points with existing SR 37 will be closed and any access to property will be provided via local service roads.

Refining the potential highway access (including interchanges, grade separations, local service roads, and road closures) identified in the Tier 1 EIS is a component of all Tier 2 studies. The following are considered in developing alternative access plans:

- Access issues identified during Tier 1
- Criteria for determining type and location of access points during Tier 2
- FHWA/INDOT coordination during Tier 2

The Tier 1 EIS identified potential interchange locations and grade separations along Section 6. The access locations provided a basis for developing Tier 1 traffic forecasts and calculating environmental impacts. The Tier 1 ROD made clear that the actual number, type, and location of access points would not be determined until Tier 2. Section 2.1.6 of the Tier 1 ROD contained the following statement:

> "Decisions regarding the number and location of interchanges and grade separations will be made in Tier 2, and are not being made in this Record of Decision. Decisions made in Tier 2 regarding interchanges and grade separations will be further refined during final design."

1.5 Interchanges

Interchanges are the components of the project that provide direct access to I-69 from local roadways. Interchanges play a vital role in enabling the project to achieve its transportation

objectives, including the core goal of increasing accessibility for people, goods and services. The spacing of interchanges affects traffic flow and safety. Greater spacing between interchanges generally produces better traffic flow and enhances safety on the highway, but it reduces accessibility for users.

Interchanges vary in cost and impact based on interchange location, type and footprint. In addition, interchanges can become a cause of induced development and other secondary and cumulative types of impacts. Factors considered in evaluating interchange locations include the following.

- Purpose and Need. The overall number and location of interchanges should result in accessibility to I-69 consistent with the Tier 1 ROD and the purpose and need identified for Section 6 (see **Section 1.3** of Part 1 of this report).
- Spacing Guidelines. Minimum interchange spacing policy and design criteria have been established by AASHTO and adopted by INDOT as part of the design criteria identified in Section 1.1. These minimum spacing standards are 1 mile in urban areas and 3 miles in rural areas.[35] Spacing greater than the minimums is desirable for reasons of safety, operational characteristics, and cost effectiveness.
- Functional Classification[36] Arterials are considered for interchanges ahead of collectors, and collectors are considered ahead of locals. In general, arterials would be considered for interchanges, while collectors and locals would not be candidates for such direct access treatment.
- Road Jurisdiction. In general, state jurisdictional routes (i.e., state highways, US highways, and Interstate highways) are considered for interchanges ahead of local roads (city streets or county roads). However, there is no requirement that interchanges be placed at either state highways or local roads.
- National Highway System Designation. All National Highway System (NHS) routes should receive an interchange. Current NHS routes in the SR 37 corridor are SR 37, SR 39, Hospital Drive, SR 144, County Line Road, and I-465.
- Travel Time. Travel time within or across the I-69 corridor will be dependent on the location and spacing of grade separations and interchanges.
- Traffic Volume. In general, crossroads having higher volumes are considered for interchanges ahead of those with lower travel demand.

[35] Urban area boundaries are approved by FHWA. Within Section 6, Indianapolis is designated as a large urban area because it has a population over 50,000, and Martinsville is designated as a small urban area because it has a population greater than 5,000. Within these designated boundaries, I-69 will be designed to meet urban design criteria.

[36] Functional classification is the process by which roads are classified according to the character of the service they are intended to provide. Arterial roads provide a high level of mobility but limited direct land access. Local roads provide a high level of access to adjacent properties. Collector roads provide a more balanced blend of mobility and access. From *Highway Functional Classification: Concepts, Criteria and Procedures*. FHWA, 2013 Edition.

- Impacts. Consideration is given to construction and right of way impacts resulting from the provision of an interchange at a particular site.
- Site Topography. Constraints with respect to terrain and ground conditions can influence whether an interchange is viable.
- Cost. Cost is considered in determining the number, location, and design of interchanges.
- Trip Type. The nature of the trips using the crossroads is considered in identifying interchange locations. Routes with a higher percentage of regional traffic versus local traffic "short trips" are given more consideration.

Interchange types are evaluated based on surrounding land use, INDOT design guidance, and traffic operations. In rural areas, a standard or wide diamond is preferred, typically providing 800 to 1,320 feet of distance between intersections at the end of ramps. This separation provides good sight distance for drivers and allows for sufficient space to add loop ramps within the existing interchange right of way if needed in the future. Intersections of the interchange ramps with the crossroad can be controlled by stop signs, traffic signals, or roundabouts, depending on what method best meets traffic operation requirements.

In urban areas, tight diamond (with ramp termini spacing of 400 feet or less), diverging diamond, and single-point interchanges are typically used since less property is impacted by their construction. These interchange types require more complex traffic control than standard diamond interchanges but are often necessary to limit impacts to adjacent development or to accommodate large volumes of left-turning traffic.

Interchanges with loop ramps are typically avoided due to safety concerns unless they are necessary to avoid specific constraints, or to improve traffic operations at service interchanges.

Figure 2-1 shows examples of the interchange types being considered. While preliminary interchange types are identified at the outset, various interchange layout options will be considered based on more detailed data and analysis as the environmental impact studies progress.

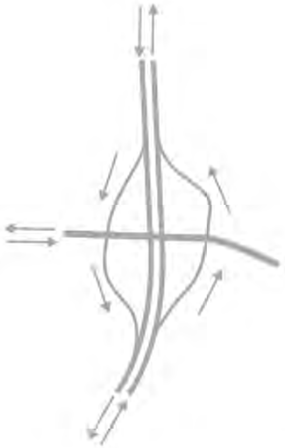
1.6 Grade Separations

Grade separations (underpasses or overpasses) are the components of the project that maintain the connectivity of existing roadways crossing I-69. Grade separations can be provided by constructing the crossing over I-69 (an overpass) or under I-69 (an underpass), depending on the cost of construction and the impacts on the adjacent area. The following factors are considered in locating grade separations.

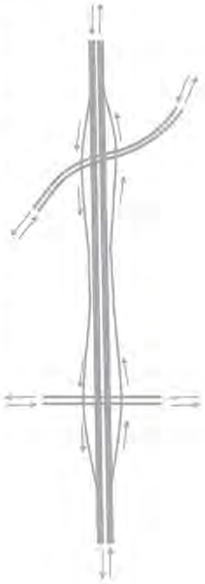
- Roadway Functional Classification. In almost all circumstances, crossroads classified as arterials and not receiving an interchange would be grade separated at I-69. Roads classified as collectors and local roadways would be considered for grade separation based on local network factors and access needs. In general, collectors would be considered for grade separation before local roads.

Figure 2-1: Proposed Interchange Types

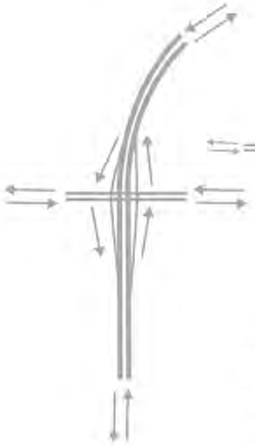
Diamond
Consists of an overpass with two intersections on either side for the ramp connections. Flow can be controlled via stop signs, signals or roundabouts depending on the traffic volumes. Generally used in rural areas.



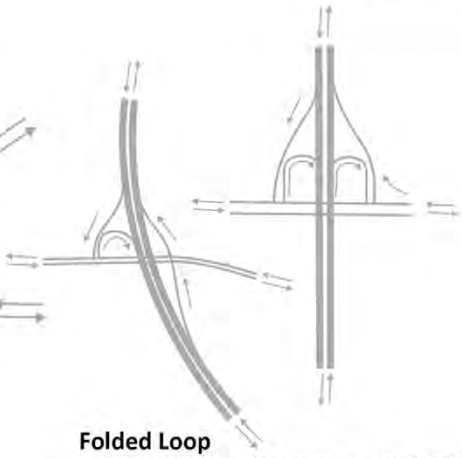
Split Diamond
Consists of overpasses at two crossroads with frontage roads connecting the two halves. This interchange type is used for roads that are too close for a standard interchange but still have access needs at both locations. The ramp lanes are continuous between the two overpasses with no access to the mainline until the motorist passes the second crossing. Flow is controlled via stop signs, traffic signals or roundabouts at each crossroad intersection.



Tight Diamond
Consists of an overpass with two intersections on either side for the ramp connections. Flow is usually controlled via traffic signals or roundabouts. Generally used in urban areas. The ramps are typically spaced at 400 feet from the mainline, due mainly to restrictions of adjacent land use.

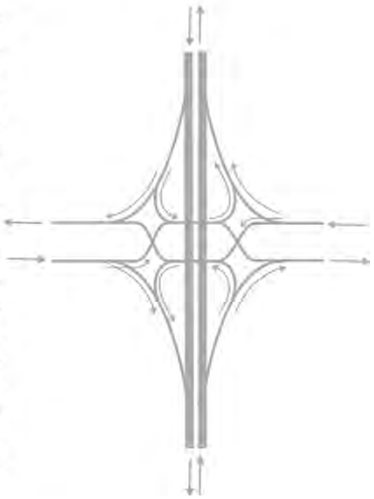


Folded Loop
This is a variation of a diamond interchange in which there is a loop ramp in one or more quadrants. It is sometimes called a "Partial cloverleaf". A loop ramp is used when there is a physical constraint in one or more quadrants. Intersection on the cross street can be controlled by stop signs, roundabouts or signals depending on traffic volumes. Ramp spacing is similar to a standard diamond.



Single-Point
This is a variation of a tight diamond interchange in which the ramps and crossroad traffic converge at a single intersection which is controlled by a traffic signal. It is generally used when left-turning ramp movements dominate the traffic movements.

Diverging Diamond
This is a variation of a diamond interchange in which the two directions of traffic on the non-freeway road cross to the opposite side of the street while driving through the interchange. It is unusual in that traffic on the crossing street briefly drives on the opposite side of the road from what is customary. The diverging diamond interchange improves traffic flow by removing all left turn movements from the interchange.



- Route Continuity. Route continuity and community cohesion are factors in determining if a crossroad should be grade separated. Crossroads that continue for a long distance on either side of I-69 and/or connect communities would be favored for grade separations.
- Non-Motorized Trips. The needs of non-motorized travelers, such as pedestrians and bicyclists, are considered for each crossroad grade separation and interchange. The demand for non-motorized travel, local plans, and the presence of existing facilities for such travel are considered.
- Site Topography. Constraints with respect to terrain and ground conditions may influence whether a grade separation is provided.
- School Bus and Emergency Vehicle Routes. Travel time for school buses and emergency vehicles are considered in identifying possible grade separation locations. Local school corporations and emergency management services providers will continue to be consulted and their input considered in identifying grade separation locations.
- Growth Patterns. Localized growth patterns, whether residential, commercial, industrial or other development, are considered when identifying possible grade separations. Local planning and zoning information, as well as input from planning officials, is considered.
- Travel Time for Local Trips: Travel time between points outside the corridor can be significantly impacted by the ability to cross the interstate on strategically placed local service roads.
- Local Agency and Public Input. Input received from local governmental officials, local organizations and groups, and the public are considered as grade separations are identified.

1.7 Local Service Roads

A local service road may be realigned and sometimes extended, truncated (typically with the installation of a cul-de-sac), or linked with another local service road to maintain network continuity and/or access to properties.

The ultimate configuration of each local service road is determined on a case-by-case basis throughout the corridor. Ultimately, the objective is to provide a fully functioning network of interchanges, grade separations, and local service roads to meet long-term mobility, circulation and property access needs throughout the project area.

1.8 Public and Agency Review

Decisions regarding interchanges, grade separations and local service roads are driven by public and agency input in addition to technical factors, impacts and cost. Traffic volume forecasts from the I-69 Section 6 Corridor Travel Model, input from local officials, public comments, and input from the I-69 Community Advisory Committees and Stakeholder Working Group are all considered in establishing access and crossing points. Input received from local governmental officials, local organizations and groups, and the public are also taken into account when

identifying potential access and grade separation locations. These groups are especially helpful in providing information on local traffic patterns. They also provide key information regarding anticipated developments as well as planned and programmed improvements to the local roadway networks in the vicinity of the I-69 corridor.

2 Definition of Alternative Alignments

This section describes the alternative alignments to be considered in public and agency review prior to preparation of the EIS. The alternative alignments are structured to include the full range of project components that may comprise the preferred alternative. These components include the I-69 mainline, interchanges, grade separations, and local service road configurations. The alternative alignments defined in this document do not represent "low, medium, high" impacts or benefits. They are instead intended to demonstrate the range of components that might be combined to define the preferred alternative in the EIS.

The process for defining the preferred alternative will include an analysis of mainline options for the length of the project. It will be important to maintain consistent mainline features, including median width, side slopes and shoulder width, through long segments of the corridor. These features are generally not impacted by decisions regarding interchange, crossing and service road components. Interchange location and design, and crossing and service road components will be evaluated in a subsection by subsection review since the best option will depend on local factors.

Previously considered alignments were reviewed as these three alternative alignments were developed. The previous alignments were developed for the SR 37 Corridor and presented in 2006. Many of the options from the previously considered alignments were incorporated into the current alternative alignments.

Detailed descriptions of three alternative alignments, referenced as Alternative Alignments C1, C2 and C3, are provided below. Maps of each of the alternative alignments are provided in **Appendix F** at a scale of 1 inch = 1,000 feet. The mainline features of the alternative alignments are described first, followed by a subsection by subsection review of local conditions and how they relate to interchange, grade separation and local service road options. Options at specific locations are screened out at this stage where costs and/or impacts would be greater than other options without providing a commensurate benefit.

2.1 I-69 Mainline Alternatives

The alternative alignments provide different levels of infrastructure reuse and adherence to IDM design criteria[37] along the I-69 mainline. Horizontal and vertical alignments of each are designed to support the evaluation of costs and impacts of different design decisions. The mainline attributes of

[37] See Section 1.1 of Part 1 for a discussion of design criteria and design exceptions.

the alternative alignments are described below. **Table 2-4** in **Section 2.3** provides a summary of the infrastructure reuse and adherence to design criteria for the three alternatives.

- Alternative Alignment C1 – Desirable Design Criteria. This alternative alignment would be designed to meet the IDM minimum design criteria for a new freeway and desirable design criteria where practical. The freeway would be reconstructed above existing SR 37 grade (elevated[38]) at specific locations to minimize right of way impacts. At most other locations, either the northbound or southbound mainline lanes of existing SR 37 would be reused, with lanes in the opposite direction constructed in a way that allows the combined sections to meet interstate highway design standards.

  More specifically, this alternative alignment would be elevated through Martinsville to minimize right of way impacts along existing cross streets. Between SR 39 and SR 44, I-69 would be elevated up to 22 feet above the existing SR 37 grade using fill and retaining walls. Between SR 44 and County Line Road, Alternative Alignment C1 would follow the existing SR 37 grade more closely and include partial reuse of the existing pavement and structures. From County Line Road to I-465, I-69 would be elevated above the existing SR 37 grade to minimize impacts at the interchanges and grade separations.

  The existing SR 37 median width ranges from 45 to 60 feet wide. It does not comply with IDM width criteria through much of Section 6. Therefore, one side of SR 37 would be reconstructed to provide a wider median. In this alternative alignment, a 60-foot wide median would be provided for the entire length of Section 6, which meets the desirable width identified in the IDM criteria for urban areas and slightly exceeds the 54.4-foot minimum width identified for rural areas. Generally, either the northbound or southbound mainline lanes of existing SR 37 would be reused wherever Alternative Alignment C1 follows the existing SR 37 grade.

- Alternative Alignment C2 – Narrow Median, Standard Shoulders and Side Slopes. This alternative alignment would be designed to maximize pavement reuse. The existing SR 37 center median width would be retained, but outside shoulders and ditches would be reconstructed to meet interstate standards for shoulder width, side slopes and clear zones. Although the existing median width does not meet IDM minimum design criteria, it does meet the minimum criteria specified by the AASHTO Interstate Design Policy and thus would not require a design exception per the IDM.[37] The use of cable barrier or double sided guardrail in the median would be considered during the EIS.

  From just south of Southport Road to I-465, I-69 would be elevated above the existing SR 37 grade to minimize impacts at interchanges and crossroads. Pavement reuse is not considered practical in this subsection, and Alternative Alignment C2 would be designed to meet minimum IDM design criteria.

[38] A roadway can be elevated either by constructing it on bridge structure or on earth fill, which is sometimes retained by walls. Elevating a freeway can reduce the impacts at interchanges and grade separations by allowing the crossing street to pass under the freeway while remaining at its existing grade instead of being reconstructed to pass over the freeway.

- Alternative Alignment C3 – Narrow Median, Narrow Shoulders, Existing Ditches. This alternative alignment would maximize the reuse of existing SR 37 pavement, shoulders and ditches. Level 1 design exceptions would be required for outside shoulder width and super elevation transition length. Level 2 design exceptions would be required for obstruction free zone, median slope rate and critical length of grade.[37]

  Existing median, pavement, ditches and shoulders would be reused as much as possible from SR 39 to Southport Road. As with Alternative Alignment C2, Alternative Alignment C3 would be elevated above the existing SR 37 grade from Southport Road to I-465 to minimize impacts at the interchanges and grade separations. Alternative Alignment C3 would be designed to meet minimum IDM design criteria in this subsection.

Preliminary forecasts of year 2045 traffic volumes along I-69 Section 6 have been developed for Alternative Alignments C1, C2 and C3 to provide a starting point for estimating the mainline lane requirements. Lane requirements would be the same for all alternative alignments. The mainline lanes associated with these forecasts are shown in **Table 2-1**.

Table 2-1: Preliminary I-69 Lane Requirements

LOCATION[39]	RURAL/URBAN	2045 ESTIMATED DAILY TRAFFIC VOLUME	LANES
Indian Creek to SR 39	Rural	51,000 – 52,000	4
SR 39 to SR 252/SR 44	Urban	43,000 – 47,000	4
SR 252/SR 44 to Henderson Ford Rd	Rural	45,000 – 46,000	4
Henderson Ford Rd to SR 144	Rural	47,000 – 48,000	4
SR 144 to Smith Valley Rd	Urban	56,000 – 57,000	6
Smith Valley Rd to County Line Rd	Urban	65,000 – 70,000	6
County Line Rd to Southport Rd	Urban	79,000 – 83,000	6
Southport Rd to I-465	Urban	92,000 – 99,000	8

The I-69 Section 6 Corridor Travel Model will be validated for peak hour volume forecasts during the preparation of the EIS, which could result in changes to the assumed lanes identified in the table. The peak hour forecasts will also be used for testing of interchange configurations and local service road connections during the preparation of the EIS.

Typical Section(s) of the Roadway: Several different base typical cross sections are used for layout of the I-69 Section 6 mainline, depending on the mainline alternative and the number of lanes

[39] Segments shown are based on the locations of potential interchanges identified for Preliminary Alternative C in November 2015 mapping. http://www.in.gov/indot/projects/i69/files/Alt_C_Map_reduced.pdf

required. Base typical cross section illustrations with lane widths, shoulders, medians, and clear zones are shown in **Figure 2-2**.

Alternative Alignment C1 provides a 60-foot depressed median and two, three, or four 12-foot travel lanes in each direction, depending on traffic forecasts. Where practical, existing SR 37 travel lanes would be reused in one direction. Shoulder widths would meet IDM minimum design criteria, with 4-foot paved inside shoulders for 4-lane segments, 12-foot paved inside shoulders for 6- or 8-lane segments, and 12-foot paved outside shoulders throughout. Side slopes and clear zones would be provided that meet design criteria specified in the IDM.

Alternative Alignment C2 would use the existing SR 37 median and the existing two 12-foot travel lanes in each direction where practical. The existing median is 45 to 60 feet wide. The existing 4-foot paved inside shoulder would be maintained for 4-lane segments and widened to a 12-foot paved shoulder for 6-lane and 8-lane segments. The existing 10-foot paved outside shoulder would be widened to 12 feet, and outside side slopes and clear zones would be provided to meet IDM design criteria. Pavement reuse is not practical in the area where eight travel lanes are required because of the shifts in horizontal and vertical alignment of the I-69 mainline, so as with Alternative Alignment C1, the road would be reconstructed to meet minimum IDM design criteria.

Alternative Alignment C3 would also use the existing SR 37 median and the existing two 12-foot travel lanes in each direction where practical. The existing 4-foot paved inside shoulder would be maintained for 4-lane segments and would be widened to a 12-foot paved shoulder for 6-lane segments. The existing 10-foot paved outside shoulder and existing outside side slopes and clear zones would be maintained for 4-lane segments.

Where the road is widened on the outside to provide six lanes in Alternative Alignment C3, a 12-foot outside shoulder would be provided and outside side slopes and clear zones would be constructed to meet IDM design criteria. Pavement reuse is not practical in the area where eight travel lanes are required because of the shifts in horizontal and vertical alignment of the I-69 mainline. As with Alternative Alignments C1 and C2, the road would be reconstructed to meet minimum IDM design criteria.

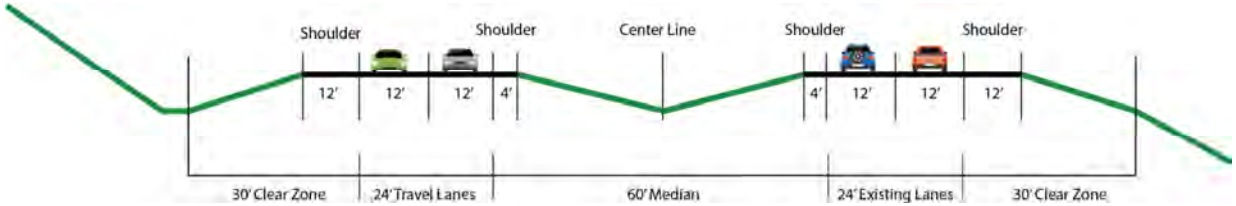
Typical sections have also been developed for other roads to be constructed with the I-69 freeway, such as crossing roads and local service roads. These typical sections vary based on traffic demands, functional classification of roadway, number of lanes, and whether curb and gutter is provided. In areas where they are reconstructed, these roads are planned to meet minimum design criteria identified in the IDM.

Other features of the alternative alignments are right of way and access control, described below:

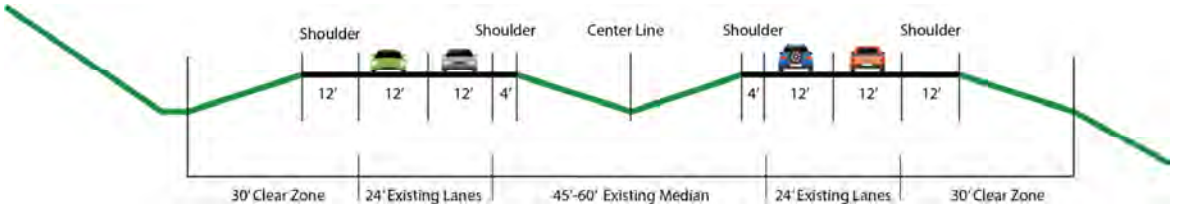
Right of Way: Beyond the shoulders of the roadway, right of way must be sufficient to accommodate roadway drainage, maintenance (including mowing and shrub clearing), and fencing. Safety is also a consideration. Sufficient distance must be provided from freeway travel lanes so that a tree or structure falling towards the freeway right of way would not endanger motorists. Overall, the required right of way width for I-69 alternative alignments ranges from 196 to 480 feet outside interchange areas, depending on the alignment and terrain features.

Figure 2-2: I-69 Typical Sections

4-Lane C1



4-Lane C2



4-Lane C3

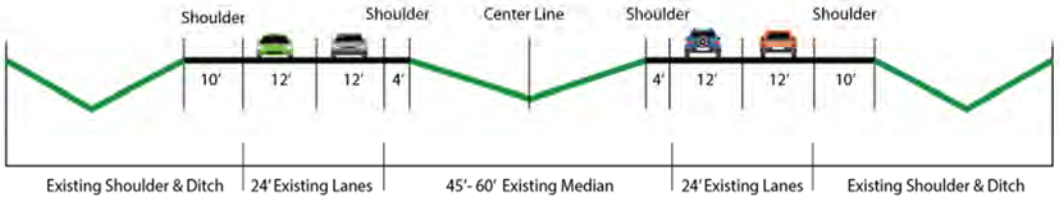
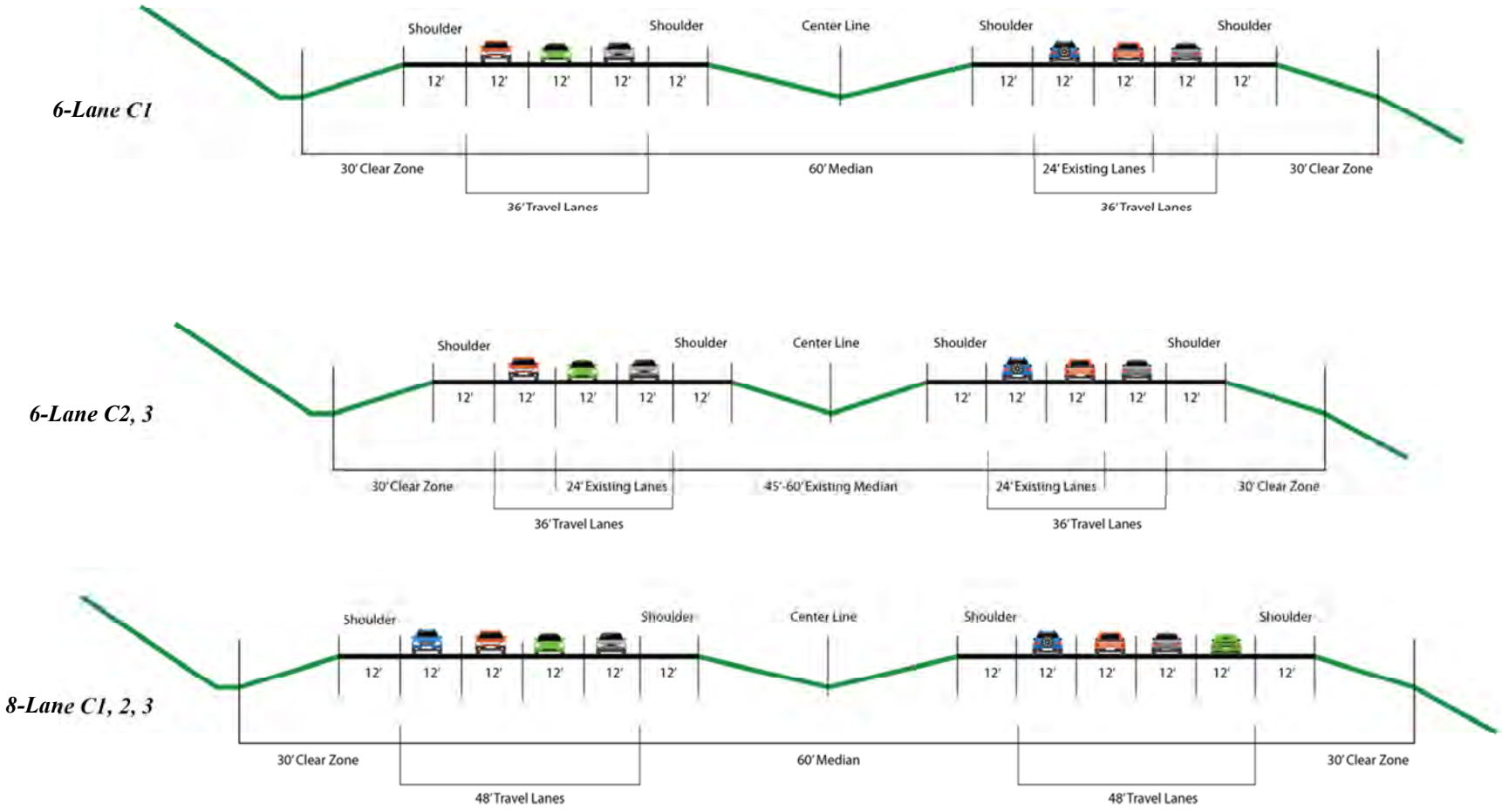


Figure 2-2: I-69 Typical Sections (Image 2 of 2)



- Access Control Limits: Freeway design criteria require full access control along the mainline highway and throughout the interchange ramps. This means that no public road or private driveway intersections are allowed within these limits. Full access control would extend from the freeway ramp terminal intersections along the crossing road for a distance sufficient to ensure that the intersections have approximately the same operational characteristics as the mainline highway. This distance would vary depending upon the urban/rural nature of the area and would be evaluated on a case-by-case basis.

2.2 Alternative Alignment Descriptions by Subsection

This section describes the alternative alignments by subsection, including proposed I-69 mainline alignments, locations of interchanges and grade separated crossings, and changes to local service roads. Geographic subsections provide a structure for describing issues and differences among the alternative alignments that may be relevant to one location but not another. They also allow an informative comparison of impacts resulting from design differences.

Table 2-2 shows the subsections and key design considerations that distinguish each subsection. As these and other considerations are further addressed in the EIS, subsections may be revised to better describe and evaluate options as additional information becomes available. Maps of each alternative alignment, showing the location of the features described in each subsection, are provided in **Appendix F**.

It should be noted that the typical sections of I-69 could vary between subsections. That is, a determination that a particular alternative alignment (for example, Alternative Alignment C1) is best suited for a subsection does not require that alternative alignment to be applied in all adjacent subsections. In addition, other project components (interchange, grade separation, and local service road configurations) may be used from any of the alternative alignments. It is expected that components of multiple alternative alignments will be combined to establish a preferred alternative in the EIS.

2.2.1 Subsection 1: Indian Creek to SR 39

Features to be addressed in this subsection relate to the design of the SR 39 interchange and the configuration of local roadways in the area south of the interchange to meet access and circulation needs after I-69 is constructed.

Alternative Alignment C1 would reuse the northbound SR 37 lanes in this subsection to avoid impacts to Indian Creek on the east side. Alternative Alignment C1 would also raise the grade of the roadway over Indian Creek to provide additional bridge clearance. Alternative Alignments C2 and C3 would maintain the existing horizontal and vertical alignment of SR 37 to maximize pavement reuse.

Impacts would vary according to the layout of local service road connections, especially for Jordan Road, which is located next to Indian Creek. Floodplain impacts would be approximately 18 acres for Alternative Alignment C1 and 14 to 15 acres for Alternative Alignments C2 and C3.

Table 2-2: I-69 Section 6 Subsections

SUBSECTION	KEY DESIGN CONSIDERATIONS
Subsection 1: Indian Creek to SR 39 (1.5 miles)	• SR 39 interchange design • Local access southeast of the SR 39 interchange
Subsection 2: SR 39 to Morgan Street/ Twin Branch Road (4.3 miles)	• Ohio Street interchange or grade separation • Burton Lane grade separation or closure • Elevation of I-69 relative to existing SR 37 grade • Pedestrian access across I-69 • SR 252 and SR 44 interchange design • Access to Twin Branch Road and Cikana State Fish Hatchery
Subsection 3: Morgan Street to Henderson Ford Road (3.4 miles)	• Myra Lane grade separation design • Egbert Road grade separation design
Subsection 4: Henderson Ford Road to Banta Road in Morgan County (7.6 miles)	• Access to local road network (e.g., Ennis, New Harmony, Perry, and Huggin Hollow Roads) • Grade separation at Whiteland Road or Waverly Road
Subsection 5: Banta Road to Fairview Road (4.9 miles)	• Design of interchanges at SR 144 and Smith Valley Road • Local service roads vs. overpasses at Stones Crossing, Olive Branch and Fairview Roads
Subsection 6: Fairview Road to Wicker Road (1.6 miles)	• Design of interchange at County Line Road • Alignment of local service roads between Fairview Road and Wicker Road
Subsection 7: Wicker Road to Banta Road in Marion County (2.2 miles)	• Design of interchange at Southport Road • Accommodation of trail along Little Buck Creek and bicycle route along Southport Road • Impacts to development along existing SR 37
Subsection 8: Banta Road to and including I-465 (1.5 miles)	• Design of system interchange at I-69/I-465 • Access to existing SR 37 businesses, Edgewood underpass • Relationship between the I-69/I-465 system interchange and the I-465/ Harding Street interchange

2.2.1.1 SR 39

After crossing Indian Creek, SR 37 links with SR 39 by means of an existing interchange. Alternative Alignments C1 and C2 would reconstruct this interchange to provide a tight diamond interchange configuration. This would allow a new local service road to be provided on the east side of the interchange for access to property between I-69 and Indian Creek. Under Alternative Alignment C1, the local service road would end in a cul-de-sac before reaching the existing Morgan County Bridge 224 over Indian Creek. This bridge is listed as eligible for listing in the National Register of Historic Places and is closed due to its poor condition. Under Alternative Alignment C2, the local service road would connect to Burton Lane via a new bridge over Indian Creek.

West of I-69, Alternative Alignment C2 would include a 5-legged roundabout to connect the I-69 southbound ramp terminals with SR 39 and Rogers Road. Alternative Alignment C1 would include a signalized intersection rather than a roundabout, and Rogers Road would be realigned to the west to allow adequate distance between its intersection with SR 39 and the southbound ramp terminal intersection.

Alternative Alignment C3 would retain the existing SR 39 interchange layout, without a local service road on the east side of the interchange. Alternative Alignment C3 would require less construction than the other alternative alignments, but it would not provide local connectivity to the east side of I-69, and properties between Indian Creek and I-69 would not have access. On the west side of I-69, Alternative Alignment C3 would be configured like Alternative Alignment C2 to provide a five-legged roundabout connecting SR 39 with the I-69 southbound ramp terminals and Rogers Road.

The existing SR 39 interchange included with Alternative Alignment C3 would utilize a 25 mph loop ramp to serve northbound I-69 traffic entering at SR 39. Reconstruction of the interchange to provide a higher design speed on the loop ramp was considered, but the existing 25 mph loop ramp is within the design standards, and the reconstruction cost would be higher than other interchange options. Reconstruction to increase the design speed would also require more right of way and would impact the Indian Creek floodway. For these reasons, reconstructing the interchange to provide a higher speed loop ramp is not recommended to be carried forward.

2.2.2 Subsection 2: SR 39 to Morgan Street/Twin Branch Road (Martinsville)

Due to the urban character of Martinsville, Subsection 2 would impact both commercial and residential properties. Most of these impacts would result from interchange construction and grade separations, which would require property acquisition to construct approaches to I-69 bridges. The southern portion of this subsection passes through the floodplain of Indian Creek, which extends across the corridor into Martinsville west of I-69.

For Alternative Alignment C1, I-69 would be elevated up to 22 feet above the existing SR 37 grade through much of this subsection. This would allow cross streets to stay at their existing elevation and maintain access to adjacent properties. Elevating I-69 would minimize impacts to adjacent roads and properties provided that fill side slopes do not extend beyond the existing SR 37 right of way. Retaining walls would be installed at various locations on both sides of I-69 to eliminate side

slopes, reducing impacts to businesses, houses and local service roads. Between SR 252 and SR 44, the alignment would be shifted slightly west to avoid an existing cell tower.

For Alternative Alignments C2 and C3, the I-69 mainline would be located at the existing SR 37 elevation through this subsection in order to maximize the reuse of existing pavement. Existing roads that cross I-69, either at grade separations or at interchanges, would be elevated over the freeway.

Climbing lanes would be provided on the mainline of I-69 with all alternative alignments between Grand Valley Boulevard and SR 44 (northbound) and between Morgan Street and SR 44 (southbound).

Consistent with the criteria for interchanges presented in **Section 1.5**, access would be provided to I-69 for both SR 252 and SR 44 on the north side of Martinsville. Through the rest of Martinsville, between SR 39 and SR 252, various options exist for interchanges, grade separations, and realignment of local roadways to provide access and maintain circulation.

2.2.2.1 Burton Lane, Ohio Street, Grand Valley Boulevard

Key access considerations relate to three local streets: Burton Lane, Ohio Street, and Grand Valley Boulevard. The alternative alignments include various combinations of treatments involving these roadways. If an interchange is to be included in any of the alternative alignments between SR 39 and SR 252, the appropriate location would be Ohio Street. It connects to downtown Martinsville, is functionally classified as an arterial, and is located near the middle of this 3-mile subsection. Due to their proximity to each other and the multiple travel path options created by the urban grid of Martinsville, the treatment of Burton Lane, Ohio Street and Grand Valley Boulevard are interrelated. This is reflected in how these elements are combined in the alternative alignments, as shown in **Table 2-3**.

Table 2-3: Martinsville Access Options

ALTERNATIVE ALIGNMENT	BURTON LANE	OHIO STREET	GRAND VALLEY BOULEVARD
C1	Grade Separation	Interchange	Grade Separation
C2	Grade Separation	Grade Separation	Grade Separation
C3	Closure	Interchange	Grade Separation

The Martinsville Comprehensive Plan[40] and the Morgan County SR 37/SR 144 Corridor Plan[41] support an interchange at Ohio Street and grade separations at Burton Lane and Grand Valley

[40] *Strategic Development Group;* Hannum, Wagle & Cline*; & The Planning Workshop. Comprehensive Plan for the City of Martinsville.* January, 2010

Boulevard. A June 4, 2015 letter from the City of Martinsville supports an Ohio Street interchange and a Grand Valley grade separation that connects to South Street. A December 8, 2015 letter from the Martinsville School Corporation also supports a Grand Valley Boulevard grade separation that connects to South Street.

Alternative Alignment C1 would have a grade separation at Burton Lane, an interchange at Ohio Street, and a grade separation at Grand Valley Boulevard. I-69 would be elevated over all three of these local street crossings to minimize impacts to adjacent properties. A diamond interchange would be provided at Ohio Street, with roundabouts at the ramp terminal intersections. The southbound ramp terminal intersection would be a 5-legged roundabout providing access to both Ohio Street and Bills Boulevard.

Ohio Street would be shifted slightly east immediately north of Bill Boulevard to reduce impacts to the adjacent commercial properties. The residential properties on the east side of Ohio Street would be impacted regardless of the shift due to loss of their driveway access. Local access would be maintained along the east (south) side of I-69 in both directions from the Ohio Street interchange using Southview Drive towards Burton Lane and James Baldwin Drive towards Grandview Boulevard.

Grand Valley Boulevard would not be extended to Cramertown Loop with Alternative Alignment C1. South of Grand Valley Boulevard, Flag Stone Drive would be extended to Robert Curry Drive. Near the Ohio Street interchange, local service roads would be provided on the east side of I-69.

Alternative Alignment C2 would not include an interchange at a local road in this subsection. Grade separations would be provided at Burton Lane, Ohio Street, and Grand Valley Boulevard. The I-69 mainline would be at the existing SR 37 elevation and local roads would pass over the mainline. The intersection of Birk Road, Flag Stone Drive and Grand Valley Boulevard would be relocated farther from I-69 to allow room for the Grand Valley Boulevard overpass.

Alternative Alignment C2 would extend Grand Valley Boulevard east to Cramertown Loop to provide better connectivity between the commercial center on the east side of I-69 and the SR 252/SR 44 interchange area further north. South of Grand Valley Boulevard, Flag Stone Drive would be extended to Robert Curry Drive. Near Ohio Street, local service road connections would be provided on the east side of I-69. Southview Drive would be relocated to maintain access south of Ohio Street but it would not connect to Burton Lane.

Alternative Alignment C3 would include closure of Burton Lane at I-69, an interchange at Ohio Street, and a grade separation at Grand Valley Boulevard. The I-69 mainline would be at the existing SR 37 elevation, and Ohio Street and Grand Valley Boulevard would both pass over the mainline. The intersection of Birk Road, Flag Stone Drive and Grand Valley Boulevard would be relocated farther from I-69 to allow room for the overpass.

[41] *Strategic Development Group;* Hannum, Wagle & Cline*;* & *The Planning Workshop. Morgan County SR 37 / 144 Corridor Plan.* February, 2010

As with Alternative Alignment C1, Grand Valley Boulevard would not be extended to Cramertown Loop, and Flag Stone Drive would be extended to Robert Curry Drive to provide connectivity along the east side of I-69. Continuous local road connectivity would be provided between Ohio Street and Burton Lane on the east side of I-69 by relocating Southview Drive.

In each alternative alignment, the Grand Valley Boulevard grade separation would connect to South Street on the west side of I-69 in the vicinity of Martinsville High School. A connection to York Street was considered and had been shown in previous mapping. However, the connection to South Street would have less impact and provide better local network connectivity. The South Street connection is supported by both the City of Martinsville and Martinsville High School. A connection to York Street is not recommended to be considered further.

2.2.2.2 SR 252 and SR 44

SR 252 and SR 44 extend east of SR 37 near the north end of Martinsville. Both state highways end at SR 37, and connect with local roadways west of SR 37. SR 252 connects to Hospital Drive and SR 44 connects to Reuben Drive. The existing intersections of SR 252 and SR 44 with SR 37 are approximately ½ mile apart, which is too close to provide two independent interchanges.

To maintain the continuity of the state highway network, it is important that connections to SR 252 and SR 44 be maintained. It is also important for two important facilities in this vicinity to retain access to and across I-69 – the Washington Township Fire Station on SR 44 east of SR 37 and the IU Health Morgan Hospital and Medical Center on Hospital Drive west of SR 37.

In order to connect I-69 with both state highways and serve important destinations on either side, a combined interchange known as a "split diamond" is proposed in each alternative alignment (see **Figure 2-1**). Modifications would be made to the basic split diamond configuration to best meet local conditions, as described below.

With Alternative Alignments C2 and C3, northbound traffic would exit I-69 at SR 252 to access either highway. Traffic from SR 44 would enter I-69 northbound at SR 44. Southbound traffic would exit I-69 at SR 44, and traffic from SR 252 would enter I-69 southbound at SR 252. Slip ramps (short connector links) would allow traffic to enter I-69 in the middle of the interchange area without having to travel through the ramp terminal intersections at both cross streets. Collector-distributor roads on either side of the mainline would allow access between SR 44 and SR 252, but no local access would be allowed. I-69 would pass underneath both SR 252 and SR 44, and walls adjacent to the northbound collector-distributer road east of I-69 would reduce the footprint and avoid the adjacent cell tower.

Alternative Alignment C1 would use a modified split diamond interchange, which would provide direct access from southbound I-69 to SR 252 via a collector-distributor road under SR 44. The modified design would allow the northbound collector-distributor road to connect SR 252 and Hospital Drive with eastbound SR 44 without requiring a wall to avoid the adjacent cell tower. The northbound collector-distributor road would provide direct access to I-69 via a slip ramp under SR 44. Because Alternative Alignment C1 is elevated through Martinsville, the I-69 mainline would pass over SR 252. At SR 44, the I-69 mainline would more closely follow the existing SR 37 elevation and would pass under SR 44.

The modified split diamond used in Alternative Alignment C1 would have some disadvantages. Southbound traffic entering I-69 from SR 44 would need to travel through the SR 252 ramp terminal intersection, as there would be no slip ramp from the collector-distributor road. The modified configuration would not allow direct access from northbound I-69 to Reuben Drive, as the alignment required to avoid the cell tower would not allow for northbound left turn movements at the SR 44 ramp terminal intersection. This would likely be a low demand movement, with Hospital Drive available for alternate access.

Options that would provide an interchange at either SR 252 or SR 44 and a grade separation at the other highway were considered but dismissed in order to provide direct connectivity with I-69 for both roads without requiring travel on the local road network. A single combined interchange located between SR 252 and SR 44 was also considered and dismissed due to extensive construction and property impacts. Construction of the interchange would be in steep and wooded terrain, adding to its cost and impacts. In addition, this option would not provide access to the hospital as well as the other options unless a grade separation was provided at Hospital Drive, which would further add to the interchange cost.

2.2.2.3 Twin Branch Road and Cikana State Fish Hatchery Access

Access to the portion of Cikana State Fish Hatchery located immediately adjacent to SR 37 is currently provided by a private drive located between Twin Branch Road and Teeters Road. This drive would be closed under all alternative alignments and access would be provided via Twin Branch Road to the south. With Alternative Alignments C1 and C2, access to the hatchery would be provided by extending Twin Branch Road south to Old SR 44 along the east side of I-69. Alternative Alignment C3 would not include the extension of Twin Branch Road along the east side of I-69 but instead would provide a connection from existing Twin Branch Road to SR 44 around the east side of the Cikana State Fish Hatchery south ponds.

2.2.3 Subsection 3: Morgan Street to Henderson Ford Road

North of SR 44, I-69 will traverse an area of low density residential areas, woodlands, and the Cikana and Ozark fish hatcheries. The Martinsville Golf Club is located west of I-69 in this vicinity. Multiple options for maintaining local connectivity and access are provided in the three alternative alignments.

An issue to be addressed in this subsection is north-south mobility, which is currently provided by SR 37. All alternative alignments would provide a continuous local service road on the west side of I-69 from Reuben Drive to Egbert Road by connecting Morgan Street to Old SR 37. All alternative alignments would also provide a connection from Old SR 37 to the Ozark Fisheries on the east side of I-69 via a grade separation at Myra Lane, although the location would differ among the alternative alignments.

Alternative Alignment C1 would retain only the northbound lanes for use with I-69 on this subsection, and would require new right of way on the west side of SR 37 to construct the southbound lanes. Alternative Alignments C2 and C3 would reuse existing SR 37 lanes in both directions.

2.2.3.1 Teeters Road, Myra Lane

Alternative Alignment C1 would begin this section at the same elevation as existing SR 37. A grade separation would allow Teeters Road to pass over I-69. The I-69 mainline would be elevated above the existing SR 37 grade as it approaches Myra Lane, allowing Myra Lane to pass under I-69. This would allow access to be maintained as it exists now for First United Methodist Church and Ozark Fisheries.

Access would be similar under Alternative Alignments C2 and C3, except that both Teeters Road and Myra Lane would pass over I-69. The Myra Lane overpass would be located south of the existing intersection to allow more room to get over I-69 and to maintain access to First United Methodist Church and Ozark Fisheries.

Alternatives were previously considered that closed Teeters Road at I-69. However, this would result in a 2.25-mile segment of Teeters Road being dead-ended from Centennial Road to the north driveway of the Cikana State Fish Hatchery. Several public comments, including a comment from the Morgan County Commissioners, requested a grade separation at this location. Teeters Road would remain open with a grade separation in all alternative alignments.

2.2.3.2 Egbert Road

The Tier 1 FEIS/ROD identified Egbert Road as a potential interchange location in this subsection. However, local planning documents and I-69 Community Advisory Committee members expressed a preference for an interchange at Henderson Ford Road due to its greater prominence in the Morgan County transportation network. Egbert Road extends approximately 4 miles east of SR 37 and does not provide connectivity across the White River to the west. Henderson Ford Road crosses the White River and with a connector to Centennial Road, an 8-mile north-south thoroughfare through eastern Morgan County would be provided.

An interchange at Henderson Ford Road would provide better connectivity, is locally preferred, and would have fewer acres of wetland impact than an interchange at Egbert Road. For these reasons, an interchange at Egbert Road will not be carried forward for further study. Instead, a grade separation would be provided at Egbert Road, with a link to Old SR 37 and Maple Turn Road on the west side of I-69. Old SR 37 would provide a connection from Egbert Road to the Foxcliff residential neighborhood and other areas to the west.

2.2.4 Subsection 4: Henderson Ford Road to Banta Road (Morgan County Road 800W)

As discussed in the previous section, all alternative alignments would include an interchange at Henderson Ford Road. Consistent with the Tier 1 FEIS/ROD, the segment of I-69 north of Henderson Ford Road to SR 144 would not be served directly by an interchange under the current alternative alignments. The possibility of an interchange at Big Bend Road or at another location within this 8-mile section was considered in response to comments from the I-69 Section 6 Community Advisory Committee and the public, but an interchange is not included in the alternative alignments for the reasons described below.

The existing SR 37 median is sufficiently wide from north of Egbert Road to north of Cragen Road that Alternative Alignment C1 would reuse both northbound and southbound pavement. North of this point, C1 would reuse the existing southbound lanes and shift the northbound lanes outward to maintain a 60-foot median width. Alternative Alignments C2 and C3 would reuse existing northbound and southbound pavement throughout this subsection.

2.2.4.1 Henderson Ford Road

Henderson Ford Road would be realigned through the interchange area to connect to Centennial Road on the east side of I-69. Using the existing Henderson Ford Road alignment between I-69 and Egbert Road would impact either a cemetery or a residential subdivision and would not provide good connectivity to Centennial Road.

The alternative alignments include options for connecting Egbert Road to Old SR 37 and Maple Turn Road west of I-69. Alternative Alignment C1 would provide the most direct connection, which would minimize impacts to wetlands, but it would have greater impacts to residential properties than the less direct connections of Alternative Alignments C2 and C3.

2.2.4.2 Big Bend Road

Big Bend Road is midway between the interchanges proposed at Henderson Ford Road and SR 144. It is the only reasonable location in this subsection that would meet federal interchange spacing guidelines. An interchange is identified in local planning documents based on an anticipated large residential development immediately east of SR 37. The development has not occurred, however, and Big Bend Road does not serve a sizeable developed area or provide strategic network connectivity.

Big Bend Road does not cross the White River west of SR 37. It provides access to a low density residential area to the east, which is also served by Waverly Road. An interchange is not proposed, but a grade separation would be provided at Big Bend Road under all alternative alignments.

2.2.4.3 Ennis Road, New Harmony Road, Cragen Road

With direct access to SR 37 eliminated, several changes to local access near and across I-69 would be necessary to maintain local access and circulation along this section of I-69. Most of these changes would be the same regardless of which alternative alignment is advanced.

North of the Henderson Ford Road interchange, existing access to SR 37 from Ennis Road would be closed. No alternate access is currently proposed for this area with Alternative Alignment C1, resulting in a 1.3-mile segment of Ennis Road with no outlet except to Egbert Road. Alternative Alignment C2 would provide a local service road between Henderson Ford Road and Ennis Road, and Alternative Alignment C3 would serve Ennis Road with a local service road extending from Henderson Ford Road to New Harmony Road.

Since existing access to SR 37 from New Harmony Road and Cragen Road would be closed, the New Harmony Road Bridge over Stotts Creek would be replaced to provide access to properties immediately west of Stotts Creek. A bridge previously existed at this location, but it has been removed.

A cemetery associated with the former Mount Zion Methodist Church is located on the west side of SR 37 just north of Cragen Road. This cemetery is on private property located between SR 37 and the White River. All alternative alignments would landlock this cemetery by removing existing access. Options to provide access to this cemetery will be evaluated during the EIS, including a potential overpass at Cragen Road.

2.2.4.4 Perry Road, Old SR 37

Alternative Alignments C1 and C2 would include a grade separation of Perry Road over I-69 and a connection to Old SR 37 on the west side of I-69. Old SR 37 would be extended southwest across Crooked Creek to meet Perry Road. Alternative Alignment C3 would not include this grade separation and Perry Road would be closed at I-69. This would result in a road segment having no outlet for about 1.8 miles, from the end of Lincoln Road to the intersection of Perry Road with New Harmony Road.

2.2.4.5 Waverly Road, Whiteland Road

SR 37 intersections with Waverly Road and Whiteland Road are approximately 0.33 mile apart. Waverly Road serves north-south movements and Whiteland Road serves east-west movements. A grade separation would be provided at one of these two locations with a local service road connecting the two roads east of I-69. Alternative Alignments C1 and C3 would provide the grade separation at Whiteland Road, while Alternative Alignment C2 would provide the grade separation at Waverly Road.

2.2.5 Subsection 5: Banta Road (Morgan County Road 800W) to Fairview Road

Southbound pavement would be reused for Alternative Alignment C1 from a point north of Cragen Road to Smith Valley Road. From just south of Smith Valley Road to Bluff Road south of Fairview Road, the alignment would shift to the west in Alternative Alignment C1 and the existing southbound lanes would be reused for northbound I-69 movements. This would avoid impacts to the fire station at Smith Valley Road and avoid residential property impacts on the east side of I-69. A 6-lane typical section is assumed north of SR 144. Near Fairview Road, Alternative Alignment C1 would shift back to the east and pavement would be reused on the southbound side for I-69 southbound travel lanes.

With Alternative Alignments C2 and C3, existing SR 37 pavement would be reused in both directions throughout this subsection. North of SR 144, the pavement would be widened to provide a third travel lane in each direction.

A number of commercial properties would be impacted in this subsection. This is due to the location of commercial properties at virtually every crossroad. These properties would be impacted by approaches to grade separations as well as by planned interchanges.

2.2.5.1 SR 144

An interchange would be provided at SR 144 under all alternative alignments. Based on preliminary traffic forecasts, a diamond interchange would provide acceptable traffic operation. If

refined traffic forecasts exceed the capacity of a diamond interchange, a diverging diamond or single-point interchange would be considered. A partial cloverleaf was previously considered at this location but it is not included in any of the alternative alignments since it would have a larger footprint, and a more compact interchange configuration would accommodate forecasted traffic levels.

Immediately west of the I-69 interchange with SR 144, Huggin Hollow Lane would be closed because the existing intersection would be too close to the proposed southbound ramp terminal intersection. On the south side of SR 144, this would result in a 1.6-mile segment of Huggin Hollow Lane with no outlet except to Old SR 37 in Waverly.

The Waverly branch of the Morgan County Public Library is located on the north side of SR 144 between Huggin Hollow Road and Old SR 37. This property would be impacted by any of the alternative alignments as shown, but this impact could be avoided by using steeper slopes or retaining walls on SR 144.

2.2.5.2 Travis Road

A new local connection would be provided from Travis Road to SR 144 on the east side of I-69. A grade separation at Travis Road was considered, but is not recommended. Travis Road is only 0.25 mile from SR 144 at this location and it ends just west of SR 37. The cost of spanning the SR 144 interchange ramps and reconstructing the intersection of Huggin Hollow Road and Old SR 37 would not be justified as this grade separation would duplicate the access provided at SR 144. Grade separations at nearby Stones Crossing Road and/or Olive Branch Road would provide better access to residential areas east of I-69.

2.2.5.3 Stones Crossing Road

All of the alternative alignments would provide a grade separation at Stones Crossing Road. Stones Crossing Road provides access to Center Grove Schools, it is well located (midway between I-69 interchanges) for maintaining connectivity, and this grade separation has the documented support of the I-69 Community Advisory Committee. The Stones Crossing alignment would be shifted slightly south in the grade separation vicinity to minimize impacts to adjacent development and to simplify maintenance of traffic during construction.

Closing Stones Crossing Road at I-69 rather than providing a grade separation was considered and is not recommended. Old SR 37 on the west side of I-69 would have no outlet for more than 0.8 miles from SR 144 to the residential neighborhood at Stones Crossing Road. It would require construction of a local service road between Stones Crossing Road and Olive Branch Road on the east side of I-69. Access to Center Grove Schools and government facilities located on or near Stones Crossing Road approximately 3.7 miles east of I-69 would be less direct without a grade separation. These facilities include Center Grove High School, Center Grove Middle School, Center Grove Elementary School, the Center Grove School Corporation Education Service Center, and the White River Township Trustees office.

2.2.5.4 Olive Branch Road

In Alternative Alignment C1, Olive Branch Road would be closed at I-69, and access to properties on the west side of I-69 would be provided by reconnecting Old SR 37 through the existing residential neighborhood just north of Stones Crossing Road. Olive Branch Road would also be closed in Alternative Alignment C2, and access to properties on the west side would be provided by a continuous local service road extending from SR 144 to County Line Road. An overpass would be constructed with Alternative Alignment C3, providing access to residences along Old SR 37 west of I-69.

2.2.5.5 Smith Valley Road

Due to its continuity and service to downtown Greenwood, an interchange at Smith Valley Road would be constructed with any of the alternative alignments. With its compact size and simple operation, a diamond interchange would be the preferred configuration if it can accommodate forecasted traffic. Otherwise, a diverging diamond interchange would be considered. Both would have similar footprints. Interchange configurations with a larger footprint and right of way requirements will only be considered in the EIS if necessary to accommodate refined traffic forecasts.

Under Alternative Alignment C1, the I-69 mainline would be shifted slightly west of existing SR 37. This shift, along with the use of a retaining wall, would allow the White River Township Fire Station located in the southeast quadrant to remain in place. The driveway for emergency vehicles to exit the fire station onto Smith Valley Road would need to be closed because it is too close to the interchange, but the site could be reconfigured to allow entrance and exit to Mullinix Road.

Under Alternative Alignments C2 and C3, the I-69 mainline would not be shifted from the alignment of existing SR 37. Alternative Alignment C2 would require the fire station to be relocated, and Alternative Alignment C3 would use a retaining wall to allow the fire station to remain. Fire station driveway reconfiguration would be required, as in Alternative Alignment C1. For Alternative Alignments C2 and C3, the distance from the northbound ramp terminal intersections to Mullinix Road would be approximately 350 feet, which is acceptable per the IDM but could result in poor traffic operations.

2.2.5.6 Fairview Road

Considerations for an overpass at Fairview Road include a need to access major utilities and commercial property west of I-69 and a linkage to Bluff Road, which would be closed at SR 37 east of I-69. Alternative Alignments C1 and C3 would provide a grade separation at Fairview Road, accompanied by a series of local service roads on the west side of I-69 to connect Smith Valley Road, Fairview Road and County Line Road. A grade separation at Fairview Road would not be provided with Alternative Alignment C2. Instead, a continuous local service road would be provided along the west side of I-69, extending from SR 144 to County Line Road.

2.2.6 Subsection 6: Fairview Road to Wicker Road

Just north of Fairview Road, Alternative Alignment C1 would become elevated[38] above the existing SR 37 grade and remain elevated over crossing roads north to I-465. Near Stop 11 Road,

the mainline would shift to the west to avoid impacts to businesses in the southeast quadrant of the County Line Road interchange and to homes on the east side of I-69. Alternative Alignment C2 would also become elevated just north of Fairview Road, passing over County Line Road and all other crossing roads north to I-465. Alternative Alignment C3 would remain at the existing SR 37 grade past the County Line Road interchange, and would become elevated just north of the interchange.

2.2.6.1 County Line Road

County Line Road extends east from SR 37 and passes through Greenwood as it approaches an interchange with I-65. There are no documented plans to extend County Line Road west of SR 37. All alternative alignments would provide an interchange at County Line Road, with a local service road extension that would turn north to connect with Wicker Road. In Alternative Alignments C1 and C2, the I-69 mainline would pass over both County Line Road and Wicker Road to minimize impacts to adjacent property. In Alternative Alignment C3, the mainline would remain at existing grade through the County Line Road interchange to maximize reuse of SR 37 pavement. County Line Road would pass over the I-69 mainline, but the mainline would become elevated farther north, passing over Wicker Road.

Alternative Alignment C1 would provide a folded loop configuration with a loop ramp for the northbound exit and standard diamond configuration for the southbound ramps. This would require more property in the northeast quadrant compared with a full diamond interchange, but it would allow Bluff Road and adjacent properties to remain in place in the southeast quadrant. Roundabout intersections would be provided at the ramp termini. The fifth leg of the west roundabout would tie with a local service road for access to property west of I-69 and south of County Line Road.

Alternative Alignments C2 and C3 would use a tight diamond interchange configuration at County Line Road with signalized ramp termini intersections. This configuration is expected to provide acceptable traffic operation with a small impact footprint and low construction cost. The diamond interchange configuration would, however, have more impact along Bluff Road south of County Line Road than the interchange configuration used in Alternative Alignment C1. Bluff Road would be realigned just south of County Line Road to relocate the existing intersection approximately 900 feet east and provide separation from the proposed ramp terminal. Several residential properties would be impacted by this realignment.

2.2.6.2 Wicker Road, Stop 11 Road

Options for the connection from County Line Road to Wicker Road west of I-69 vary with the County Line Road interchange layout. The roundabout ramp terminal intersection in Alternative Alignment C1 would allow the connector road to turn northward before reaching Pleasant Run Creek, approximately 500 feet west of the interchange. This would minimize the bridge construction for both the connector road and the adjacent local service roads. Under Alternative Alignments C2 and C3, the connector road would cross to the west side of Pleasant Run Creek before reaching Wicker Road. Local service roads to the north and south of the interchange would need to cross back to the east of Pleasant Run Creek.

All alternative alignments show a grade separation at Wicker Road. It would link with Bluff Road on the east and connect with the large Southern Dunes residential development on the west. A

grade separation at Stop 11 Road was considered, but is not recommended. Stop 11 Road does not currently cross SR 37 and it would require extension to the Southern Dunes development, with no further westward connectivity. East of I-69, the road would require widening and improvement between Belmont Road and Bluff Road.

2.2.7 Subsection 7: Wicker Road to Banta Road (Marion County)

The I-69 mainline would be elevated from south of Southport Road to I-465 under all alternative alignments, with retaining walls and other features to minimize impacts to adjacent properties. This design would facilitate crossings under I-69 by major roadways without changing their grade, which would reduce impacts at existing SR 37 intersection locations. No SR 37 pavement would be reused in this subsection.

2.2.7.1 Southport Road

Southport Road is one of the most heavily traveled roadways in the area, serving extensive development east and west of SR 37. It is continuous through most of Marion County and is served by an interchange at I-65. An interchange at Southport Road is included in all I-69 alternative alignments.

Considerations for the layout of an interchange at Southport Road include multi-family housing and commercial properties close to SR 37, anticipated high traffic volumes, and the proximity of Little Buck Creek north of Southport Road. Apartments were recently constructed in the southwest quadrant, with a detention pond on the northern portion of the site. Apartments are also located in the southeast quadrant of the intersection.

It is anticipated that three interchange configurations will be carried forward in the EIS including a diverging diamond, a single point, and a folded loop. A partial cloverleaf interchange was considered and rejected due to the extensive impact it would cause to existing development.

Alternative Alignment C1 would provide a diverging diamond interchange shifted west of SR 37 to minimize impacts on the east side of I-69. The existing Aspen Lakes apartment buildings in the southeast quadrant would not be impacted, and access to the apartments from the south on Belmont Avenue would be maintained. Access to the apartments from Southport Road would be moved approximately 600 feet further east via a new connecting road into the adjacent residential neighborhood, allowing access to be limited along Southport Road to meet IDM standards. Traffic operational issues associated with this configuration will be addressed in the EIS.

On the west side of I-69, the Southern Dunes Apartments on the south and the Southport Landing commercial shopping center on the north would be impacted by Alternative Alignment C1. Belmont Avenue would be closed south of Little Buck Creek and the Southport Landing shopping center would not be accessible from Banta Road. The main shopping center entrance would be relocated to the west along Southport Road. This would impact part of the building structure on the west end but it would provide an entrance along Southport Road approximately 900 feet west of the diverging diamond intersection.

Alternative Alignment C2 would provide a single point interchange that is shifted east of existing SR 37 to minimize impacts to the west. The existing main entrance to the Southport Landing

shopping center and the side entrance from Belmont Avenue would both be maintained. On the east side of I-69, at least 8 of the 13 apartment buildings and the clubhouse at the Aspen Lakes Apartments would be impacted. Belmont Avenue would be closed south of the apartments and a new local service road for the remaining apartments would be constructed through the adjacent residential neighborhood.

Alternative Alignment C3 would provide a folded diamond interchange with I-69 on the existing SR 37 centerline. Loop ramps to and from I-69 south of Southport Road would be located on the north side of the interchange. This would allow both the Aspen Lake and Southern Dunes apartment communities to remain in place, but the Southport Landing Shopping Center would be impacted. As with the other two alternative alignments, the Southport Road entrance to the Aspen Lake Apartments would be relocated by constructing a new drive connection to the adjacent residential neighborhood. Access to the apartments from the south on Belmont Avenue would be maintained, as in Alternative Alignment C1.

The planned Little Buck Creek Trail is located along Little Buck Creek just north of Southport Road[42] In addition, U.S. Bicycle Route 50 is designated to follow Southport Road through the proposed I-69 interchange. Accommodation options for both of these trails will be provided in the EIS.

2.2.8 Subsection 8: Banta Road to I-465

The section of the corridor between Southport Road and I-465 has dense commercial and residential development frontage. There is extensive commercial land use near SR 37 and large subdivisions of multi-family housing units are located on both sides of the corridor. As noted in **Section 2.2.7**, the I-69 mainline would be elevated from south of Southport Road to I-465 under all alternative alignments, with retaining walls and other features to minimize impacts to adjacent properties. The White River is located in close proximity to the west, and the alignment outside the SR 37 right of way may affect nearby gravel pits. The potential waterway and wetland impacts in this area will be thoroughly evaluated in the EIS.

2.2.8.1 Banta Road, Epler Road, Edgewood Avenue

To maintain access and connectivity in the area, grade separations would be provided at Banta Road and at Epler Road with all alternative alignment**s**. Alternative Alignment C1 would add a third grade separation at Edgewood Avenue.

2.2.8.2 I-465

As an "interstate to interstate" connection, the system interchange between I-69 and I-465 would be designed to standards associated with a 55 mph design speed. Two optional configurations of the I-69/I-465 interchange have been defined. In Alternative Alignment C1, I-69 would be aligned through the existing gravel pits to avoid the businesses on the west side of SR 37 and to minimize

[42] *Indy Greenways Full Circle Plan,* 2013-2023 Master Plan, May 2014, https://indygreenwaysmasterplan.wordpress.com/full-circle-master-plan-2/

impacts to the Sunshine Gardens neighborhood further west. With Alternative Alignments C2 and C3, I-69 would be shifted west of existing SR 37 to minimize impacts to the gravel pits.

With Alternative Alignment C1 through the gravel pits, a grade separation at Edgewood Avenue would be included to provide access to businesses along Belmont Avenue. Access between I-69 to the south and the SR 37/Harding Street area would be via direct ramps south of Epler Avenue. Access between this area and I-69 north along I-465 would be via the existing SR 37/I-465 interchange.

Alternative Alignments C2 and C3, with I-69 located further west, would impact businesses on the west side of SR 37 between Edgewood Avenue and Epler Avenue. These alternative alignments would also have greater impacts to the Sunshine Gardens residential neighborhood. Access between I-69 and the SR 37/Harding Street area would be via slip ramps from the system interchange to the existing SR 37/I-465 interchange.

In all alternative alignments the I-69 ramps to I-465 west would include an auxiliary lane on I-465 in each direction to the Mann Road interchange. The I-69 ramps to I-465 east would include an auxiliary lane in each direction to the southbound US 31 entrance and exits. Detailed ramp and lane configurations for the I-69/I-465 interchange will be developed during the EIS and would be planned to accommodate potential future widening of I-465 to provide four continuous through travel lanes in each direction.

2.3 Summary of Alternative Alignments

This section provides a summary description of Alternative Alignments C1, C2 and C3 that will be carried forward as reasonable alternatives in the EIS. The alternative alignment**s** are summarized in several tables.

Table 2.4 provides a summary of the mainline design attributes of each alternative alignment. This includes the number of lanes, adherence to design standards, anticipated reuse of existing SR 37 pavement, and other important features.

Table 2-5 summarizes the access and connectivity of each alternative alignment. This includes the proposed location of interchanges, grade separations and roadway closures.

Table 2-6 to **Table 2-10** provide estimates of the potential impacts of each alternative alignment to the natural and human environment. Generally, these estimated impacts were calculated using the same methodology that was used during the screening of preliminary alternatives in Part 1 of this report (See **Section 1.2**). The estimated impacts are presented here for general information. Impacts to be used for the evaluation of alignments in the EIS will be calculated using more precise data and methods.

Total construction costs for each alternative alignment are not included since right of way costs are yet to be estimated. Right of way costs can vary greatly, especially for commercial properties, depending on the selected alignment footprint and its localized effects. Construction and right of way cost estimates will be included in the EIS.

Alternative Alignments C1, C2 and C3 were developed to illustrate possible combinations of potential I-69 mainline cross sections, alignments, interchange locations and types, grade separated crossing locations, and local service road locations. It is expected that the preferred alternative identified in the EIS will incorporate a combination of design features from more than one of these alternative alignments.

Table 2-4: I-69 Section 6 Alternative Alignments – Mainline Design

LOCATION[1]	AREA	LANES	ALIGNMENT C1	ALIGNMENT C2	ALIGNMENT C3
Indian Creek to SR 39	Rural	4 lanes	• Reuse part of existing mainline pavement where practical • Meets minimum design criteria and desirable where practical	• Reuse existing mainline pavement • Meets minimum design criteria • Median barrier may be justified	• Reuse existing mainline pavement, shoulders, and outside ditches • Median barrier may be justified • Potential Level 1 and 2 design exceptions[2]
SR 39 to SR 44	Urban	4 lanes	• Meets minimum design criteria and desirable where practical • May be elevated	• Reuse existing mainline pavement • Meets minimum design criteria • Median barrier may be justified	• Reuse existing mainline pavement, shoulders, and outside ditches • Median barrier may be justified • Potential Level 1 and 2 design exceptions[2]
SR 44 to SR 144	Rural	4 lanes	• Reuse part of existing mainline pavement where practical • Meets minimum design criteria and desirable where practical	• Reuse existing mainline pavement • Meets minimum design criteria • Median barrier may be justified	• Reuse existing mainline pavement, shoulders, and outside ditches • Median barrier may be justified • Potential Level 1 and 2 design exceptions[2]
SR 144 to County Line Road	Urban	6 lanes	• Reuse part of existing mainline pavement where practical • Meets minimum design criteria and desirable where practical	• Reuse existing mainline pavement • Meets minimum design criteria • Median barrier may be justified	• Reuse existing mainline pavement, shoulders, and outside ditches • Median barrier may be justified
County Line Road to Southport Road	Urban	6 lanes	• Meets minimum design criteria and desirable where practical	• Meets minimum design criteria	• Meets minimum design criteria
Southport Road to I-465	Urban	8 lanes	• Meets minimum design criteria and desirable where practical	• Meets minimum design criteria	• Meets minimum design criteria

[1] Locations shown in this table are based on number of anticipated lanes and rural vs. urban surrounding area. They do not correspond to the eight subsections identified for impact analysis based on design considerations.
[2] Potential Level 1 design exception is for shoulder width. Potential Level 2 design exceptions are for roadside safety obstruction-free zone and critical length of grade. See Section 1.1 for a discussion of design exceptions.

Table 2-5: Alternative Alignments – Access

LOCATION	ALIGNMENT C1	ALIGNMENT C2	ALIGNMENT C3
Subsection 1 - Southern limit to north side of SR 39 (1.5 miles)			
Old SR 37	Closed	Closed	Closed
SR 39	Diamond interchange. Under I-69.	Diamond interchange with roundabouts. Under I-69.	Existing trumpet interchange with added roundabout. Under I-69.
Subsection 2 - SR 39 to Morgan Street/Twin Branch Road (4.3 miles)			
Burton Lane	Grade separation. Under I-69.	Grade separation. Over I-69.	Closed
Ohio Street	Diamond interchange with roundabouts. Under I-69.	Grade separation. Over I-69.	Diamond interchange. Over I-69.
Industrial Drive	Closed	Closed	Closed
Grand Valley (Gardner)	Grade separation. Under I-69.	Grade separation. Over I-69.	Grade separation. Over I-69.
Glenn Street	Closed	Closed	Closed
SR 252/Hospital Drive	Modified split-diamond interchange. SR 252 and SR 44 over I-69.	Split-diamond interchange. SR 252 and SR 44 over I-69.	Split-diamond interchange. SR 252 and SR 44 over I-69.
SR 44/Rueben Drive			
East Morgan Street/ Twin Branch Road	Closed	Closed	Closed
Subsection 3 – Morgan Street/Twin Branch Road to Henderson Ford Road (3.4 miles)			
Teeters Road	Grade separation. Over I-69.	Grade separation. Over I-69.	Grade separation. Over I-69.
Country Club Road/ Carmichael Road	Closed	Closed	Closed
Old SR 37/Myra Lane	Grade separation. Under I-69.	Grade separation. Over I-69.	Grade separation. Over I-69.
Old SR 37	Old SR 37 and Egbert Road grade separation. Over I-69.	Old SR 37 and Egbert Road grade separation. Over I-69.	Old SR 37 and Egbert Road grade separation. Over I-69.
Egbert Road			

Table 2-5: Alternative Alignments – Access

LOCATION	ALIGNMENT C1	ALIGNMENT C2	ALIGNMENT C3
Subsection 4 - Henderson Ford Road to Banta Road in Morgan County (7.6 miles)			
Henderson Ford Road	Diamond interchange. Over I-69.	Diamond interchange. Over I-69.	Tight diamond interchange. Over I-69.
Ennis Road (CR 500 E)	Closed	Closed	Closed
New Harmony Road	Closed	Closed	Closed
Cragen Road	Closed	Closed	Closed
Perry Road	Perry Road and Old SR 37 grade separation. Over I-69.	Perry Road and Old SR 37 grade separation. Over I-69.	Closed
Old SR 37			Closed
Big Bend Road	Grade separation. Over I-69.	Grade separation. Over I-69.	Grade separation. Over I-69.
Waverly Road	Closed	Grade separation. Over I-69.	Closed
Whiteland Road	Grade separation. Over I-69.	Closed	Grade separation. Over I-69.
Subsection 5 - Banta Road in Morgan County to Fairview Road (4.9 miles)			
Huggin Hollow Road /CR 800/ Banta Road	Closed	Closed	Closed
SR 144	Diamond interchange. Over I-69.	Diamond interchange. Over I-69.	Diamond interchange. Over I-69.
Travis Road	Closed	Closed	Closed
Stones Crossing	Grade separation. Over I-69.	Grade separation. Over I-69.	Grade separation. Over I-69.
Olive Branch Road	Closed	Closed	Grade separation. Over I-69.
Bluff Acres Drive	Closed	Closed	Closed
Smith Valley Road	Diamond interchange. Over I-69.	Diverging diamond interchange. Over I-69.	Diamond interchange. Over I-69.
Bluffdale Road	Closed	Closed	Closed
Fairview Road	Grade separation. Over I-69.	Closed	Grade separation. Over I-69.

Table 2-5: Alternative Alignments – Access

LOCATION	ALIGNMENT C1	ALIGNMENT C2	ALIGNMENT C3
Subsection 6 - Fairview Road to Wicker Road (1.6 miles)			
County Line Road	Partial folded diamond interchange with roundabouts. Under I-69.	Tight diamond interchange. Under I-69.	Tight diamond interchange. Over I-69.
Wicker Road	Grade separation. Under I-69.	Grade separation. Under I-69.	Grade separation. Under I-69.
Subsection 7 - Wicker Road to Banta Road in Marion County (2.2 miles)			
Southport Road	Diverging diamond interchange. Under I-69.	Single-point urban interchange. Under I-69.	Folded diamond interchange. Under I-69.
Subsection 8 - Banta Road in Marion County to I-465 (1.5 miles)			
Banta Road	Grade separation. Under I-69.	Grade separation. Under I-69.	Grade separation. Under I-69.
Edgewood Avenue	Grade separation. Under I-69.	Closed	Closed
Epler Avenue	Grade separation. Under I-69.	Grade separation. Under I-69.	Grade separation. Under I-69.
Thompson Road	Closed	Closed	Closed
I-465/I-69	Directional interchange	Directional interchange	Directional interchange
I-465/Harding Street	I-69 access directly to SR 37/Harding Street within combined interchange	Auxiliary lanes to SR 37/Harding Street within combined interchange	Auxiliary lanes to SR 37/Harding Street within combined interchange

Table 2-6: Alternative Alignments – Potential Natural Environmental Impacts

SUBSECTION BY ALTERNATIVE ALIGNMENT	FLOODPLAINS		WATER RESOURCES		WELLHEAD PROTECTION AREA (ACRES)	WETLANDS			
	Floodplain[1] (acres)	Floodway (acres)	Total Stream[2] (feet)	Impaired Streams[3] (feet)		Emergent Wetlands (acres)	Forested Wetlands (acres)	Open Waters (acres)	Quarries and Fish Hatchery Ponds (acres)
Subsection 1 - Southern limit to north side of SR 39									
C1	18	49	8,388	-	-	1	1	1	1
C2	14	57	9,073	-	-	1	1	1	-
C3	15	35	7,340	-	-	<1	<1	<1	-
Subsection 2 - SR 39 to Morgan Street/Twin Branch Road									
C1	36	-	29,158	-	-	-	-	-	-
C2	37	<1	31,212	-	-	-	-	<1	-
C3	48	-	32,856	-	-	-	2	<1	-
Subsection 3 – Morgan Street/Twin Branch Road to Henderson Ford Road									
C1	49	-	15,528	-	-	-	<1	1	1
C2	67	-	17,106	-	-	4	<1	1	1
C3	51	-	16,401	-	-	3	<1	1	<1
Subsection 4 - Henderson Ford Road to Banta Road in Morgan County									
C1	30	6	41,001	977[4]	-	-	<1	-	-
C2	31	6	43,702	1,015[4]	-	-	<1	<1	-
C3	16	5	35,843	664[4]	-	-	-	-	-

[1] Floodplain calculations do not include floodway.
[2] Total stream length includes both non- impaired streams and impaired streams.
[3] Impaired streams are those listed on the Section 303d List by Indiana Department of Environmental Management. See http://in.gov/idem/nps/2647.htm
[4] Stotts Creek; Crooked Creek

Table 2-6: Alternative Alignments – Potential Natural Environmental Impacts

SUBSECTION BY ALTERNATIVE ALIGNMENT	FLOODPLAINS		WATER RESOURCES		WELLHEAD PROTECTION AREA (ACRES)	WETLANDS			
	Floodplain[1] (acres)	Floodway (acres)	Total Stream[2] (feet)	Impaired Streams[3] (feet)		Emergent Wetlands (acres)	Forested Wetlands (acres)	Open Waters (acres)	Quarries and Fish Hatchery Ponds (acres)
Subsection 5 - Banta Road in Morgan County to Fairview Road									
C1	37	7	34,964	-	149	-	-	<1	-
C2	51	14	37,756	-	171	<1	1	-	-
C3	48	7	36,734	-	163	-	-	<1	-
Subsection 6 - Fairview Road to Wicker Road									
C1	7	8	10,043	572[5]	103	-	-	-	-
C2	15	5	12,266	814[5]	113	-	-	<1	-
C3	17	5	12,399	914[5]	109	-	-	-	-
Subsection 7 - Wicker Road to Banta Road in Marion County									
C1	49	2	11,140	-	128	<1	1	<1	-
C2	59	2	11,225	-	120	-	1	1	-
C3	47	2	11,243	-	110	-	1	<1	-
Subsection 8 - Banta Road in Marion County to I-465									
C1	118	7	30,839	467[6]	78	1	-	1	49
C2	125	7	26,211	467[6]	58	<1	-	1	21
C3	127	7	26,722	467[6]	60	<1	-	1	21
Total									
C1	**344**	**79**	**181,061**	**2,016**	**458**	**2**	**2**	**3**	**51**
C2	**399**	**91**	**188,551**	**2,296**	**462**	**5**	**3**	**4**	**22**
C3	**369**	**61**	**179,538**	**2,045**	**442**	**3**	**3**	**2**	**21**

[5] Pleasant Run Creek
[6] White River; State Ditch

Table 2-7: Alternative Alignments –Potential Recreational, Historic, and Community Impacts

SUBSECTION BY ALTERNATIVE	LAND COVER [7]		RECREATIONAL AND COMMUNITY RESOURCES					HISTORIC PROPERTY IMPACTS[8] (number)
	Agricultural (acres)[9]	Forested (acres)	Cikana State Fish Hatchery[10] (acres)	Cemetery Location (number)	Schools (acres)	Religious Facilities (acres)	Planned Trails[8] (feet)	
Subsection 1 - Southern limit to north side of SR 39								
C1	26	2	-	-	-	-	-	-
C2	26	4	-	-	-	-	-	-
C3	18	1	-	-	-	-	-	-
Subsection 2 - SR 39 to Morgan Street/Twin Branch Road								
C1	22	26	-	-	5[11]	4	-	-
C2	23	24	-	-	7[11]	5	-	-
C3	21	26	-	-	5[11]	3	-	-
Subsection 3 – Morgan Street/Twin Branch Road to Henderson Ford Road								
C1	38	39	3	-	-	4	-	-
C2	56	41	4	-	-	5	-	-
C3	42	31	1	-	-	3	-	-
Subsection 4 - Henderson Ford Road to Banta Road in Morgan County								
C1	93	24	-	1[12]	-	-	-	-
C2	116	33	-	1[12]	-	-	-	-
C3	91	18	-	1[12]	-	-	-	-

[7] 2011 National Land Cover Dataset
[8] Potential Section 4(f) Resources
[9] Includes pasture, row crops, and active agricultural lands.
[10] Not a Section 4(f) Resource
[11] Includes Tabernacle Christian School and Martinsville High School
[12] Cemetery associated with former Mount Zion Methodist Church west of Cragen Road on SR 37. Impacts are associated with land locking this parcel.

Table 2-7: Alternative Alignments –Potential Recreational, Historic, and Community Impacts

SUBSECTION BY ALTERNATIVE	LAND COVER [7]		RECREATIONAL AND COMMUNITY RESOURCES					HISTORIC PROPERTY IMPACTS[8] (number)
	Agricultural (acres)[9]	Forested (acres)	Cikana State Fish Hatchery[10] (acres)	Cemetery Location (number)	Schools (acres)	Religious Facilities (acres)	Planned Trails[8] (feet)	
Subsection 5 - Banta Road in Johnson County to Fairview Road								
C1	39	3	-	-	-	5	-	-
C2	56	6	-	-	-	6	-	-
C3	42	3	-	-	-	6	-	-
Subsection 6 - Fairview Road to Wicker Road								
C1	39	1	-	-	-	3	-	-
C2	40	1	-	-	-	2	-	-
C3	39	1	-	-		2	-	-
Subsection 7 - Wicker Road to Banta Road in Marion County								
C1	17	2	-	-		-	584	-
C2	9	3	-	-		-	551	-
C3	9	2	-	-		-	696	-
Subsection 8 - Banta Road in Marion County to I-465								
C1	21	1	-	-		-	-	1[13]
C2	27	4	-	-		-	-	1[13]
C3	28	4	-	-		-	-	1[13]
Total								
C1	**295**	**98**	**3**	**1**	**5**	**16**	**584**	**1**
C2	**353**	**116**	**4**	**1**	**7**	**18**	**551**	**1**
C3	**290**	**86**	**1**	**1**	**5**	**14**	**696**	**1**

[13] Approximately 5 acres of property will likely be acquired from the Southside German Market Historic District located along Bluff Road both north and south of I-465.

Table 2-8: Alternative Alignments - Potential Residential and Agricultural Impacts

SUBSECTION BY ALTERNATIVE ALIGNMENT	RESIDENTIAL ZONED PROPERTY[1]					AGRICULTURAL ZONED PROPERTY[1,2]			
	Property Impacts[3] (acres)	Right of way (acres)	Landlocked (acres)	Parcels (number)	Relocations (number)[4]	Property Impacts[2, 3] (acres)	Right of way (acres)	Land-locked (acres)	Parcels (number)
Subsection 1 - Southern limit to north side of SR 39									
C1	1	1	-	1	3	29	29	-	7
C2	<1	<1	-	2	2	39	37	2	7
C3	<1	<1	-	1	1	97	15	82	10
Subsection 2 - SR 39 to south side of Cikana State Fish Hatchery									
C1	53	50	3	134	98	13	13	-	9
C2	48	48	-	148	128	20	20	-	11
C3	52	41	11	148	124	30	30	-	17
Subsection 3 - Cikana State Fish Hatchery to Henderson Ford Road									
C1	49	31	18	33	19	34	33	1	26
C2	50	31	19	34	20	54	54	-	30
C3	50	25	25	36	17	29	29	-	26
Subsection 4 - Henderson Ford Road to Banta Road in Morgan County									
C1	59	33	26	82	16	584	151	433	82
C2	63	37	26	85	16	554	179	375	80
C3	46	17	29	62	14	643	104	539	73

[1] Does not include existing state owned right of way.
[2] Includes all parcels zoned agricultural, not only those that are in active agricultural production.
[3] Includes both required right of way and landlocked parcels.
[4] Includes single family residential properties and multifamily residential properties. Each residence was counted as one potential relocation.

Table 2-8: Alternative Alignments - Potential Residential and Agricultural Impacts

SUBSECTION BY ALTERNATIVE ALIGNMENT	RESIDENTIAL ZONED PROPERTY[1]					AGRICULTURAL ZONED PROPERTY[1,2]			
	Property Impacts[3] (acres)	Right of way (acres)	Landlocked (acres)	Parcels (number)	Relocations (number)[4]	Property Impacts[2, 3] (acres)	Right of way (acres)	Land-locked (acres)	Parcels (number)
Subsection 5 - Banta Road in Johnson County to Fairview Road									
C1	36	35	1	95	24	97	92	5	80
C2	47	47		150	52	112	112	-	83
C3	45	44	1	148	41	117	95	22	80
Subsection 6 - Fairview Road to Wicker Road									
C1	19	11	8	39	14	38	38	-	17
C2	23	15	8	53	16	33	33	-	17
C3	23	14	9	52	16	30	30	-	17
Subsection 7 - Wicker Road to Banta Road in Marion County									
C1	30	30	-	48	45	22	22	-	11
C2	31	28	3	47	206	25	25	-	11
C3	18	18	-	47	6	20	20	-	11
Subsection 8 - Banta Road in Marion County to I-465									
C1	14	1	13	35	-	7	7	-	8
C2	17	9	8	43	19	5	5	-	8
C3	9	9	-	41	18	6	6	-	8
Total									
C1	**261**	**192**	**69**	**467**	**219**	**824**	**385**	**439**	**240**
C2	**279**	**215**	**64**	**562**	**459**	**842**	**465**	**377**	**247**
C3	**243**	**168**	**75**	**535**	**237**	**972**	**329**	**643**	**242**

Table 2-9: Alternative Alignments - Potential Commercial and Industrial Impacts

SUBSECTION BY ALTERNATIVE ALIGNMENT	COMMERCIAL ZONED PROPERTY[1]					INDUSTRIAL ZONED PROPERTY[1]			BILLBOARDS (NUMBER)
	Property Impacts2 (acres)	Right of way (acres)	Land-locked (acres)	Parcels (number)	Relocations (number)	Property Impacts[2] (acres)	Parcels (number)	Relocations (number)	
Subsection 1 - Southern limit to north side of SR 39									
C1	2	2	0	12	3	-	-	-	9
C2	1	0	1	10	2	-	-	-	9
C3	<1	<1	-	8	1	-	-	-	9
Subsection 2 - SR 39 to south side of Cikana State Fish Hatchery									
C1	48	42	6	95	47	1	1	-	4
C2	55	47	8	121	45	1	1	-	5
C3	61	53	8	108	60	1	1	-	5
Subsection 3 - Cikana State Fish Hatchery to Henderson Ford Road									
C1	26	25	1	14	4	-	-	-	8
C2	29	29	-	14	5	-	-	-	8
C3	29	29	-	14	4	-	-	-	7
Subsection 4 - Henderson Ford Road									
C1	12	10	2	13	13	<1	1	1	11
C2	15	11	4	18	13	<1	1	1	11
C3	9	6	3	15	11	-	-	-	10
Subsection 5 - Banta Road in Johnson County to Fairview Road									
C1	38	23	15	61	12	<1	1	-	1
C2	28	24	4	56	13	1	1	2	1
C3	29	26	3	57	13	<1	1	2	1

[1] Does not include existing state owned right of way.

Table 2-9: Alternative Alignments - Potential Commercial and Industrial Impacts

SUBSECTION BY ALTERNATIVE ALIGNMENT	COMMERCIAL ZONED PROPERTY[1]					INDUSTRIAL ZONED PROPERTY[1]			BILLBOARDS (NUMBER)
	Property Impacts2 (acres)	Right of way (acres)	Land-locked (acres)	Parcels (number)	Relocations (number)	Property Impacts[2] (acres)	Parcels (number)	Relocations (number)	
Subsection 6 - Fairview Road to Wicker Road									
C1	3	3	-	10	6	-	-	-	1
C2	13	13	-	8	9	-	-	-	1
C3	14	14	-	6	9	-	-	-	1
Subsection 7 - Wicker Road to Banta Road in Marion County									
C1	11	11	-	18	10	-	-	-	-
C2	6	6	-	13	3	-	1	-	1
C3	29	9	20	15	7	-	1	-	1
Subsection 8 - Banta Road in Marion County to I-465									
C1	76	76	-	56	17	95	14	3	10
C2	82	56	26	45	10	125	16	5	9
C3	83	58	25	46	11	125	16	5	9
Total									
C1	**216**	**192**	**24**	**279**	**112**	**96**	**17**	**4**	**44**
C2	**229**	**186**	**43**	**285**	**100**	**127**	**19**	**8**	**45**
C3	**254**	**195**	**59**	**269**	**116**	**126**	**18**	**7**	**43**

Table 2-10: Summary of Impacts by Alternative Alignment

RESOURCE	SUBCATEGORY	ALIGNMENT C1	ALIGNMENT C2	ALIGNMENT C3
Flood Zones	Floodplains (acres)[1]	344	399	369
	Floodway (acres)	79	91	61
Water Resources	Total Streams Impacted (feet)[2]	181,061	188,551	179,538
	Impaired Streams (feet)[3]	2,016	2,296	2,045
	Wellhead Protection Area (acres)	458	462	442
Wetlands	Emergent Wetlands (acres)	2	5	3
	Forested Wetlands (acres)	2	3	3
	Open Waters (acres)	3	4	2
	Quarries and Fish Hatchery Ponds (acres)	51	22	21
Landcover[4]	Agricultural (acres)[5]	295	353	290
	Forested (acres)	98	116	86
Recreational and Community Resources	Cikana State Fish Hatchery (acres)	3	4	1
	Cemetery Locations (number)[6]	1	1	1
	Religious Facilities (acres)	16	18	14
	Schools (acres)[7]	5	7	5
	Planned Trails (feet)[8]	584	551	696
Historic Resources	Historic Property Impacts (numbers) [9]	1	1	1

[1] Floodplain calculations do not include floodway.
[2] Total stream length includes both non- impaired streams and impaired streams.
[3] Impaired streams are those listed on the Section 303d List by Indiana Department of Environmental Management. See http://in.gov/idem/nps/2647.htm.
[4] 2011 National Land Cover Dataset
[5] Includes pasture, row crops, and active agricultural lands.
[6] Cemetery associated with former Mount Zion Methodist Church west of Cragen Road on SR 37. Impacts are associated with landlocking this parcel.
[7] Includes Tabernacle Christian School and Martinsville High School
[8] Potential Section 4(f) Resources
[9] Approximately 5 acres of property will likely be acquired from the Southside German Market Historic District located along Bluff Road both north and south of I-465.

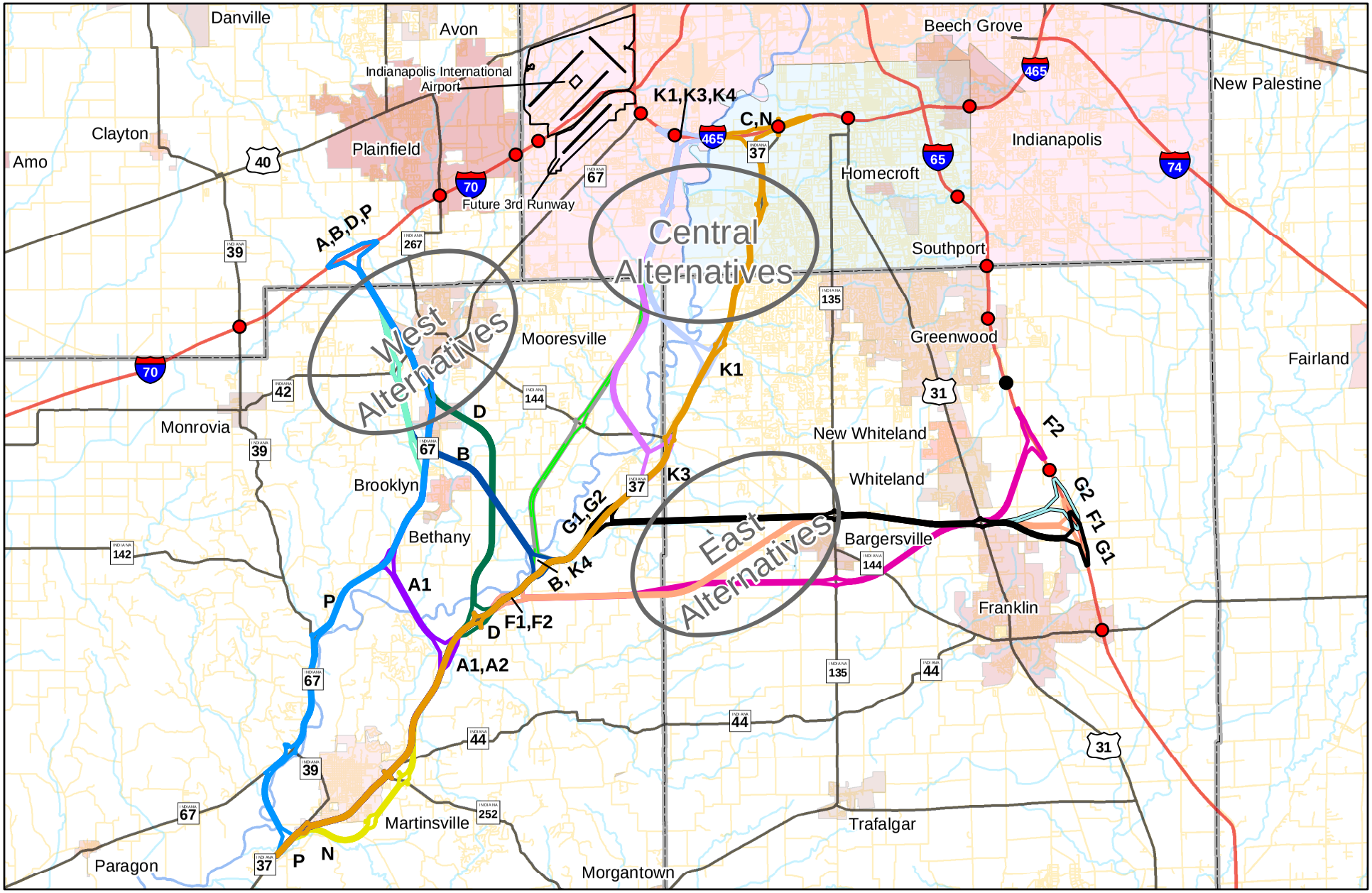
Table 2-10: Summary of Impacts by Alternative Alignment

RESOURCE	SUBCATEGORY	ALIGNMENT C1	ALIGNMENT C2	ALIGNMENT C3
Residential Zoning	Total Property Impacts[10] (acres)	261	279	243
	Right of way (acres)	192	215	168
	Landlocked (acres)	69	64	75
	Parcels (number)	467	562	535
	Relocations (number)[11]	219	459	237
Agricultural Zoning[12]	Total Property Impacts[10] (acres)	824	842	972
	Right of way (acres)	385	465	329
	Landlocked (acres)	439	377	643
	Parcels (number)	240	247	242
Commercial Zoning	Total Property Impacts[10] (acres)	216	229	254
	Right of way (acres)	192	186	195
	Landlocked (acres)	24	43	59
	Parcels (number)	279	285	269
	Relocations (number)	112	100	116
Industrial Zoning	Total Property Impacts[10] (acres)	96	127	126
	Parcels (number)	17	19	18
	Relocations (number)	4	8	7
Total all Zoning Categories	Total Property Impacts[10] (acres)	1,397	1,477	1,595
	Right of way (acres)	769	866	692
	Landlocked (acres)	532	484	777
	Parcels (number)	1,003	1,113	1,064
	Relocations (number)	335	567	360
Other Impacts	Billboards (number)	44	45	43

[10] Includes required right of way and landlocked parcels.
[11] Includes single family residential properties and multifamily residential properties. Each residence was counted as one potential relocation.
[12] Includes all parcels zoned agricultural, not only those that are in active agricultural production.

APPENDIX A

Conceptual and Preliminary Alternatives Maps



Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap

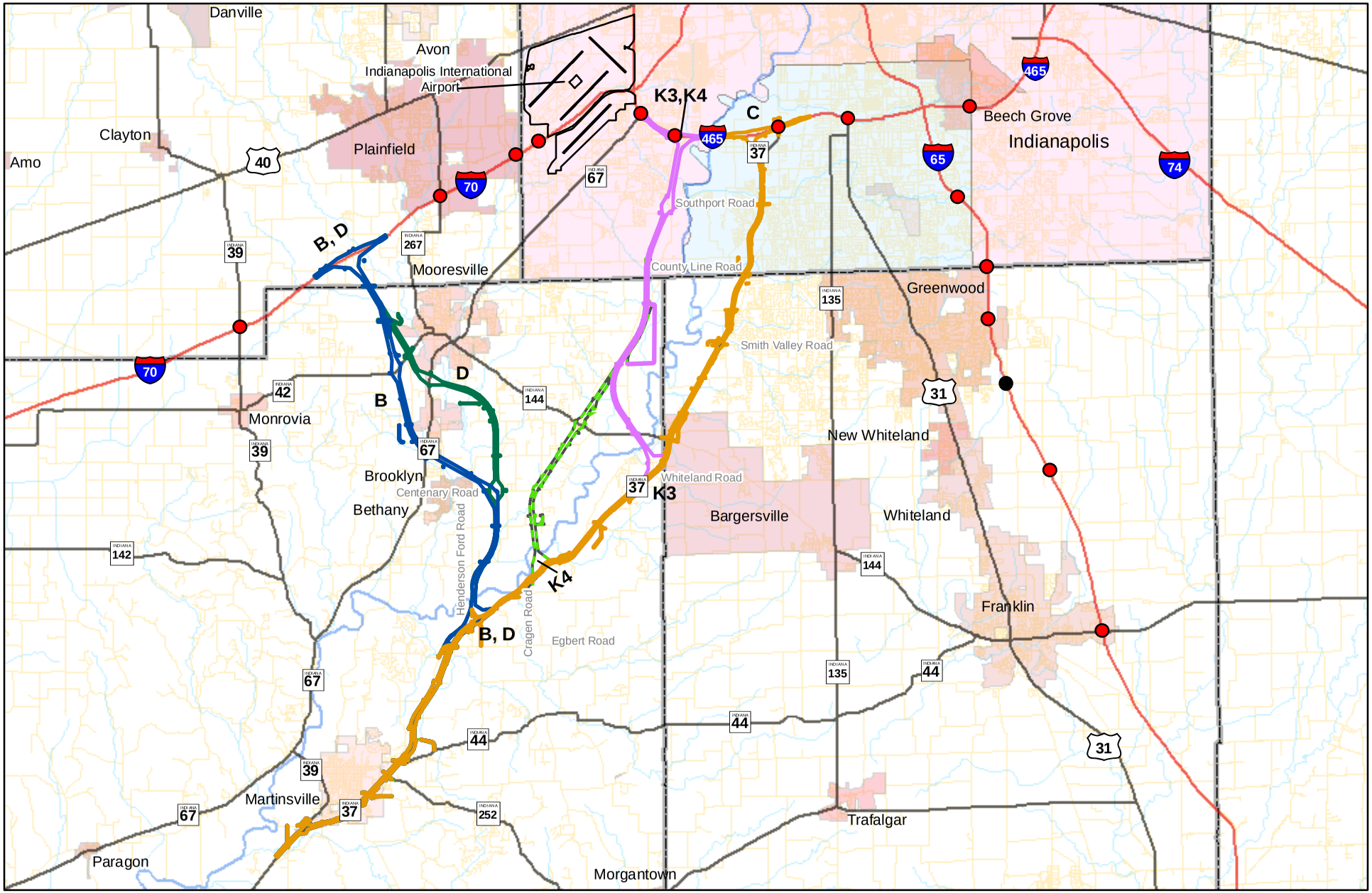
N W E S

0 1 2 4 Miles

Legend

- Interstate Highways
- US and State Highways
- Tier 1 Selected Alternative (C)
- Local Roads
- County Line
- Existing Interchanges
- Interchange Under Construction
- Streams
- White River

I-69 Section 6 Figure A-1: Conceptual Alternatives Grouping



Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap

N W E S

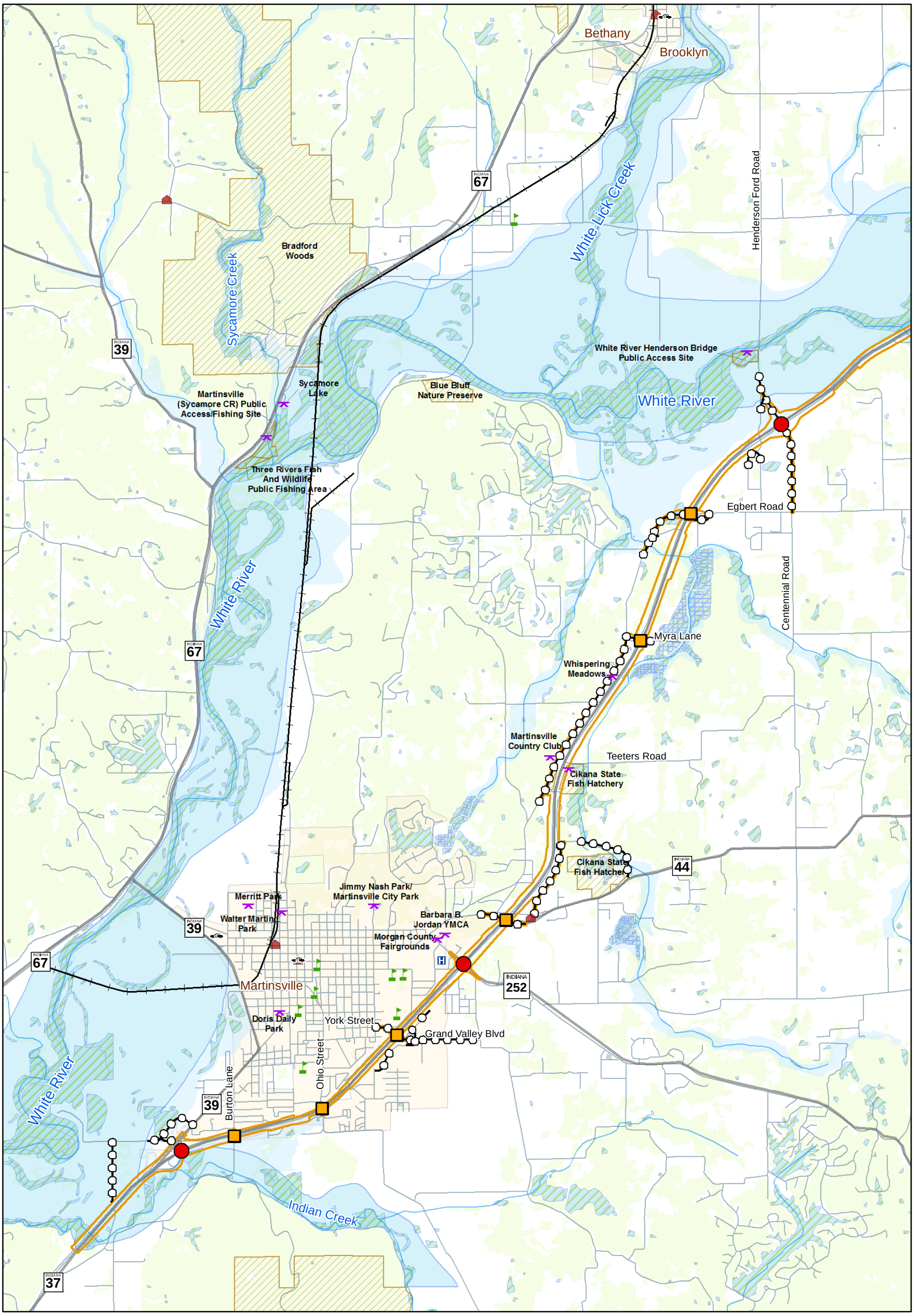
0 1 2 4 Miles

Legend

- Interstate Highways
- US and State Highways
- Tier 1 Selected Alternative (C)
- Local Roads
- County Line
- Existing Interchanges
- Interchange Under Construction
- Streams
- White River

I-69 Section 6

Figure A-2: Preliminary Alternatives, Refined for Evaluation



N W E S

Figure A-3: Alternative C
1 of 3

0 0.5 1 Miles

Legend

- Alternative C
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- Managed Lands
- NWI Wetlands
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

I-69 Section 6

Preliminary Alternatives
Alternative C

Page 1 of 3

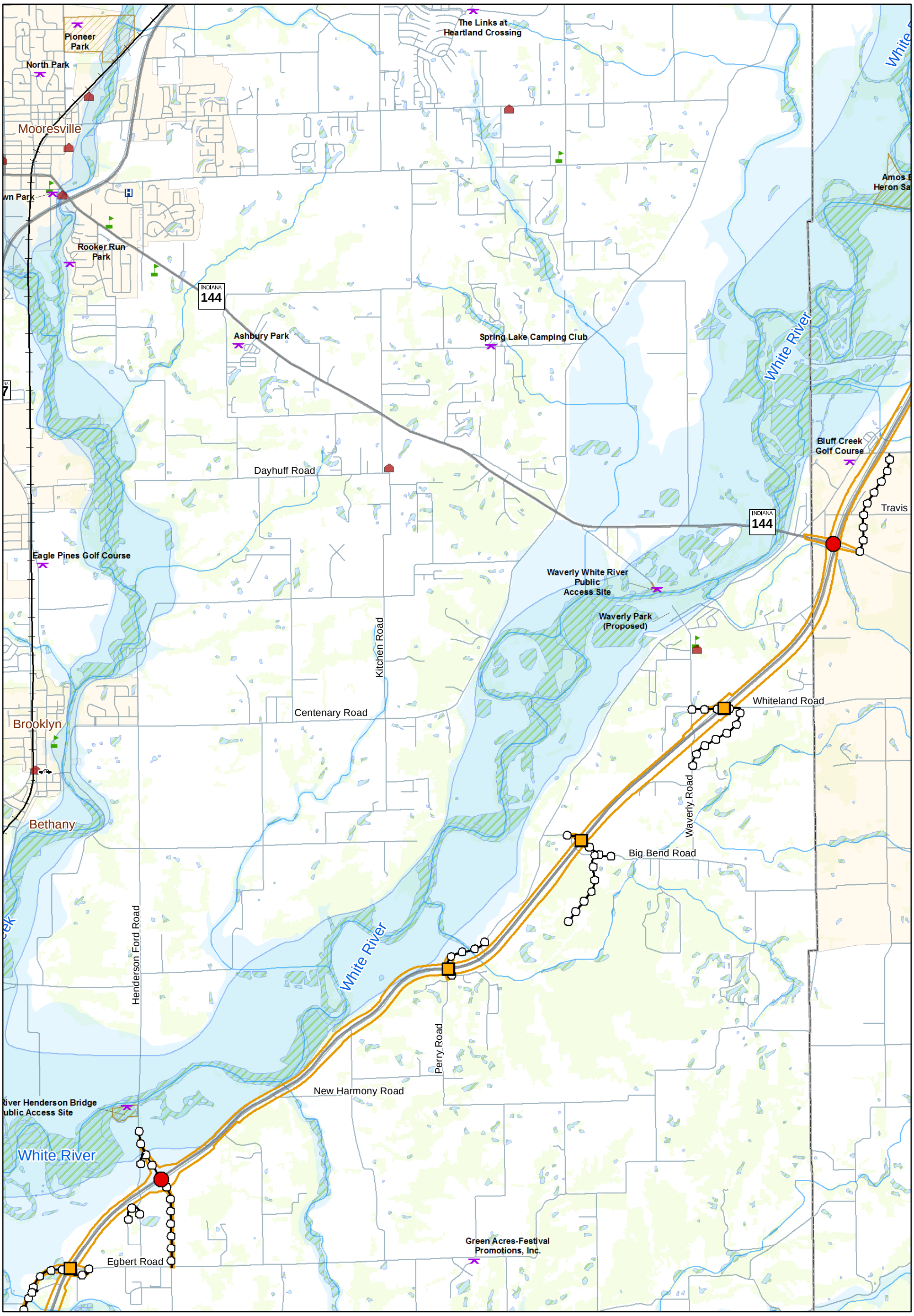


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Figure A-3: Alternative C
2 of 3

0 0.5 1
Miles

Legend

- Alternative C
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- Managed Lands
- NWI Wetlands
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

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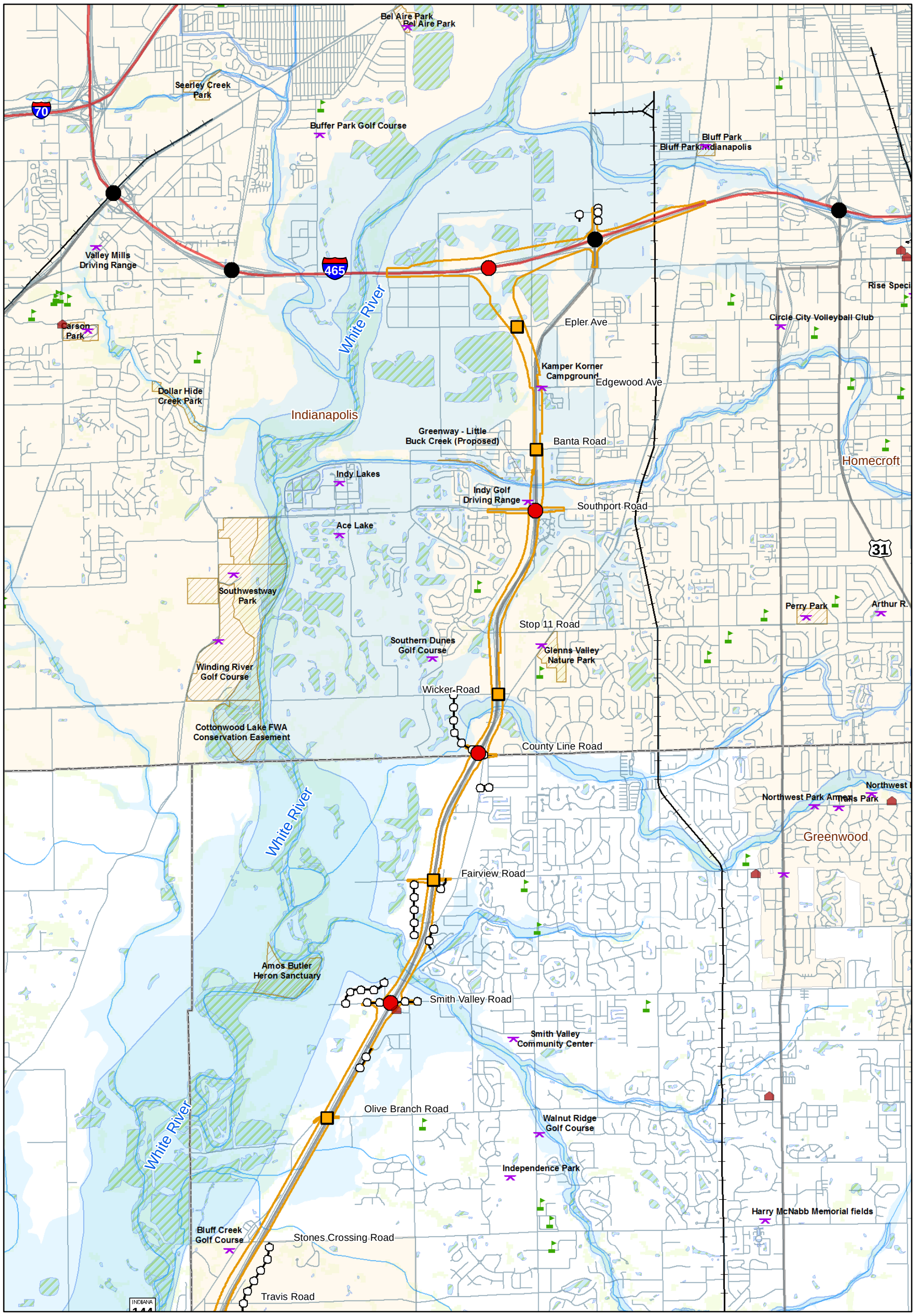
Preliminary Alternatives
Alternative C

Page 2 of 3


Bel Aire Park
Bel Aire Park
Seerley Creek Park
70
Buffer Park Golf Course
Bluff Park
Bluff Park
Indianapolis
Valley Mills Driving Range
465
White River
Rise Speci
Carson Park
Epler Ave
Circle City Volleyball Club
Kamper Korner Campground
Edgewood Ave
Dollar Hide Creek Park
Indianapolis
Greenway - Little Buck Creek (Proposed)
Banta Road
Homecroft
Indy Lakes
Indy Golf Driving Range
Southport Road
Ace Lake
31
Southwestway Park
Perry Park
Arthur R.
Stop 11 Road
Southern Dunes Golf Course
Glenns Valley Nature Park
Winding River Golf Course
Wicker Road
Cottonwood Lake FWA Conservation Easement
County Line Road
Northwest
Northwest Park Annex
Greenwood
White River
Fairview Road
Amos Butler Heron Sanctuary
Smith Valley Road
Smith Valley Community Center
Olive Branch Road
Walnut Ridge Golf Course
Independence Park
Harry McNabb Memorial fields
Bluff Creek Golf Course
Stones Crossing Road
Travis Road
INDIANA
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INTERSTATE 69
Figure A-3: Alternative C
3 of 3
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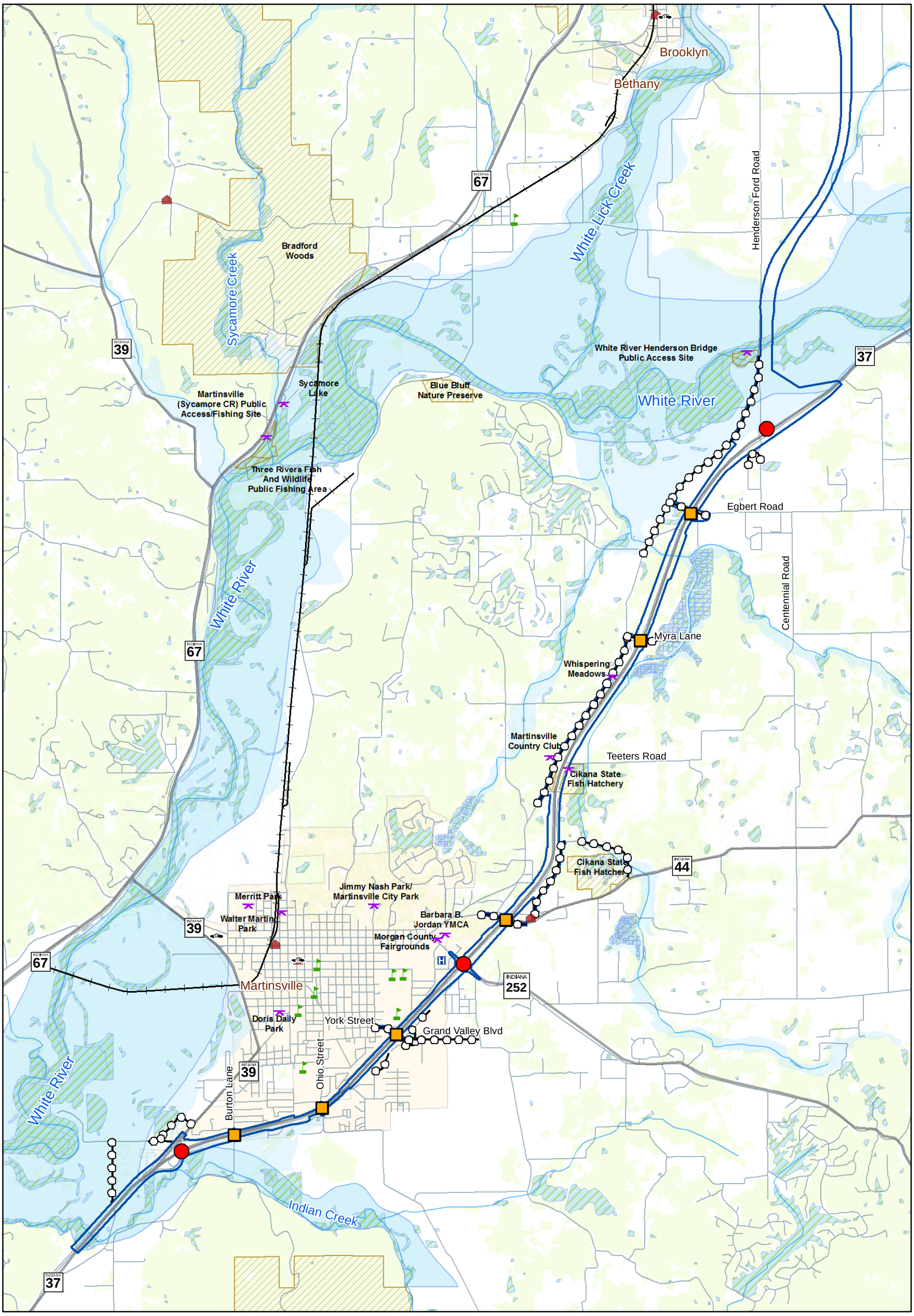
Miles
Legend
Alternative C
Potential Local Access
Potential Interchange
Potential Grade Separation
Existing Interchanges
Interstate Highways
US and State Highways
Local Roads
Railroad
Incorporated Places
County Line
Rec. Facilities
Schools
Rivers/Streams
Managed Lands
NWI Wetlands
Floodway
Floodplain
Forested Area
Hospitals
Police Stations
Fire Stations
I-69 Section 6
Preliminary Alternatives
Alternative C
Page 3 of 3



Appendix A
Page A-7

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W E
S

Figure A-4: Alternative B
1 of 2

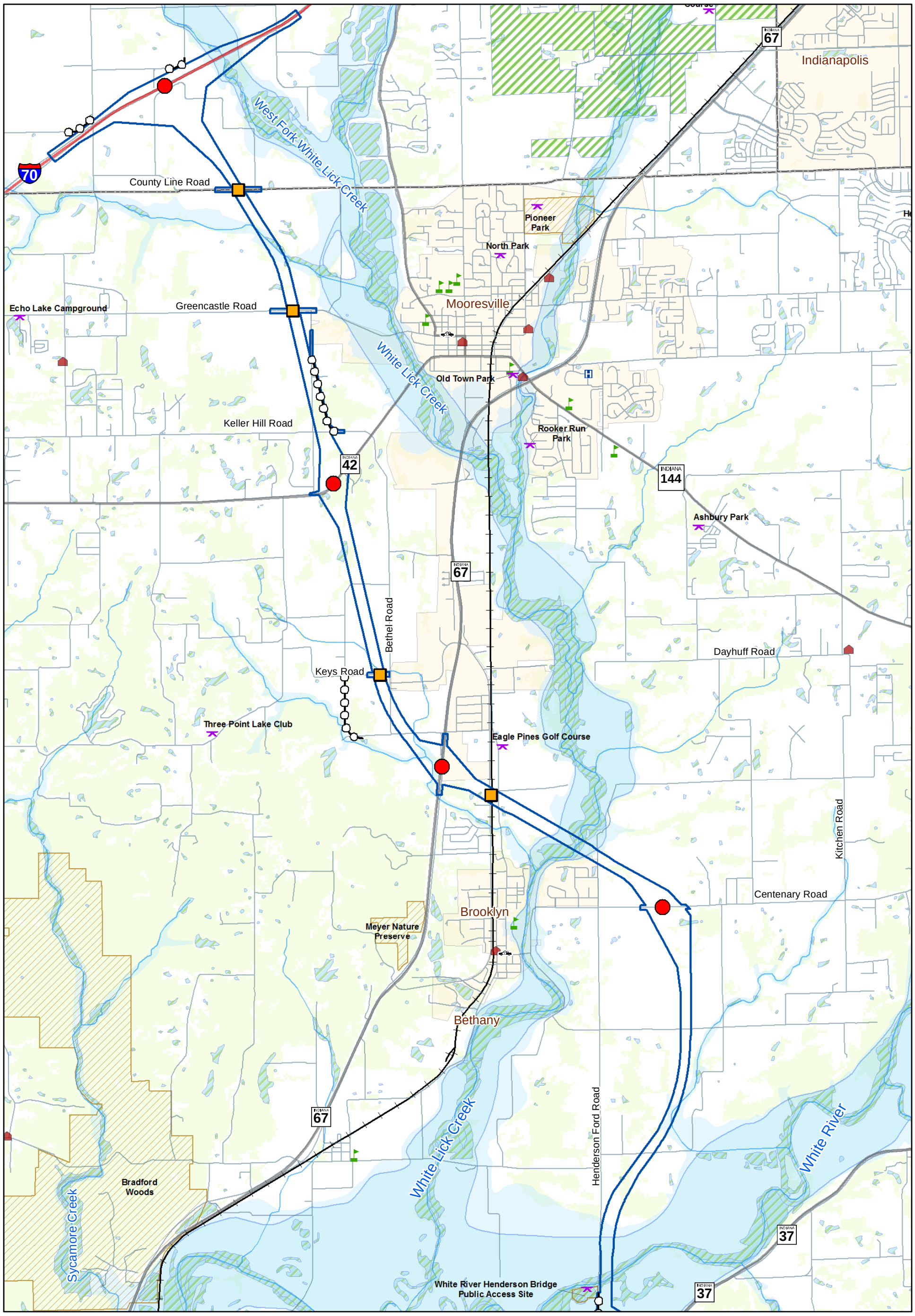
0 0.5 1 Miles

Legend

- Alternative B
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- Managed Lands
- NWI Wetlands
- IAA Mitigation Areas
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

I-69 Section 6

Preliminary Alternatives
Alternative B



Appendix A
Page A-8

Figure A-4: Alternative B
2 of 2

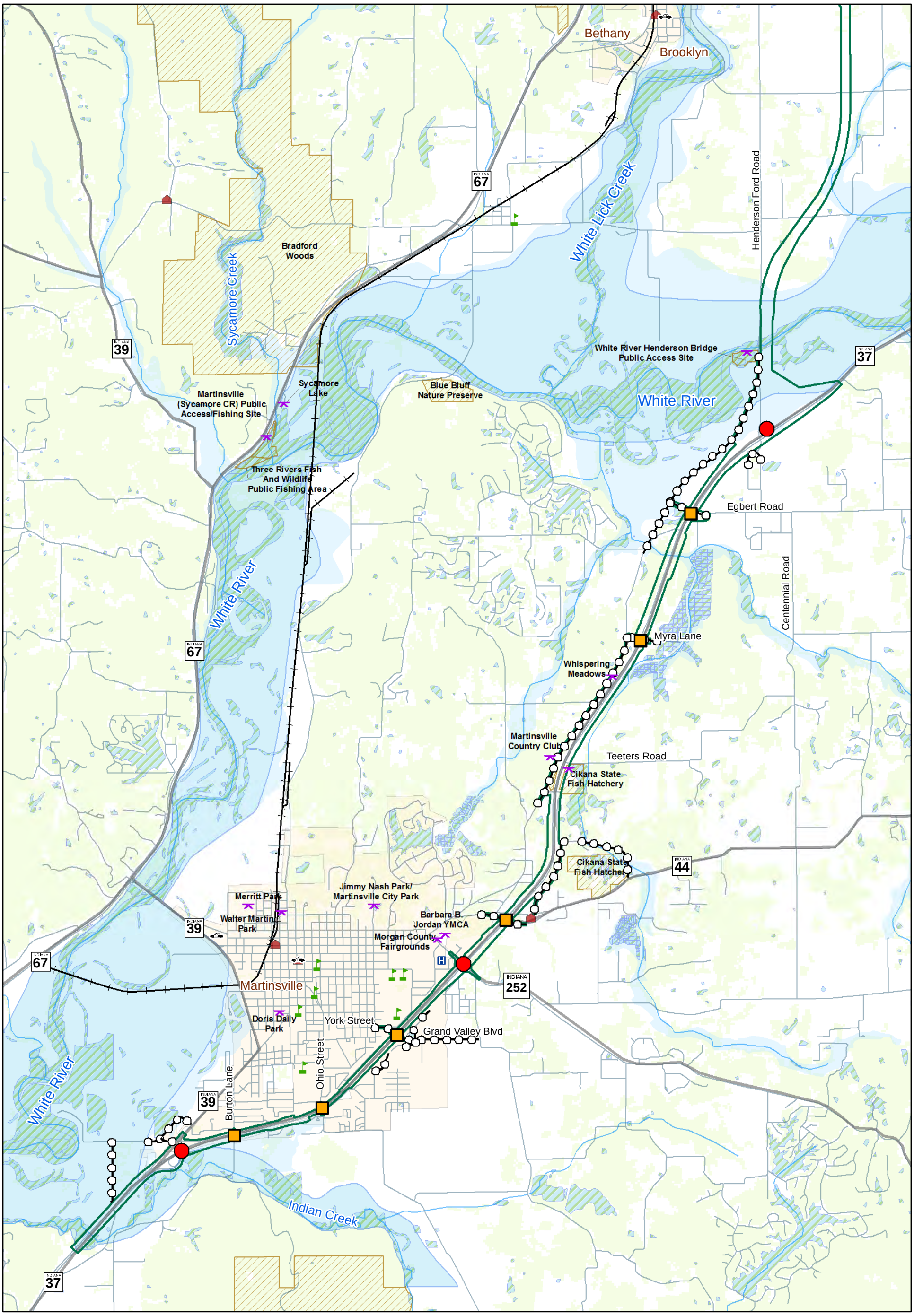
0 0.5 1 Miles

Legend

- Alternative B
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- Managed Lands
- NWI Wetlands
- IAA Mitigation Areas
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

I-69 Section 6

Preliminary Alternatives
Alternative B



Appendix A
Page A-9

Figure A-5: Alternative D
1 of 2

0 0.5 1 Miles

Legend

- Alternative D
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- Managed Lands
- NWI Wetlands
- IAA Mitigation Areas
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

I-69 Section 6

Preliminary Alternatives
Alternative D

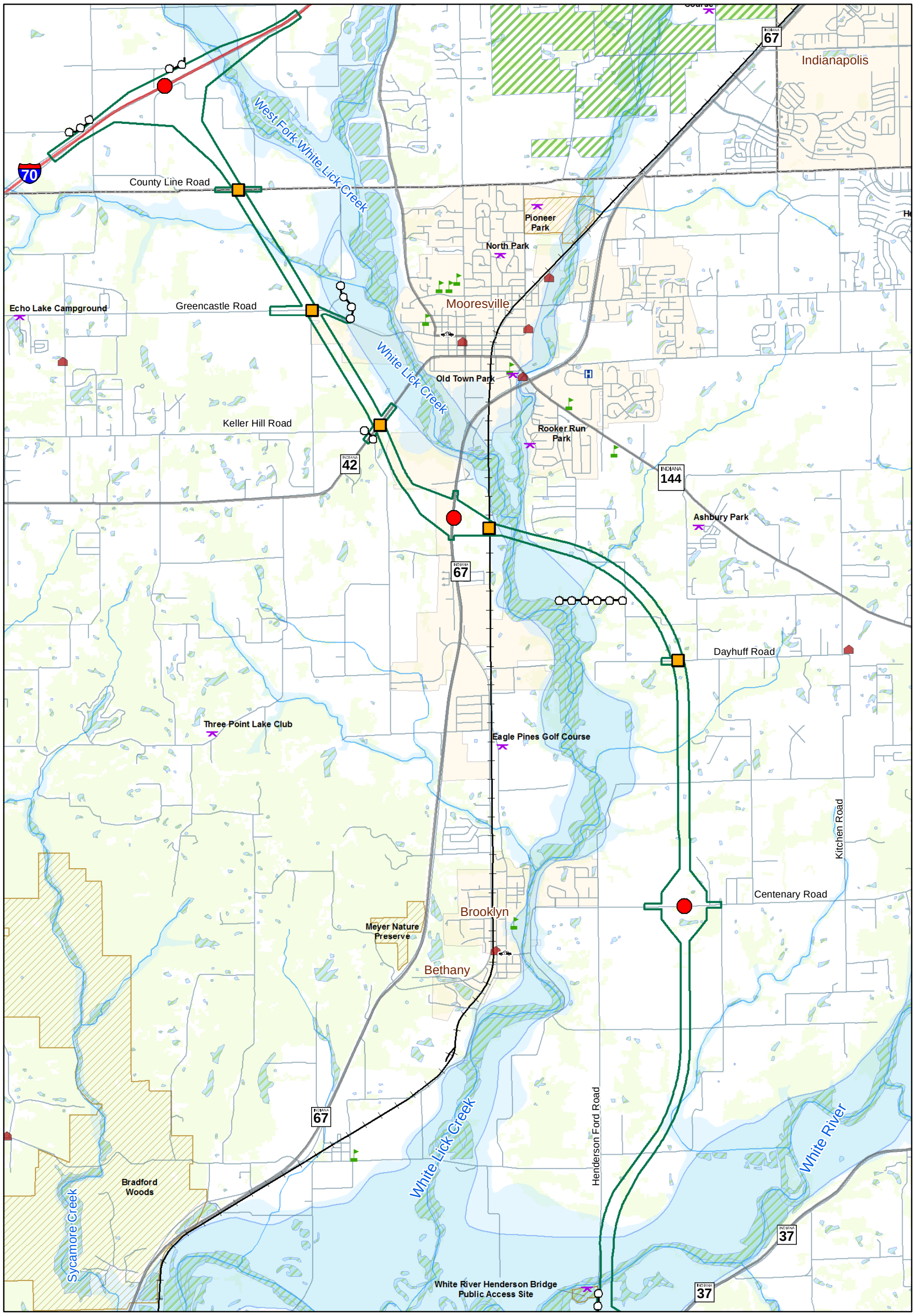


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Figure A-5: Alternative D
2 of 2

0 0.5 1 Miles

Legend

- Alternative D
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- Managed Lands
- NWI Wetlands
- IAA Mitigation Areas
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

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Preliminary Alternatives
Alternative D

Page 2 of 2

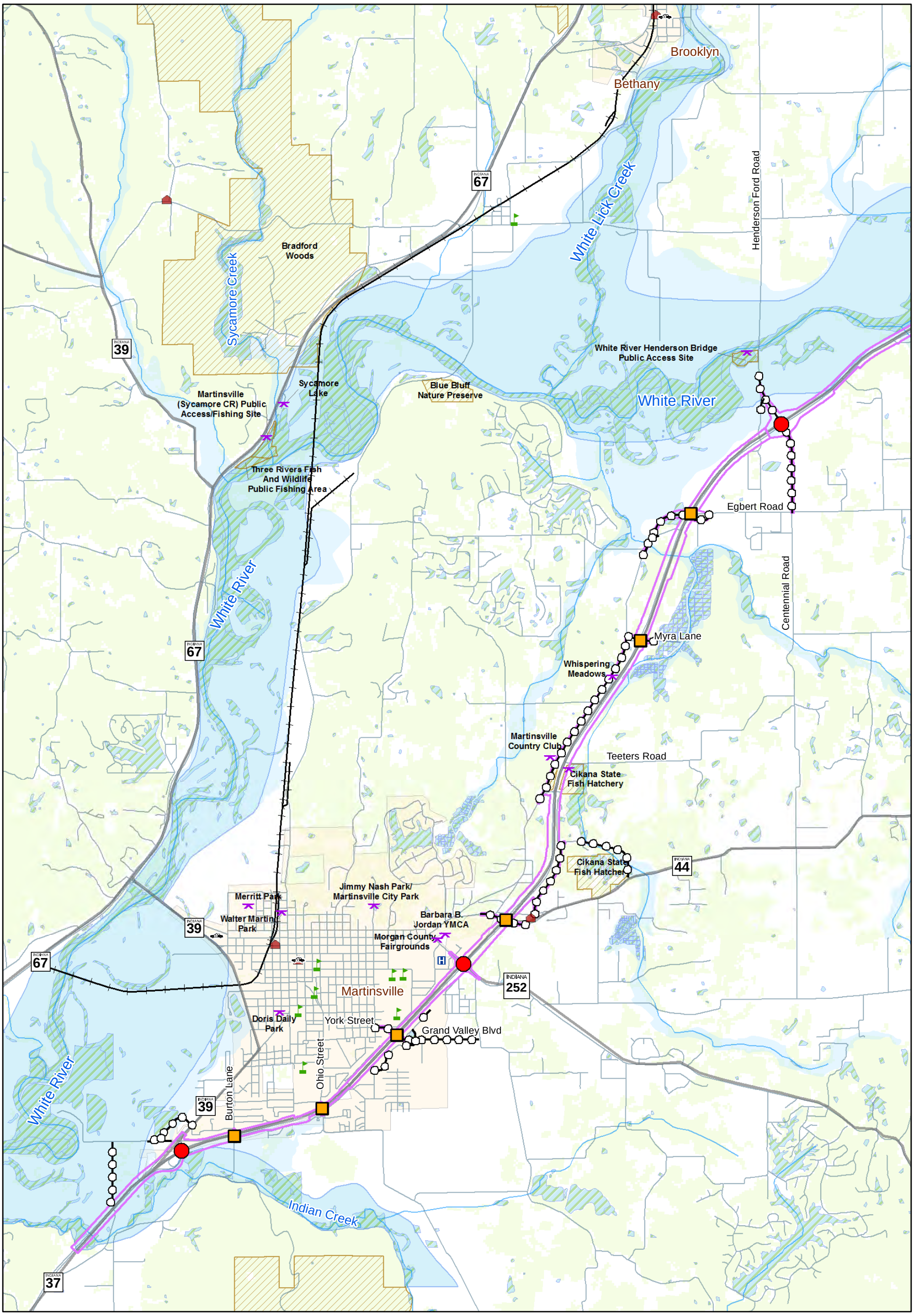

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Figure A-6: Alternative K3
1 of 3

0 0.5 1 Miles

Legend

- Alternative K3
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- Managed Lands
- NWI Wetlands
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

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Preliminary Alternatives
Alternative K3

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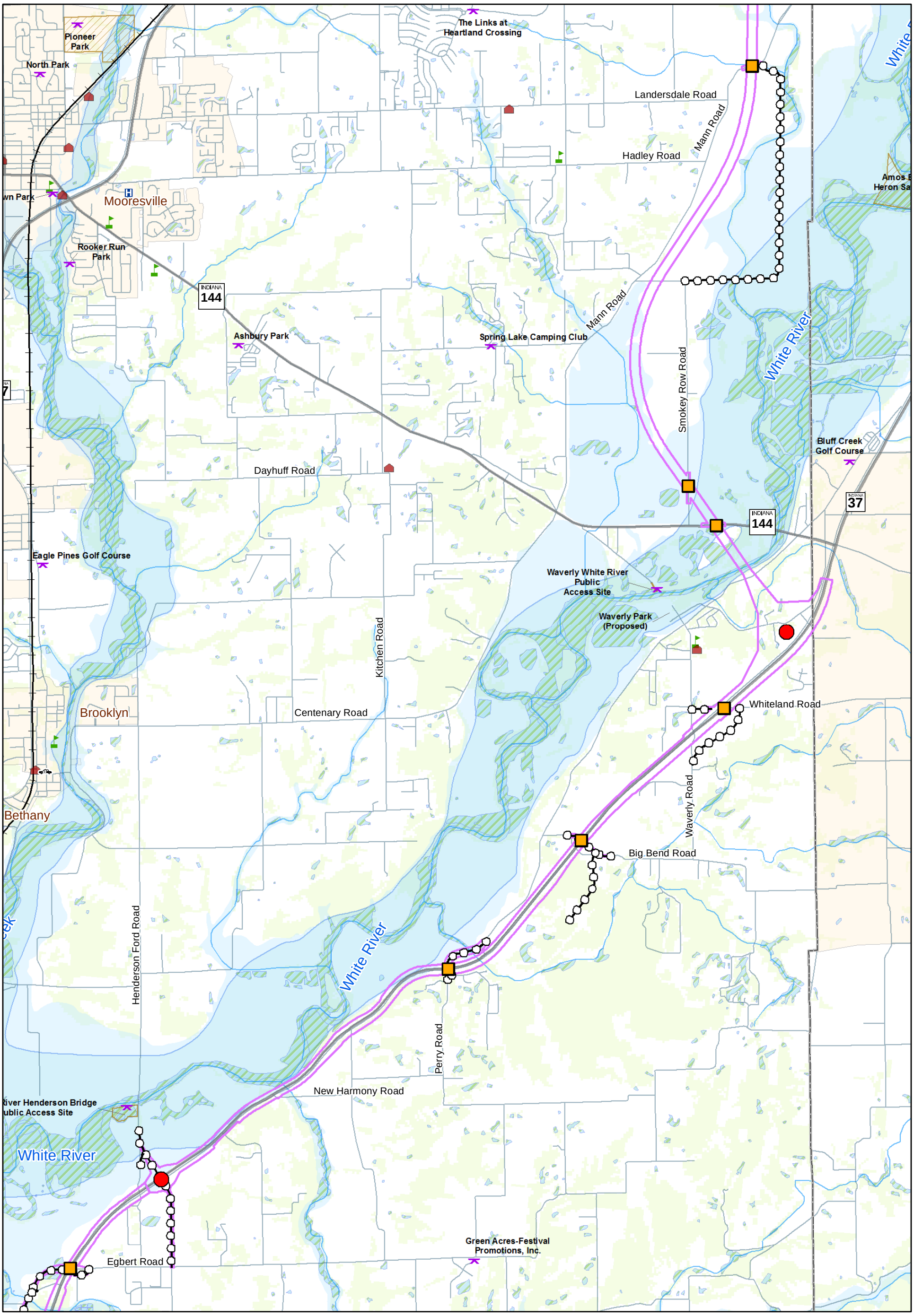

Figure A-6: Alternative K3
2 of 3

Legend

- Alternative K3
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- Managed Lands
- NWI Wetlands
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

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Preliminary Alternatives
Alternative K3

Page 2 of 3

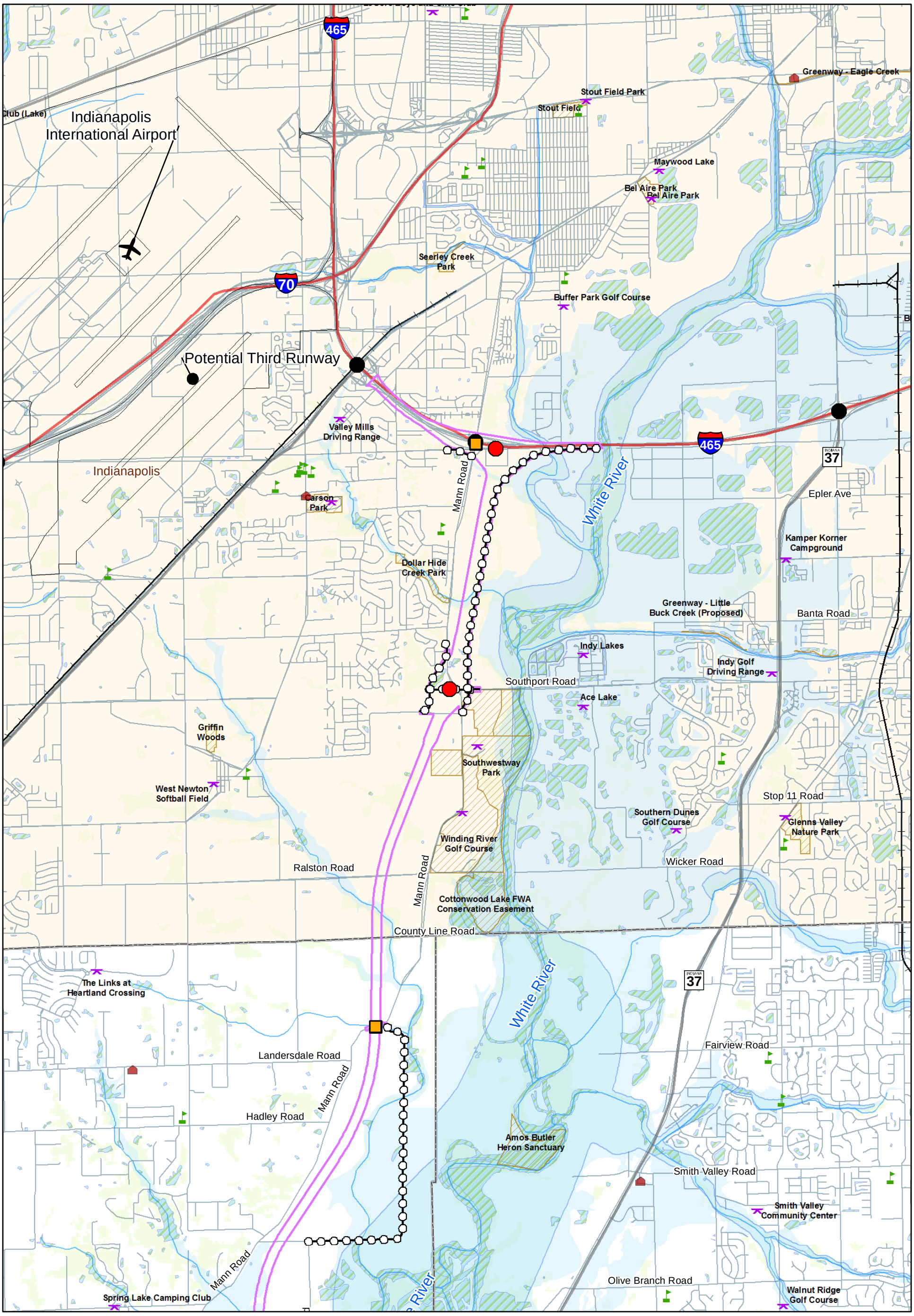
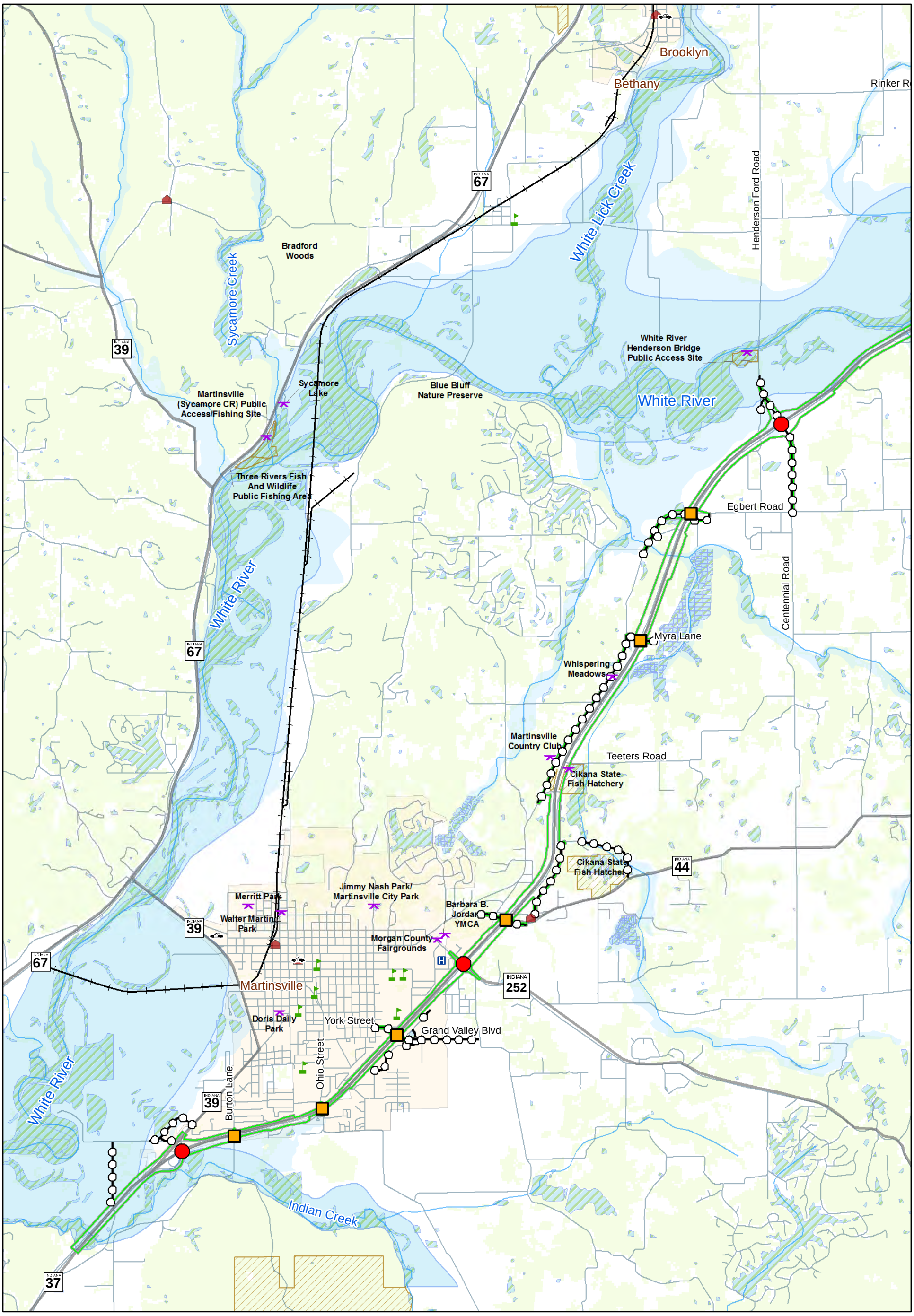


Figure A-6: Alternative K3
3 of 3

I-69 Section 6

Preliminary Alternatives
Alternative K3

Page 3 of 3

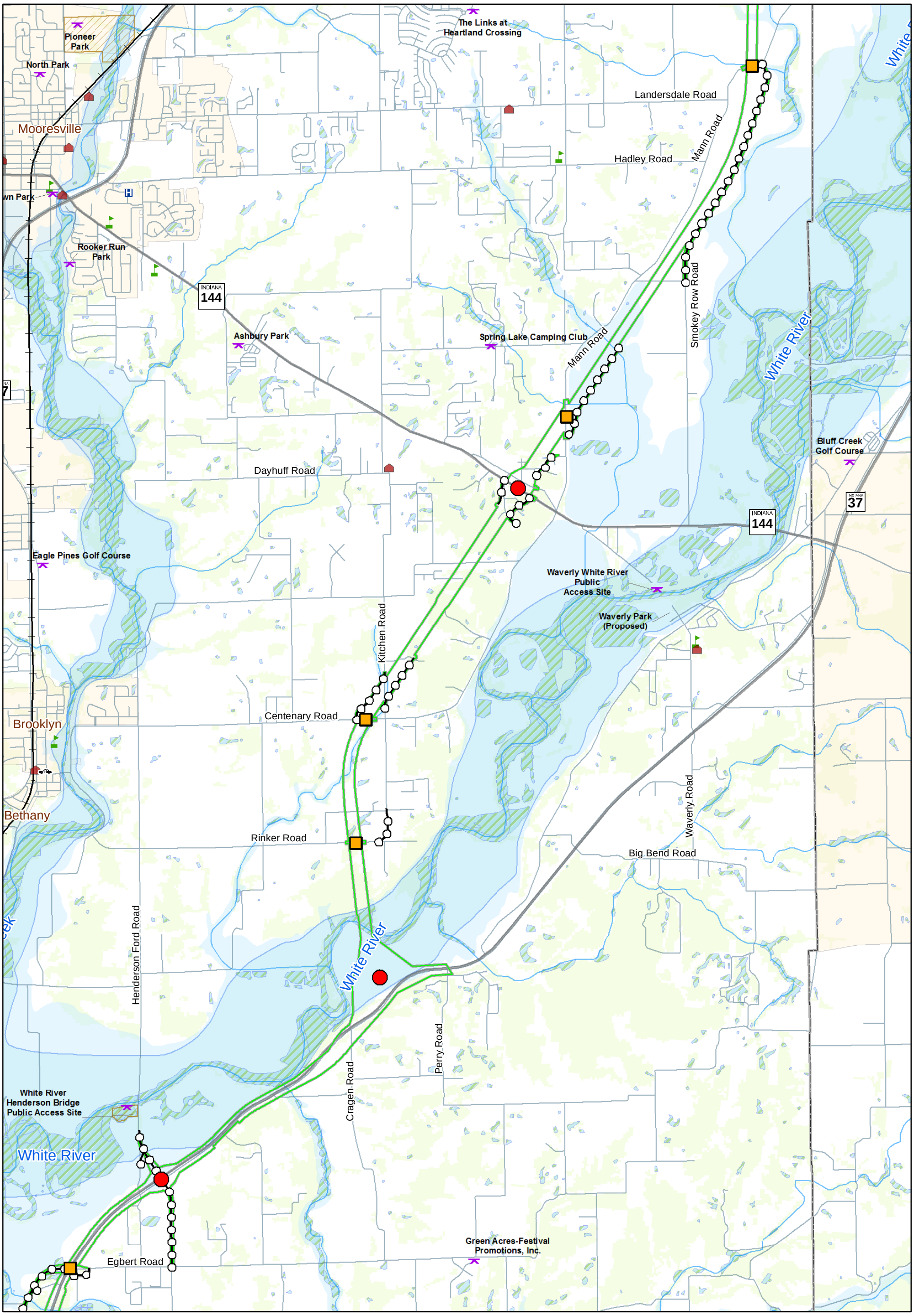


Legend

- K4 Alternative
- Potential Local Access
- Potential Interchange
- Potential Grade Separation
- Existing Interchanges
- Interstate Highways
- US and State Highways
- Local Roads
- Railroad
- Incorporated Places
- County Line
- Rec. Facilities
- Schools
- Rivers/Streams
- NWI Wetlands
- Managed Lands
- Floodway
- Floodplain
- Forested Area
- Hospitals
- Police Stations
- Fire Stations

I-69 Section 6

Preliminary Alternatives
Alternative K4


The Links at Heartland Crossing
Pioneer Park
North Park
Mooresville
Landersdale Road
Hadley Road
Mann Road
Rooker Run Park
INDIANA 144
Ashbury Park
Spring Lake Camping Club
Smokey Row Road
White River
Bluff Creek Golf Course
INDIANA 37
Dayhuff Road
Eagle Pines Golf Course
Waverly White River Public Access Site
Waverly Park (Proposed)
Kitchen Road
Centenary Road
Brooklyn
Bethany
Rinker Road
Big Bend Road
Waverly Road
Henderson Ford Road
Cragen Road
Perry Road
White River Henderson Bridge Public Access Site
Egbert Road
Green Acres-Festival Promotions, Inc.
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Potential Local Access
Potential Interchange
Potential Grade Separation
Existing Interchanges
Interstate Highways
US and State Highways
Local Roads
Railroad
Incorporated Places
County Line
Rec. Facilities
Schools
Rivers/Streams
NWI Wetlands
Managed Lands
Floodway
Floodplain
Forested Area
Hospitals
Police Stations
Fire Stations
I-69 Section 6
Preliminary Alternatives
Alternative K4
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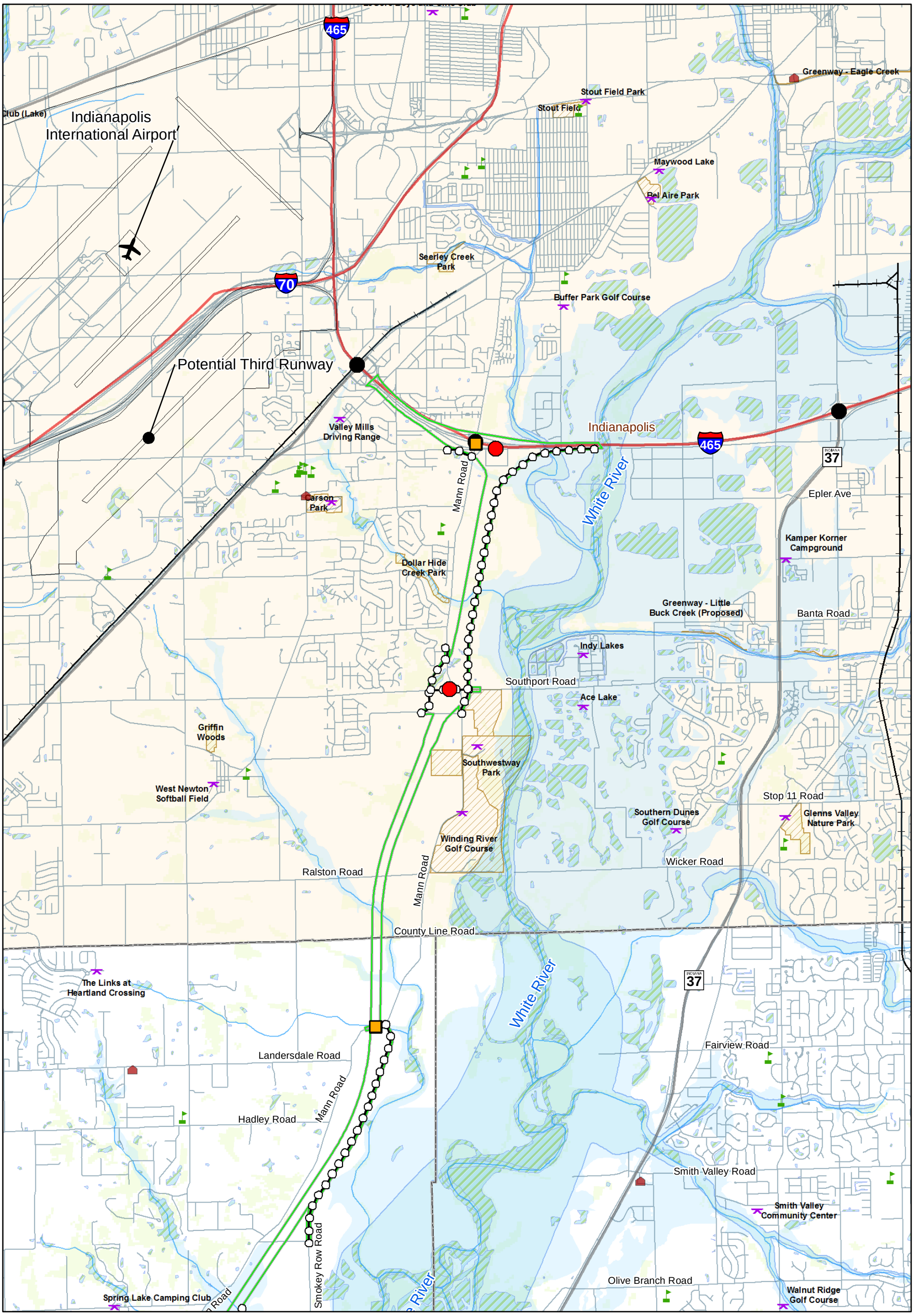

I-69 Section 6

Preliminary Alternatives
Alternative K4

APPENDIX B

Preliminary Alternatives Evaluation Metrics

I-69 Section 6 Preliminary Alternatives Evaluation Measures

Purpose & Need Performance Measures

		Alternative C	Alternative B	Alternative D	Alternative K3	Alternative K4
Length of Alternative						
New Terrain Freeway		1 miles	11 miles	12 miles	10 miles	14 miles
Reconstructed SR 37 Corridor		26 miles	9 miles	9 miles	17 miles	12 miles
Existing Interstate Highway		0 miles	10 miles	10 miles	0 miles	0 miles
	Total Distance, SR 39 to I-465	27 miles	30 miles	31 miles	27 miles	26 miles
Traffic Benefits						
Regional Traffic Safety						
Annual Crash Reduction in the Study Area		1,379 crashes	238 crashes	357 crashes	1,225 crashes	1,235 crashes
Peak Hour Travel Time						
Sample Trips:	**No Build Travel Time:**			**Time Savings:**[1]		
SR 39 to Indianapolis International Airport	39 minutes	3 minutes	10 minutes	10 minutes	6 minutes	7 minutes
SR 39 to Downtown Indianapolis	50 minutes	11 minutes	10 minutes	10 minutes	12 minutes	13 minutes
SR 39 to I-69 Northeast	69 minutes	13 minutes	7 minutes	7 minutes	12 minutes	13 minutes
Regional Traffic Congestion						
Reduction in Congested Vehicle-Miles Traveled (VMT)[2]		603,000 VMT	233,000 VMT	300,000 VMT	566,000 VMT	577,000 VMT
Regional Freight Truck Travel						
Daily Hours of Freight Truck Travel Saved		4,200 hours	1,200 hours	1,500 hours	4,100 hours	4,200 hours
Regional Economic Impact of I-69						
Increase in Wages[3]		$ 1.7 Billion	$ 0.8 Billion	$ 0.8 Billion	$ 1.5 Billion	$ 1.4 Billion
Increase in Regional Gross Domestic Product[4]		$ 2.4 Billion	$ 1.1 Billion	$ 1.0 Billion	$ 2.1 Billion	$ 1.9 Billion

Natural Environment Impact Assessment

		Alternative C	Alternative B	Alternative D	Alternative K3	Alternative K4
Water Resources						
Floodplains						
Floodway		72 acres	178 acres	178 acres	106 acres	182 acres
Floodplain (Excludes Floodway)		403 acres	225 acres	233 acres	288 acres	262 acres
	Total	476 acres	403 acres	411 acres	394 acres	444 acres
Wetlands						
National Wetland Inventory (NWI) Wetlands (Excludes Open Water)[5M]		9 acres	19 acres	18 acres	12 acres	19 acres
Streams and River Crossings						
Streams and Rivers Impacted[M]		177,000 feet	150,000 feet	154,000 feet	172,000 feet	171,000 feet
Undisturbed		4,000 feet	20,000 feet	19,000 feet	13,000 feet	20,000 feet
Previously Undisturbed		173,000 feet	130,000 feet	135,000 feet	159,000 feet	151,000 feet
IDEM 303(d) Impaired Stream		1,600 feet	3,000 feet	2,600 feet	3,900 feet	3,200 feet
Wellhead Protection Area						
Wellhead Protection Area		440 acres	0 acres	0 acres	375 acres	326 acres
Land Resources						
Vegetation/Land Cover						
Agricultural		342 acres	1,073 acres	1,010 acres	837 acres	975 acres
Forested[M]		143 acres	229 acres	274 acres	238 acres	319 acres
Mitigation Area Requirements						
Forested (3 x the non-wetland forest)		413 acres	638 acres	776 acres	686 acres	910 acres
Emergent Wetlands (2 x impacted area)		6 acres	6 acres	6 acres	6 acres	6 acres
Forested Wetlands (4 x impacted area)		22 acres	65 acres	61 acres	37 acres	63 acres
	Total	441 acres	709 acres	843 acres	729 acres	979 acres
Streams and Rivers (1 x impacted length)		177,000 feet	150,000 feet	154,000 feet	172,000 feet	171,000 feet

I-69 Section 6 Preliminary Alternatives Evaluation Measures

Human Environment Impact Assessment

	Alternative C	Alternative B	Alternative D	Alternative K3	Alternative K4
Recreational Facilities & DNR Managed Lands					
Properties	● Denotes impact				
Cikana Fish Hatchery	●	●	●	●	●
Martinsville Golf Course[6]	●	●	●	●	●
Southwestway Park - Mann Property[4(f)]				●	●
Whispering Meadows Horse Ranch[6]	●	●	●	●	●
Trails					
Existing and Planned Trails[4(f)]	563 ft	0 ft	0 ft	0 ft	0 ft
Cultural and Historic Resources					
Historic Properties [4(f)]					
Listed in National Register[7]	0	0	0	1	1
Determined Eligible or Potentially Eligible for National Register [7]	0	3	3	0	2
Determined Eligible or Potentially Eligible for National Register (Possible Avoidance) [8]	2	1	2	2	2
Total	2	4	5	3	5
Recorded Archaeology Sites					
Potentially Eligible	0	0	0	0	0
Not Eligible	6	1	10	5	4
Eligibility Unknown	20	4	4	10	8
Total	26	5	14	15	12
Public Facilities					
School Properties[9]	8 acres	8 acres	8 acres	8 acres	8 acres
Religious Facilities	17 acres	12 acres	10 acres	15 acres	15 acres
Cemeteries	1 location	1 location	1 location	none	none
Property Impacts					
Acres of Property Impacted (by Zoning)					
Property Zoning:					
Residential	234 acres	175 acres	200 acres	357 acres	384 acres
Commercial	207 acres	106 acres	113 acres	106 acres	94 acres
Industrial	105 acres	1 acre	1 acre	12 acres	1 acres
Agricultural	510 acres	1,194 acres	1,174 acres	955 acres	1,077 acres
Total	1,056 acres	1,476 acres	1,488 acres	1,430 acres	1,556 acres
Relocations[10]					
Land Use:					
Residential	279	232	264	474	450
Commercial	96	42	47	67	46
Industrial	12	3	3	6	6
Agricultural	4	15	16	6	24
Billboards	44	27	27	39	28
Other[11]	8	10	6	10	10
Total	443	329	363	602	564

Notes

1. Travel times are based on the shortest path chosen by a typical driver, not necessarily using I-69.
2. Congested travel is defined for a typical weekday as level of service (LOS) E or F.
3. Cumulative additional wages earned over a 20 year period by the population of the 4 county study area.
4. Cumulative additional regional gross domestic product created over a 20 year period within the 4 county study area.
5. NWI = National Wetland Inventory
6. Recreational facilities that are not publicly owned.
7. An adverse effect and Section 4(f) use is anticipated. There is no apparent avoidance alternative or avoidance results in impacts to other resources.
8. An apparent avoidance alternative has been identified, or a no adverse effect or a *de minimis* Section 4(f) finding is likely.identified, or where no adverse effect or a de minimis Section 4(f) finding is likely.
9. All alternatives impact 8 acres of Martinsville High School property but no school buildings are impacted.
10. Relocations are quantified for impact assessment. Individual relocations will not be disclosed during Preliminary Alternative evaluation.
11. Other includes school, church, cemetery, public facilities, etc.

M - Included in mitigation area requirements calculation. The cost of mitigation is included in the cost estimate.
4(f) - Potential Section 4(f) impact.

APPENDIX C

Cost Estimating Methodology

MEMORANDUM

Date: **August 27, 2015**

Re: **Updated I-69 Section 6 Cost Estimating Methodology for Preliminary Alternatives Evaluation**

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1 Introduction

Capital cost estimates were developed for five I-69 Section 6 Preliminary Alternatives as part of the evaluation and screening process. The cost estimates for the Preliminary Alternatives are intended to capture the cost of major project elements at a planning level of detail and allow for comparison of the alternatives. Too many uncertainties exist at this stage of project development to provide reliable absolute cost estimates. Major cost items accounted for in the estimates include roadway pavement, drainage, earthwork, interchanges, overpasses, land acquisition, residential and business relocations, utility relocations, and anticipated mitigation of environmental impacts.

2 Preliminary Alternatives

The five Preliminary Alternatives under consideration for I-69 Section 6 are shown in Appendix A. Preliminary alternative alignments were developed on digital aerial photography using Microstation CAD software. Preliminary travel demand forecasting has been conducted to help establish the lane requirements for each of the alternatives. Since the travel forecasting is preliminary and has not been supplemented with detailed traffic operations analysis, lane requirements could change for alternatives that are advanced as Reasonable Alternatives to the DEIS.

3 Methodology and Assumptions

Unit costs for the major items were developed from average unit prices for INDOT pay items of projects bid within the last three years. Costs from projects of similar size, such as I-69 Sections 4 and 5, were used to the extent possible. Unit costs for structures and some additional items were derived from recent INDOT projects and HNTB engineer experience. Information on the methodology and assumptions for the various cost items is provided below.

3.1 Roadway

Major quantities for roadway items associated with each alternative were estimated. These major items are pavement, earthwork, and drainage. The costs of other items, such as mobilization, construction engineering, maintaining traffic, erosion control and traffic control devices were estimated at 12% of the total project cost based on analysis of recent large INDOT projects (US 31 in Hamilton County, I-465/I-65 interchange and I-65/Worthsville Road interchange).

Pavement costs were estimated on a per linear foot basis using typical sections to develop quantities. Where the proposed I-69 can be located at the same horizontal and vertical location as existing pavement, such as along existing SR 37, an overlay of the existing pavement was assumed in the per linear foot quantity.

Drainage quantities were estimated on a per each basis for inlet structures and a per linear foot basis for storm sewer pipes. Small structures were identified on Alternative C where the alignment crosses an existing small structure that would require replacement. Small structure locations were approximated for Alternatives B, D, K3 and K4.

Earthwork quantities for the I-69 mainline were estimated based on CAD analysis of the preliminary alternative alignments and existing topography using Inroads design software. Earthwork quantities for ramps and local access roads were estimated based on typical sections, as horizontal and vertical alignments have not yet been established for these facilities.

3.2 Structures

Structures estimated for each alternative included bridges and retaining walls. Bridges were identified wherever an alternative alignment crosses a body of water, railroad or roadway. Quantities for bridges were estimated using the I-69 roadway typical sections and estimated lengths based on floodways, floodplains and clear zone requirements. Unit costs were assigned for each structure type based on prior experience.

Approximate locations of retaining walls were identified where the construction limits have significant impact on existing right of way and as part of proposed bridges over roadways. The unit costs of retaining walls were based on a per square foot basis. Total costs were calculated using an estimated length and height for each wall.

An assessment of existing bridges along SR 37 was conducted to determine what could be re-used in a proposed I-69 alignment. Based on a functional and structural condition assessment from bridge condition reports, each bridge was assigned a rehabilitation cost equal to some proportion of a full bridge replacement cost. The rehabilitation cost was calculated to include any widening and structural repairs necessary.

3.3 Utility Relocations

At this time the I-69 project team has limited knowledge about the locations of existing utilities. Utility relocation costs were estimated on a per mile basis using information from the I-69 Section 5 and Illiana Corridor projects. Higher per mile costs were assumed for segments of I-69 that would be constructed in the SR 37 or Mann Road/Centenary Road corridors. Lower costs were assumed for segments that would be constructed in new terrain outside of these corridors. This is because utilities are often located adjacent and parallel to existing roads. Where I-69

would be co-located with I-70, it was assumed that any widening could be accommodated in the median and there would be minimal utility relocation cost.

3.4 Right of way

The right of way costs include the cost to acquire property and to relocate displaced residences or businesses. The property acquisition cost was based on average land values. Average values of residential, agricultural, and commercial land by township were aggregated by a licensed appraiser from a database of recent transactions. In addition to the property value, typical administrative fees were included for each parcel affected. Relocation costs were quantified for impact assessment. For cost estimation purposes, any primary building or billboard within 50 feet of the right of way limit was assumed to require relocation. Individual relocations will not be disclosed to the public during the Preliminary Alternative evaluation due to the uncertainty of right of way limits at this phase of project development. The cost to relocate identified residences and non-residential primary buildings was based on FHWA information on the average relocation costs within the state by year. The cost to relocate billboards was based on the estimated cost used in the I-69 Section 5 environmental document.

3.5 Mitigation

Compensatory mitigation is required for unavoidable impacts to wetlands, streams, forested floodway and endangered species habitat. Costs for compensatory wetland and forest mitigation include land acquisition, design, construction, and monitoring and were calculated on a per acre basis. Acreage of mitigation required was calculated as the acreage of each habitat type impacted multiplied by established mitigation ratios. Standard buffers of 50 feet and a 20 percent contingency were also utilized in calculating mitigation areas. Standard mitigation ratios utilized were 2:1 for emergent wetland, 3:1 for scrub-shrub wetland or forested lands, and 3:1 for forested wetland. Costs per acre for land acquisition were the same as for rural agricultural land used elsewhere in this cost estimate. Costs for design and construction were consistent with those used in the I-69 Section 5 Final Environmental Impacts Statement. The cost of stream mitigation was estimated per linear foot of impacted stream, with unit costs based on actual mitigation costs from I-69 Section 4.

3.6 Widening Existing Interstates

Widening would be required where existing interstate LOS would degrade to an unacceptable level due to the construction of I-69 Section 6. The segments where LOS would degrade were identified by travel demand modeling. The costs to widen the identified interstate segments were calculated separately from the I-69 Section 6 project costs unless otherwise noted below.

Under Alternatives B and D, I-70 would require widening from 4 to 6 lanes between the I-69 interchange and SR 267. Alternative C would require I-465 to be widened from 6 to 8 lanes from the west side of the White River to Mann Road. Widening of the I-465 bridge over the

White River itself is included in the cost of Alternative C, as it would likely be needed for operation of the I-69/I-465 interchange. Under Alternatives K3 and K4, auxiliary lanes would be added to I-465 as part of the I-465/I-69 interchange, so no additional costs were estimated.

3.7 Capital Improvements and Rehabilitation on SR 37

If an alternative that diverts from SR 37 is ultimately selected, the northern portion of SR 37 would remain open to traffic and continue to be maintained by INDOT. The added costs of capital improvements to provide acceptable LOS for the traffic remaining on SR 37, along with the costs of continued pavement and bridge rehabilitation needed for SR 37 were calculated for Alternatives B, D, K3, and K4. Specific improvements to SR 37 were identified by performing planning-level capacity analysis. A 50-year schedule of periodic pavement and bridge rehabilitation was used based on the assumed life expectancy of the I-69 construction. The rehabilitation costs for bridges and pavement were derived from past INDOT projects. These costs were calculated separately from the I-69 Section 6 project costs.

3.8 Contingencies

Due to the early stage of alternative development, a 20% contingency was added to project construction costs to account for unknown conditions. A 10% contingency was added to the mitigation costs to account for variations in property value. A 15% contingency was added to right of way acquisition costs to account for both property value and acreage requirement variations. The unit costs for utility relocation were considered to include contingency.

3.9 Professional Services

The cost of preliminary engineering for I-69 Section 6 was estimated to be 6% of the project estimated construction cost (including the contingency). This includes survey and design costs but excludes preparation of the environmental document. The cost of construction administration was estimated to be 9% of the construction cost (including the contingency), which includes construction inspection and construction management services. The costs of professional services for right of way acquisition and relocations are included on a per-parcel basis within the cost of right of way. The unit costs for utility relocation include professional services related to utilities.

3.10 Cost Escalation

Preliminary Alternative cost estimates were calculated in 2015 dollars. At this time, no cost escalation has been applied.

3.11 Excluded Costs

The following items are not specifically included in the cost estimates developed for Preliminary Alternatives:

- Damage payments to property owners for loss of use or access
- Costs of project financing
- Costs of transportation demand management or system management strategies during construction
- Costs of public outreach during construction
- Cost escalation to an assumed construction year

APPENDIX D

1-69 Section 6 Corridor Travel Demand Model

MEMORANDUM

Date: August 27, 2015

Re: I-69 Section 6 Travel Demand Model for Preliminary Alternatives Screening

This memorandum describes the use of the I-69 Section 6 Corridor Travel Demand Model in the screening of preliminary alternatives for I-69 Section 6. It also provides technical information regarding corridor model development and assumptions used for screening.

Overview of Corridor Model Application

Corridor model outputs were utilized to support five measures of performance associated with purpose and need evaluation of the preliminary alternatives. Performance of the alternatives was compared with the "no build" scenario, in which I-69 Section 6 is not constructed but other committed and programmed roadway projects are constructed, including the construction of I-69 Sections 1 through 5.

The performance measures and how they relate to the corridor model outputs are described below:

- Annual Crash Reduction—defined as the difference between total crashes in the four-county study area for the alternative scenarios compared to the no build scenario. The model forecasts total annual vehicle miles of travel by roadway classification (freeway or interstate, arterial, collector, etc.) within the study area. Typical crash rates per mile for each classification of roadway are applied to the total vehicle miles of travel, resulting in an estimate of total system crashes.

  This approach captures the safety benefits throughout the I-69 corridor as trips shift from lower classification roadways with higher accident rates to a freeway (I-69) with lower accident rates. Applying the corridor model in this way allows the estimates to consider not only the safety benefits within the I-69 corridor, but also throughout the network.

- Travel Time Benefits—defined as the difference in trip travel times between selected sample locations during the peak hour of travel for the alternative scenarios compared to the no build scenario. The corridor model identifies the fastest route for each trip by adding and comparing individual link travel times derived from speed and distance on each link.

  Most travel time differences occur when drivers shift from lower classification roadways to the higher speed freeway. The travel time calculation also considers trips that may experience longer travel paths in alternative scenarios. Since the corridor model adjusts travel speeds based on traffic volume levels (congestion), the use of the model for this measure accounts for delays and route changes to avoid congestion during peak periods.

- Traffic Congestion Benefits—defined as the total number of miles driven under congested conditions in alternative scenario networks compared to the no build scenario network. The corridor model identifies congested segments by comparing forecasted volumes to a level of service threshold, then totals the miles traveled on those segments.

  This approach captures the benefits of diverting traffic from existing congested routes as the capacity provided by I-69 is absorbed. It also accounts for localized increases in congestion where traffic converges to access new interchanges.

- Regional Freight Truck Travel— defined as the difference between total hours of truck travel in the four-county study area for alternative scenarios compared to the no build scenario. The corridor model identifies truck vehicle hours of travel (VHT) for the alternative scenarios and the no build scenario. A lower truck VHT indicates that an alternative is more effective for this measure because trucks spend less time traveling to their destinations.

- Regional Economic Impact—defined as additional wages earned and additional regional gross domestic product for the alternative scenarios compared to the no build scenario. The calculated benefits represent the total additional wages and gross domestic product throughout the study area over the 30-year study period. These benefits are estimated by an economic impact model called TREDIS. The TREDIS model uses travel times provided by the corridor model to forecast productivity gains for businesses and access to new customers and suppliers.

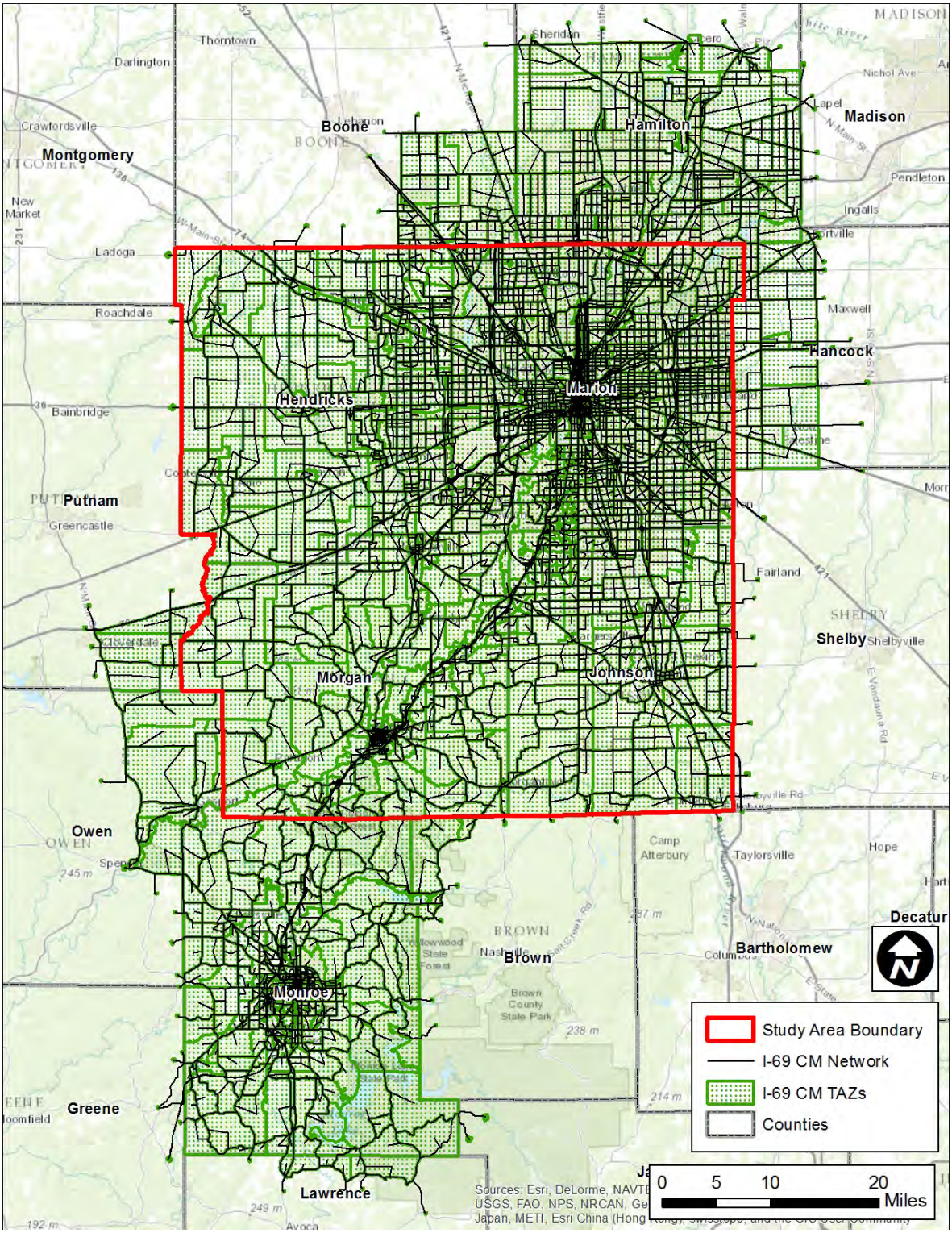
Since transportation networks are interconnected and motorists have multiple choices for most trips, changes on one segment can affect many others. Travel demand models, such as the I-69 Corridor Travel Demand Model, provide the best and sometimes the only opportunity to capture these large scale impacts. This is especially important in the evaluation of freeway proposals since their higher speeds and increased safety make them a particularly attractive choice for many trips.

Technical Description – Corridor Model and Assumptions

The I-69 Section 6 Corridor Travel Demand Model is an update of the I-69 Section 5 Corridor Travel Demand Model. In Section 6, the corridor model coverage area was expanded to include the western half of Hendricks County and enhanced to provide more fine-grained network and demographic data where needed. The corridor model presently covers 2,525 square miles utilizing a total of 2,189 traffic analysis zones (TAZs). The Section 6 study area incorporates four counties: Hendricks, Johnson, Marion and Morgan Counties. A map showing the entire model area is provided in **Figure 1**.

As part of the I-69 Section 6 update, the model was re-calibrated to more accurately replicate travel patterns in these four counties using targets derived from a number of sources, including

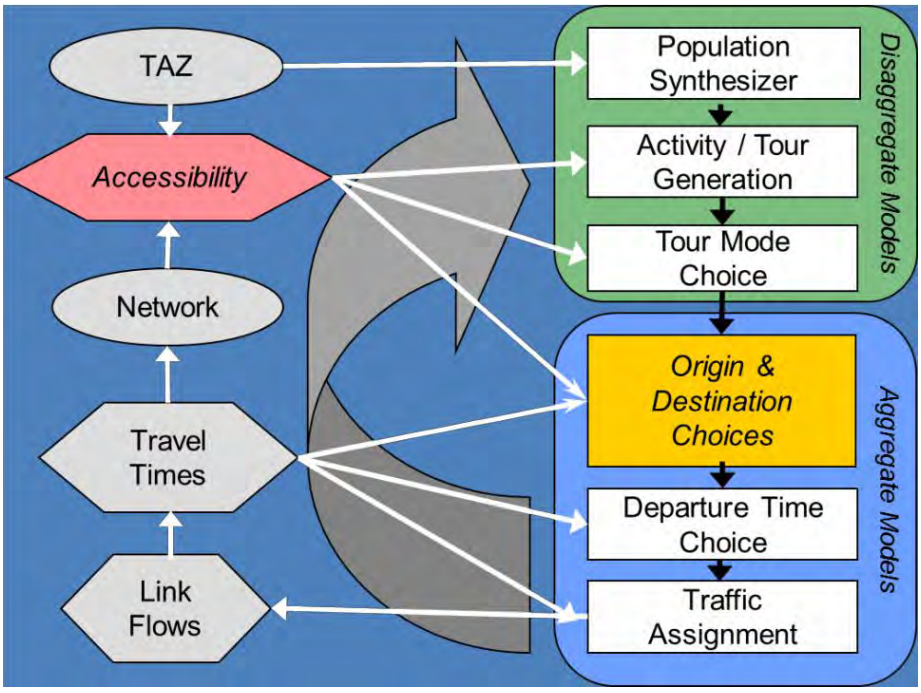
Figure 1: I-69 Corridor Travel Demand Model Area and Section 6 Study Area



the American Community Survey (ACS), National Household Travel Survey (NHTS), and the Central Indiana Travel Survey. The corridor model retains the 2010 base year used in Section 5, however the design year was updated from 2035 to 2045, recognizing that this section of I-69 would not likely be constructed until after 2020. The corridor model relies upon population and employment forecasts as inputs. Updated forecasts were developed for 2045 in coordination with INDOT and the Indianapolis MPO.

The corridor model utilizes a hybrid tour-based format. The hybrid process begins by generating a sample population of individual households for the study area. The travel patterns for each household are then forecasted based on the concept of tours (round trips beginning and ending at home). The model forecasts travel for various purposes (work, school, other), and identifies the number of stops on each tour. The dominant mode of travel (private automobile, school bus, public bus, walking, biking) is also modeled. The sequence of stops on each tour results in a set of individual trips. In the final step of the model, the trips are assigned a travel route on the roadway network so that travelers minimize their travel time and costs. This process is illustrated in **Figure 2**:

Figure 2: Hybrid Model Process



The corridor model utilizes outputs from the Indiana Statewide Travel Demand Model Version 7 (ISTDM v7) to identify the pattern of trips originating or ending outside of the four-county study area. The corridor model then determines the optimal route of these trips through the study area.

Model Assumptions

For the purposes of analysis at this stage, interim 2045 demographics were developed for the I-69 Corridor Travel Demand Model by creating a growth trend line between the 2010 census demographics and the 2035 demographic projections previously developed by INDOT and the Indianapolis MPO. This trend line was assumed to remain constant and was extrapolated from 2035 to 2045 to generate interim demographic forecasts.

Committed and programmed roadway expansion projects were coded into the corridor model 2045 road network in accordance with the Indianapolis MPO 2014-2017 Indianapolis Regional Transportation Improvement Program (IRTIP) and Long Range Transportation Plan (LRTP), the Statewide Transportation Improvement Program (STIP), and the INDOT 5-Year construction program. These projects predominantly included widening of existing roadways but also some major new roadways, such as a Ronald Reagan Parkway extension in Hendricks County.

Additionally, the ISTDM 2035 model was utilized to create external volumes for the I-69 Corridor Model, as 2035 is the furthest horizon year available for the ISTDM. The 2035 ISTDM currently includes the I-69 Ohio River Bridge near Evansville, but this project will be removed from future model runs because it is not included in any cost-constrained transportation plan.

For alternatives screening, a single ISTDM 2035 scenario reflecting I-69 Section 6 along the SR 37 corridor was used to create a consistent externals volume matrix for each of the alternatives. This facilitated an "apples-to-apples" comparison of the preliminary alternatives.

Assumed Conditions for Testing

The five preliminary alternatives being screened are shown in **Figure 3**. Each alternative originates just south of SR 39 in Martinsville and follows the SR 37 corridor for at least 9 miles. From this point, they vary in alignment and interchange connection points with I-465. I-69 lane requirements assumed for each alternatives provide acceptable daily traffic operation with the preliminary modeling but will be analyzed in more detail during the DEIS.

The preliminary alternatives are as follows:

- **Alternative B:** Follows SR 37 for about ⅓ of its length, with ⅓ new terrain between SR 37 and I-70, and ⅓ along I-70. Adjacent land use includes commercial to the south but is largely rural in the new terrain portion with agricultural, forest and residential land uses.
- **Alternative C:** Follows SR 37 from south of SR 39 to I-465; adjacent land use includes commercial to the south and north, with agricultural, forest and scattered residential in between.
- **Alternative D:** Follows SR 37 for about ⅓ of its length, with ⅓ new terrain between SR 37 and I-70 (center section east of Alternative B), and ⅓ along I-70. Adjacent land use includes commercial to the south but is largely rural in the new terrain portion with agricultural, forest and residential land uses.

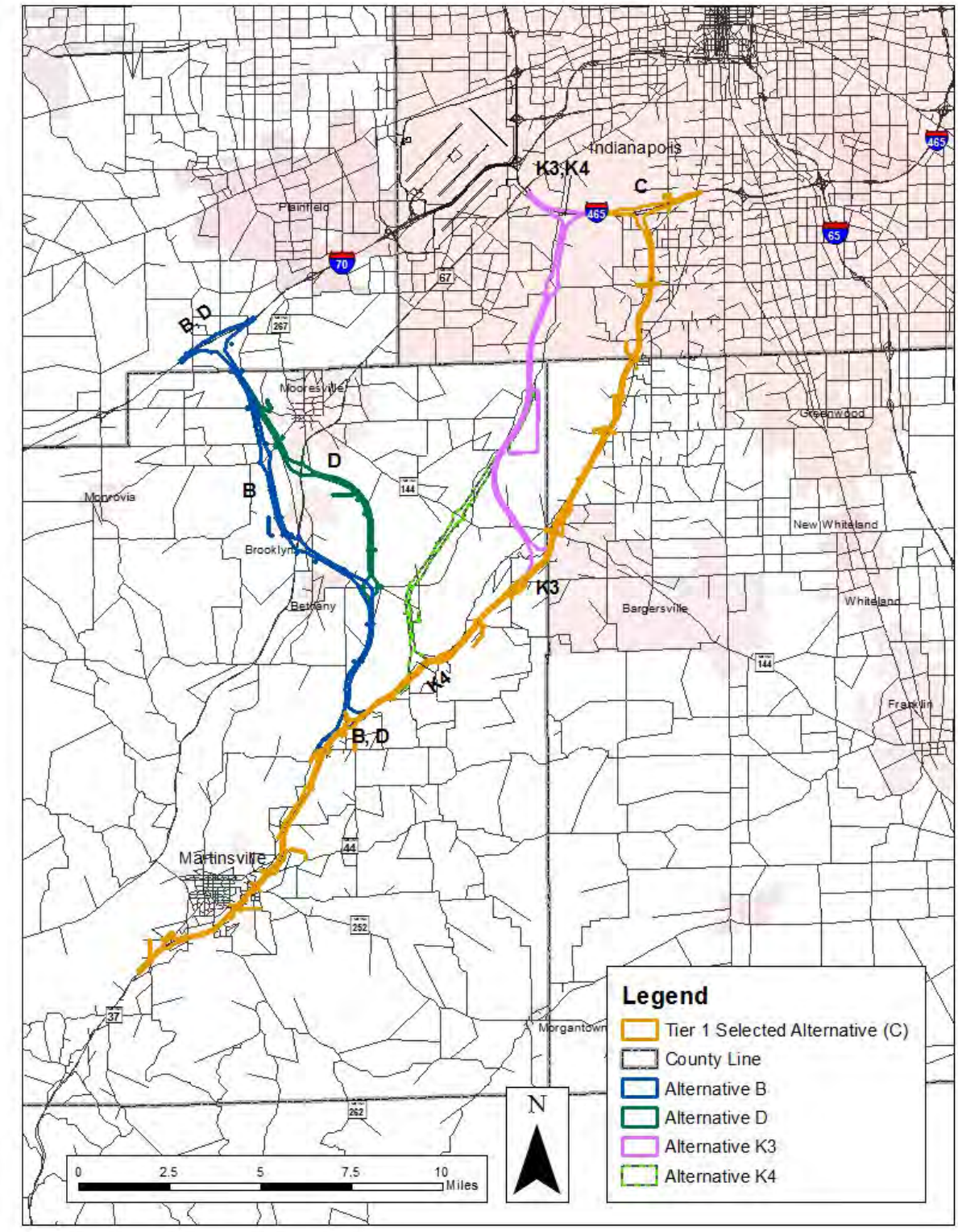
- **Alternative K3:** Follows SR 37 for about ⅔ of its length with ⅓ on new terrain west of SR 37 to I-465 at Mann Road. Adjacent land use includes commercial to the south but is largely rural in the new terrain portion with agricultural, forest and residential land uses.
- **Alternative K4:** Follows SR 37 for about ½ of its length with ½ on new terrain west of SR 37 to I-465 at Mann Road. Adjacent land use includes commercial to the south but is largely rural in the new terrain portion with agricultural, forest and residential land uses.

Additional assumptions used in the preliminary alternatives screening process include the following:

- Speed limits were assumed to be 70 mph in rural areas and 65 mph in urban/suburban areas.
- A mix of interchange types were coded at surface street access points and fully directional 'T' interchanges were coded where I-69 would tie into existing interstates (I-70 or I-465).
- Added lanes were assumed on existing interstates where preliminary model results showed a need due to the I-69 project. Additional lanes were modeled on I-465 between Mann Road and I-69 with Alternatives C, K3 and K4. For Alternatives K3 and K4, these would actually be auxiliary lanes included with the I-69 interchange.
- One added lane in each direction was assumed on I-70 between I-69 and SR 267 with Alternatives B and D. East of SR 267, existing I-70 has adequate lanes.
- No induced population or employment growth was added to the TAZ layers due to I-69.

Both the I-69 Section 6 Corridor Model and TREDIS will continue to be used to support development of the DEIS. Ongoing refinements to the corridor model will facilitate the forecast of peak hour and daily traffic volumes for the study area network. The potential for each alternative scenario to generate induced population and employment growth will be evaluated using input from an expert land use panel and data output from the TREDIS economic model. Induced growth will be incorporated into the corridor model so that the impact on traffic forecasts will be reflected in the DEIS.

Figure 3: Preliminary Alternatives



APPENDIX E

Public Involvement Comment Summary

MEMORANDUM

Date: January 7, 2016

Re: I-69 Section 6 Public Involvement Comment Summary

This memorandum summarizes the comments received during the time period of November 19, 2015 to December 17, 2015. Public information meetings were held during this period to present the quantitative data developed in support of the I-69 Section 6 Preliminary Alternatives Screening Report, Part 1. Maps and descriptions of the preliminary alternatives and the quantitative information were presented at the meetings. The date and location of the meetings is listed below:

- November 30, 2015, Perry Meridian High School – 402 attendees (per sign-in sheet)
- December 2, 2015, Mooresville High School – 1,053 attendees (per sign-in sheet)
- December 3, 2015, Martinsville High School – 361 attendees (per sign-in sheet)

Information presented at the meetings was posted on the project website and displayed at the project office. Comments were encouraged at the public meetings, at the project office, web comment and by mail or email. A total of 995 comments were received prior to the end of the comment period on December 17.

All comments have been categorized and tabulated. Comments ranged from preference for an alternative to narratives, pictures and maps associated with specific design features. The data on the following pages presents information pertaining to the number of comments and attendees at each public meeting, the type of comment received (letter, e-mail, voice mail, comment forms, etc.), the primary comment topic and whether or not the comment indicated support or opposition of specific alternatives.

This summary begins with a high level summary noting the number of comments in support of or in opposition to Alternatives B, C, D, K3 and K4, followed by information related to the source of comments, and topics addressed.

Note that the comment total does not match the summation of support and opposition by alternative. Some comments contain multiple pieces of information – for example: "I support Alternative C and oppose Alternatives B and D." Likewise, some comments do not contain support or opposition statements, focusing on other project details like the location of grade separations, land acquisition issues, traffic items and other topics.

Figure 1: All Comments in Support of Specific Alternatives

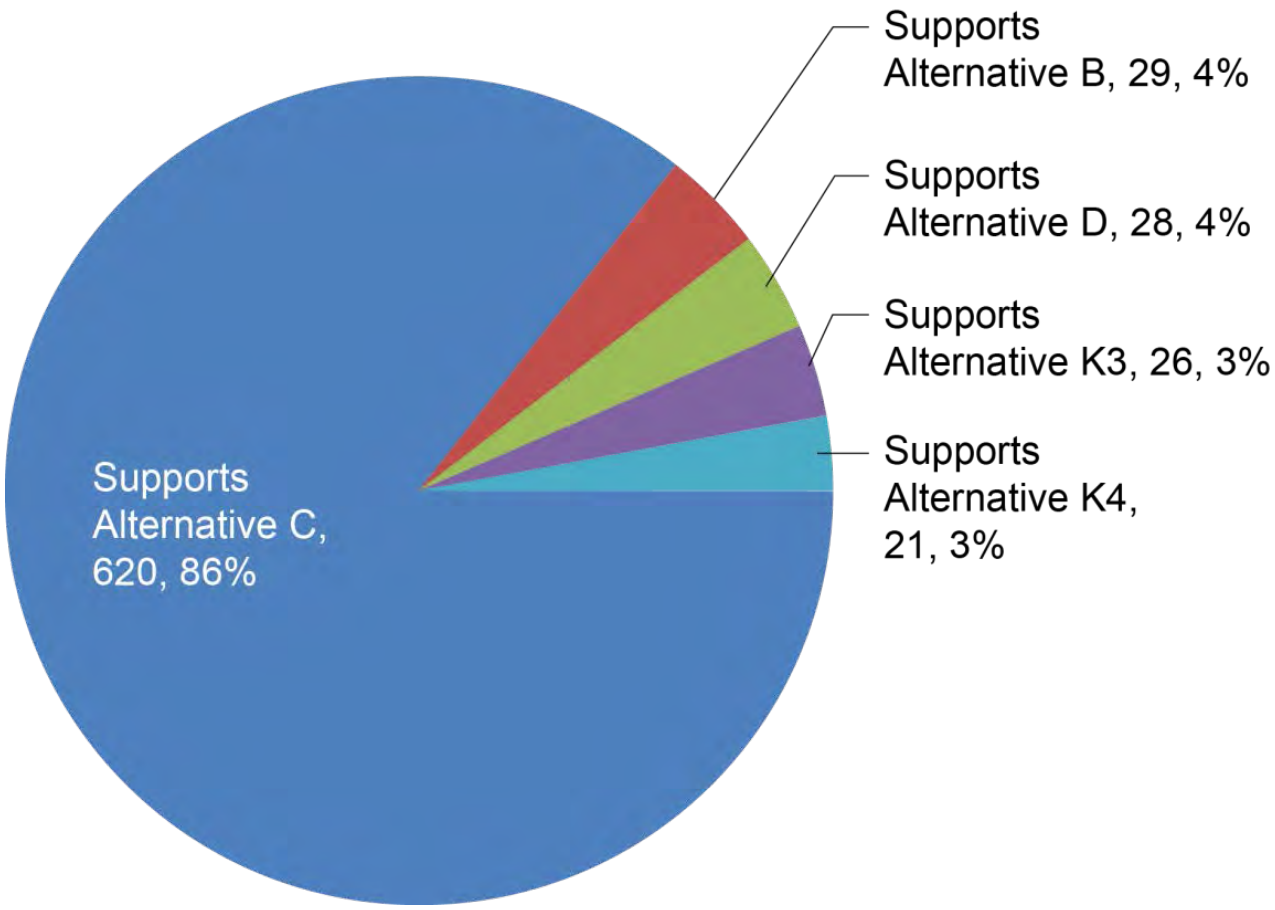


Figure 2: All Comments in Opposition of Specific Alternatives

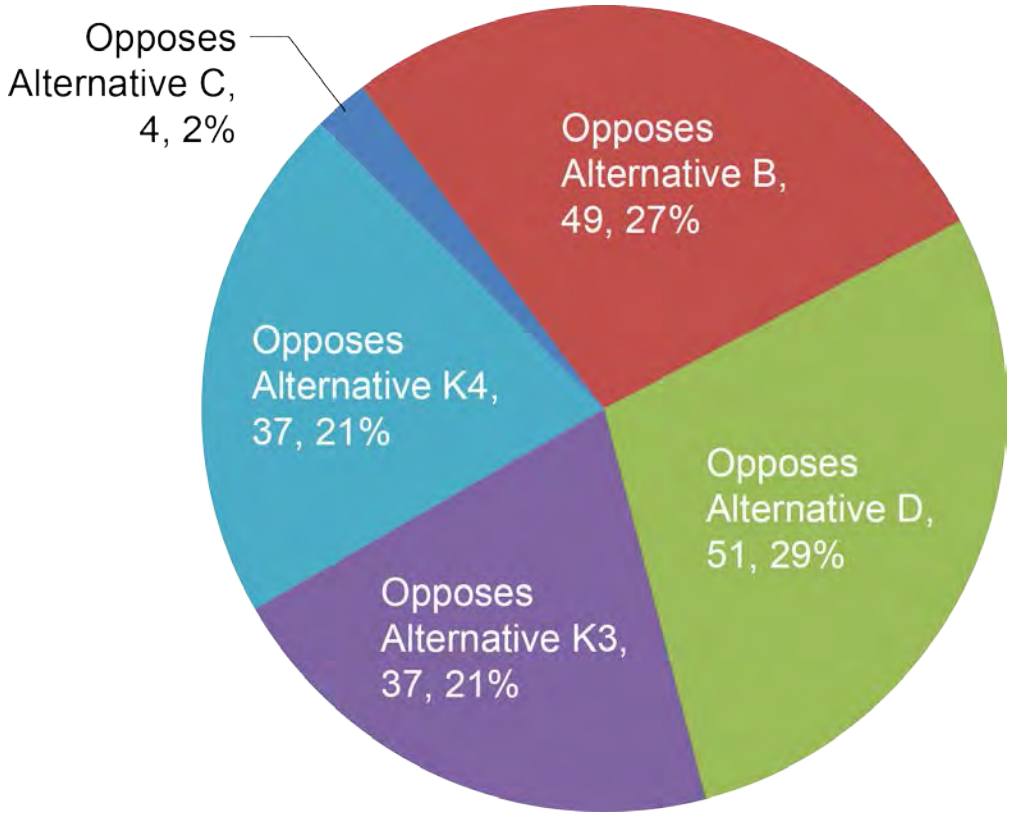


Table 1: Comments in Support or Opposition of Specific Alternatives

Alternative C		
Supports Alternative C	620	93%
Opposes Alternative C	47	7%

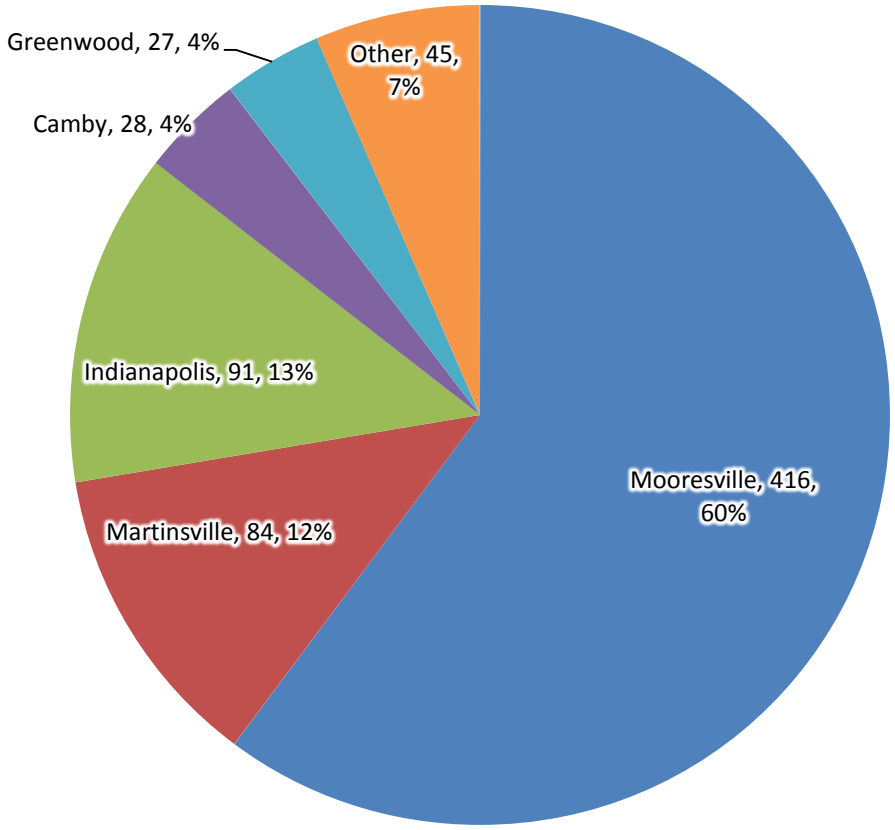
Alternative B		
Supports Alternative B	29	8%
Opposes Alternative B	324	92%

Alternative D		
Supports Alternative D	28	8%
Opposes Alternative D	327	92%

Alternative K3		
Supports Alternative K3	26	9%
Opposes Alternative K3	279	91%

Alternative K4		
Supports Alternative K4	21	7%
Opposes Alternative K4	280	93%

Figure 3: Comments Received – by Community of Origin (where identified)



Note: Where comments did not identify a community or where the number of comments was fewer than 10 from a community, they were included in the "Other" category.

Table 2: Comments in Support or Opposition of Specific Alternatives by Community of Origin

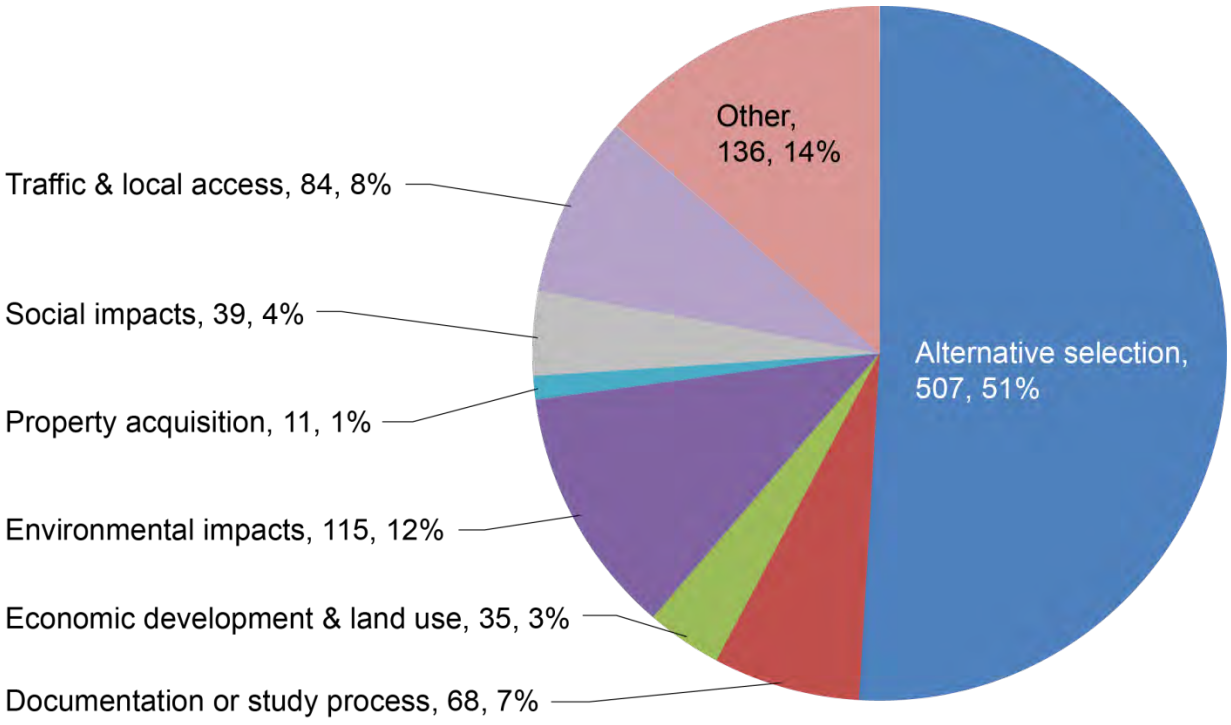
Comments in **Support** of Alternatives

	Perry Meridian High School	Mooresville High School	Martinsville High School	Project Office or Web Comment	Total
Alternative C	18	95	26	481	620
Alternative B	3	4	5	17	29
Alternative D	4	3	5	16	28
Alternative K3	6	3	0	17	26
Alternative K4	3	2	0	16	21
Total	**34**	**107**	**36**	**547**	**724**

Comments in **Opposition** of Alternatives

	Perry Meridian High School	Mooresville High School	Martinsville High School	Project Office or Web Comment	Total
Alternative C	13	4	2	28	47
Alternative B	6	49	23	246	324
Alternative D	6	51	24	246	327
Alternative K3	4	37	20	218	279
Alternative K4	4	37	21	218	280
Total	**33**	**178**	**90**	**956**	**1257**

Figure 4: Primary Topic of Comments



Note: Where comments did not contain an identifiable topic or where the number of comments was fewer than 10 for a topic, they were included in the "Other" category.

Table 3: Primary Topic of Comments – by Community of Origin

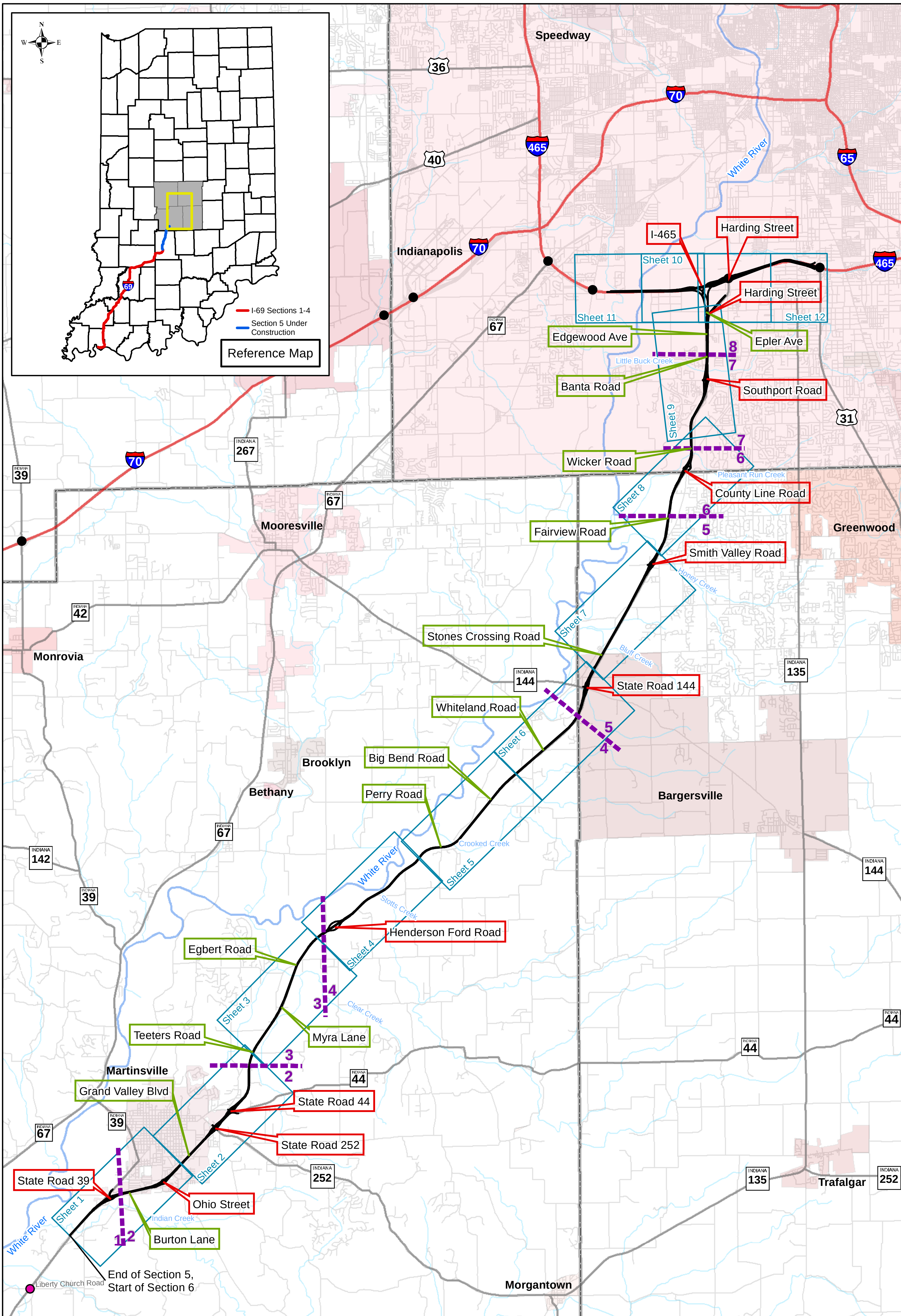
	Martinsville High School	Mooresville High School	Perry Meridian High School	Project Office or Web Comment	Total
Alternative Selection	20	24	8	455	507
Documentation/Process	13	6	7	42	68
Economic Development and Land Use	3	5	5	22	35
Environmental Impacts	4	26	9	76	115
Property Acquisition	1	3		7	11
Social Impacts	7	1	9	22	39
Traffic & Local Access	12	3	21	48	84
Other	6	88	5	37	136
Total	**66**	**156**	**64**	**709**	**995**

Note: Where comments did not contain an identifiable topic or where the number of comments was fewer than 10 for a topic, they were included in the "Other" category

APPENDIX F

Detailed Mapping for Alternative Alignments C1, C2, and C3

Detailed Mapping for Alternative Alignment C1



Legend

1 in = 2 miles

0 0.5 1 1.5 2 Miles

Interchange Locations

Grade Seperation Locations

I-69 Mainline

Interstate Highways

US and State Highways

Subsection Break Line

Inset Sheets

Existing Interchanges

Interchange Under Construction

County Line

Streams

White River

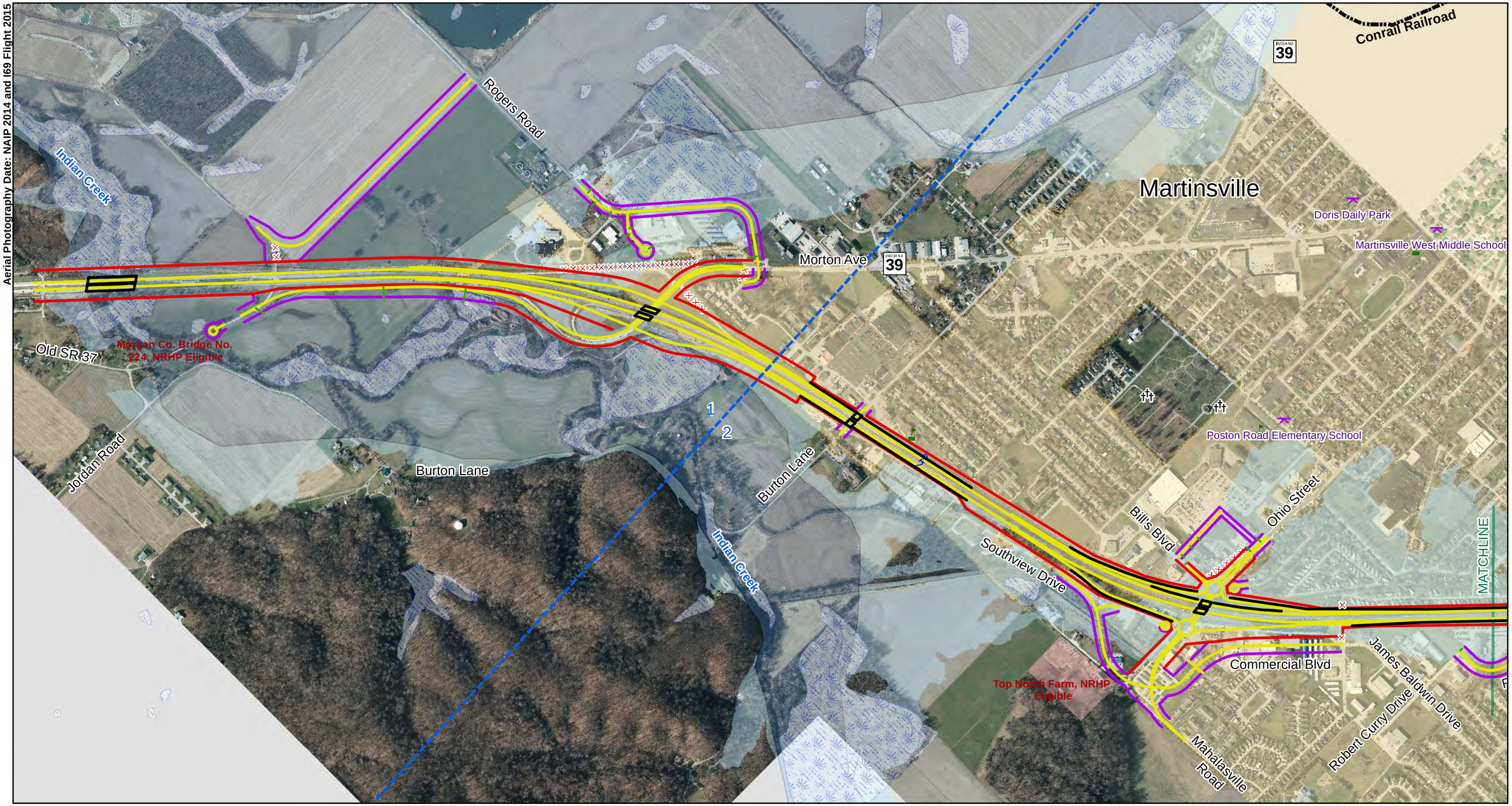
Local Roads

I-69 Section 6

Location Map

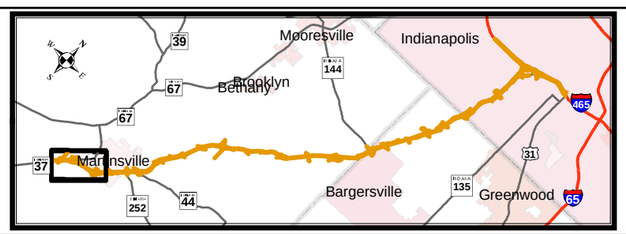
Preliminary Alternative C1

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015



1 inch = 1,000 feet

0 500 1,000 Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

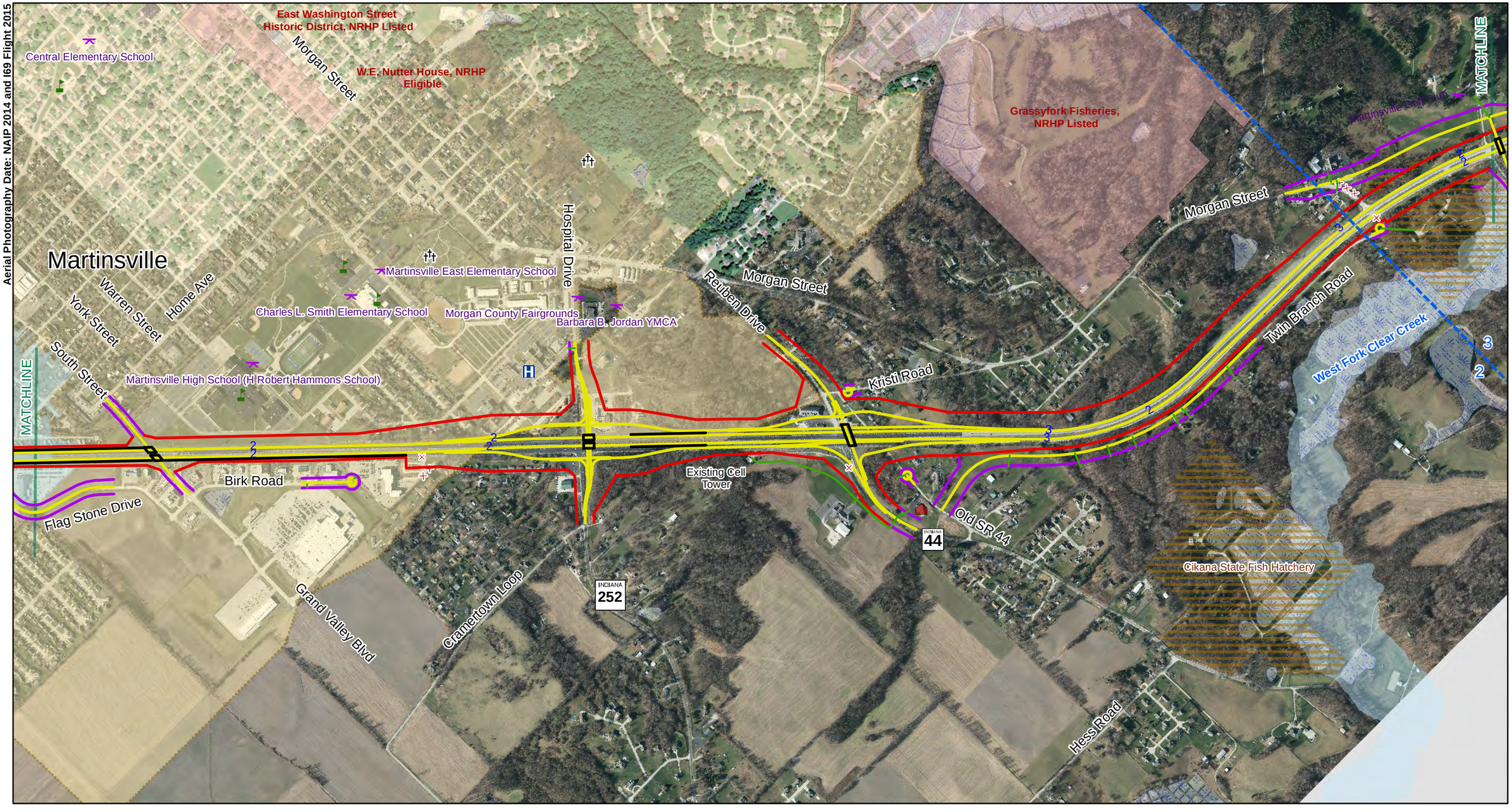
I-69 Section 6

Preliminary Alternatives

Alternative C1

Sheet 1

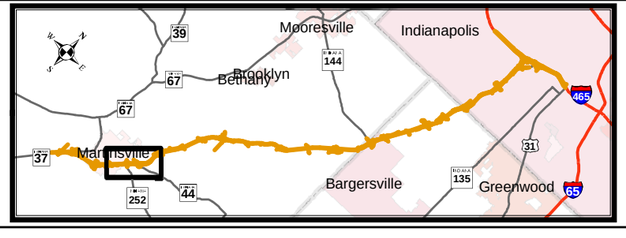
Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015



1 inch = 1,000 feet

0 500 1,000

Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
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- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

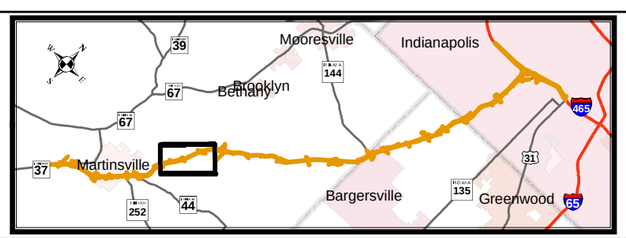
Alternative C1

Sheet 2

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Oak Ridge Way
Maple Turn Road
MATCHLINE
Martinsville Golf Club
Country Club Road
Old SR 37
Clear Creek
Egbert Road
Henderson Ford Road
Whispering Meadows
MATCHLINE
Myra Lane
Ozark Fisheries
West Fork Clear Creek
Stockwell Bridge/Morgan CO Br 56 (NRHP Eligible)
Cikana State Fish Hatchery
Teeters Road
Centennial Road
3
2

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
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- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

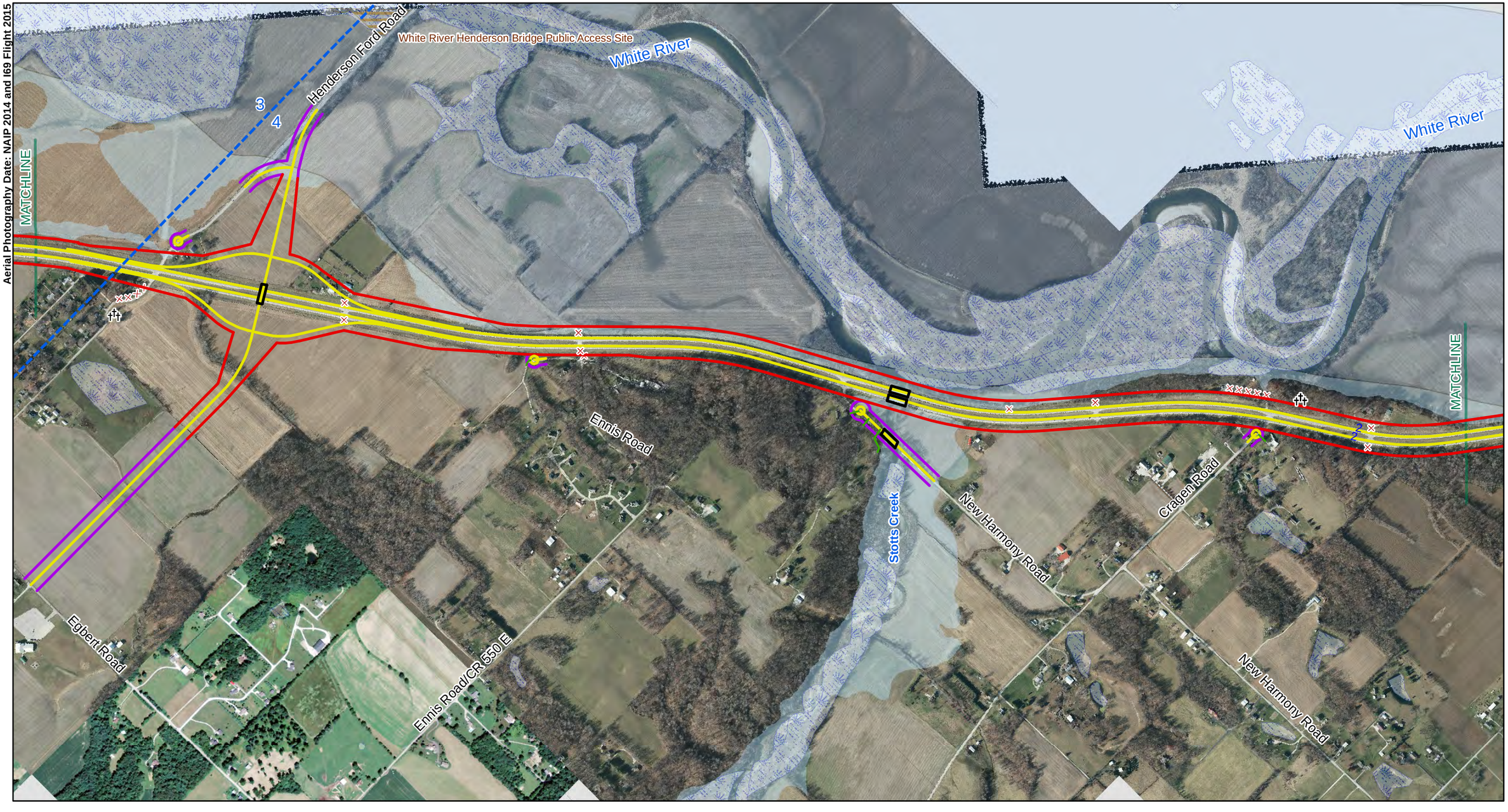
I-69 Section 6

Preliminary Alternatives

Alternative C1

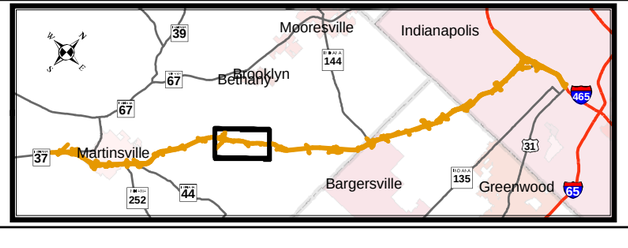
Sheet 3

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015



1 inch = 1,000 feet

0 500 1,000 Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

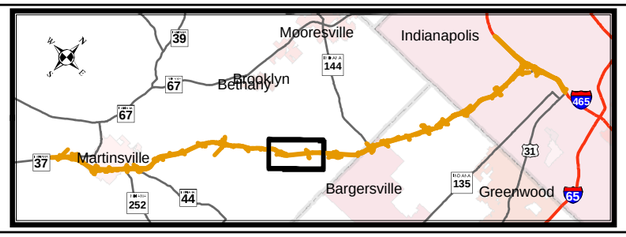
Alternative C1

Sheet 4

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

1 inch = 1,000 feet

0 500 1,000 Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C1

Sheet 5

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Old SR 37
Morgan Co. Bridge No. 155, NRHP Eligible
White River
INDIANA 144
Old SR 37
MATCHLINE
Waverly Elementary School
Huggin Hollow Road
Huggin Hollow Road
Travis Road
MATCHLINE
Waverly Road
Huggin Hollow Road
CR 144
Whiteland Road
Waverly Road
Banta Road
Bargersville
Crooked Creek
Morgan County
Johnson County

1 inch = 1,000 feet
0 500 1,000
Feet

Mooresville
Indianapolis
Brooklyn
Bethany
Martinsville
Bargersville
Greenwood

- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C1

Sheet 6

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River

MATCHLINE

Bluff Acres Drive

Smith Valley Road

Old SR 37

Olive Branch Road

Bluff Creek Golf Course

MATCHLINE

Old SR 37

Travis Creek

Mullinix Road

Bargersville

Travis Hills Historic District, NRHP Eligible

Stones Crossing Road

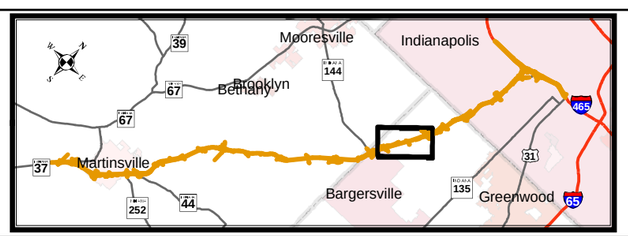
Paddock Road

Travis Road

1 inch = 1,000 feet

0 500 1,000

Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

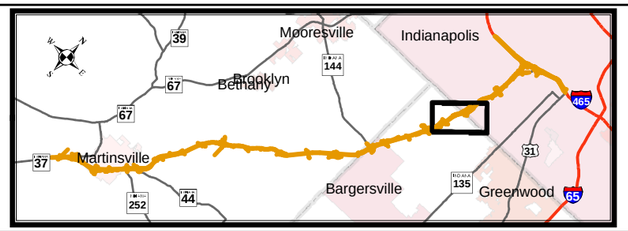
Alternative C1

Sheet 7

Produced Date: 3/23/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River
MATCHLINE
Wicker Road
Stop 11 Road
Glennwood Homes Association Historic District, NRHP Eligible
Cleary-Barnett House, NRHP Eligible
Glenns Valley Nature Park
Bluff Road
Glenn's Valley Nature Park Retreat House, NRHP Eligible
Glenns Valley Nature Park
Glenns Valley Elementary School
Marion Co. Br 4513F, NRHP Eligible
Fairview Road
John Sutton House, NRHP Eligible
County Line Road
Pleasant Run Creek
7
6
Bluffdale Road
Bluff Road
Fairview Road
6
5
Morgantown Road
Marion County
Johnson County
County Line Road

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

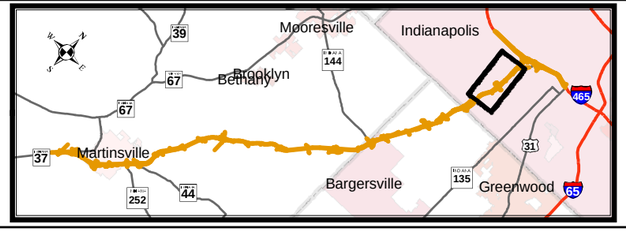
Alternative C1

Sheet 8

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Southern Dunes Golf Course
Rosa Parks-Edison Elementary
MATCHLINE
Stop 11 Road
Southport Road
Little Buck Creek
Greenway - Little Buck Creek
Concord Road
Epler Ave
Southport Landing Shopping Center
Southern Dunes Apartments
Banta Road
MATCHLINE
Le Ciel (Charles Laughner House), NRHP Eligible
Belmont Ave
Glenns Valley Nature Park
Glenn's Valley Nature Park Retreat House, NRHP Eligible
Glennwood Homes Association Historic District, NRHP Eligible
Glenns Valley Nature Park
Cleary-Barnett House, NRHP Eligible
Aspen Lake Apartments
Kamper Korner Campground
Edgewood Ave
Perry Commons Ave
Little Buck Creek
Bluff Road
Harding Street
Epler Ave

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C1

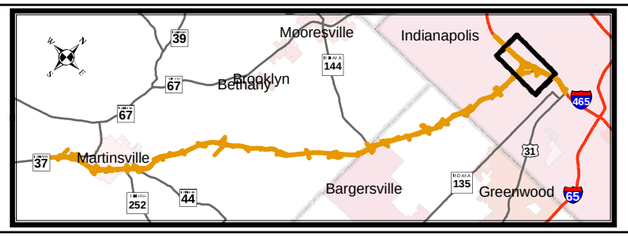
Sheet 9

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River
Lick Creek
Harding Street
Bluff Road
Southside German Market
Gardeners Historic District, NRHP Eligible
Thompson Road
I C Railroad
Byrkit Street
Sunshine
Gardens
Concord Street
Newhart Street
Warman Ave
MATCHLINE
INDIANA
37
Epler Ave
MATCHLINE

N
W E
S

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C1

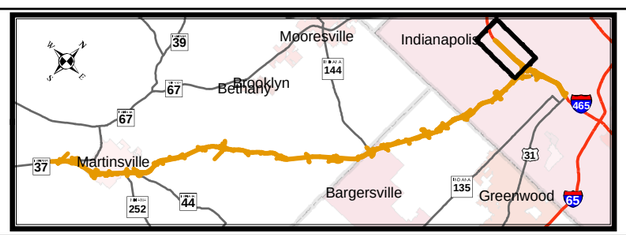
Sheet 10

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Superior Road
Foltz Street
White River
Mann Road
465
3
5
4
4
Byrkit Street
Sunshine Gardens
Concord Street
Warman Ave
MATCHLINE
Newhart Street
Harmon Ditch
White River
Mann Road
Epler Ave
MATCHLINE

N
W E
S

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C1

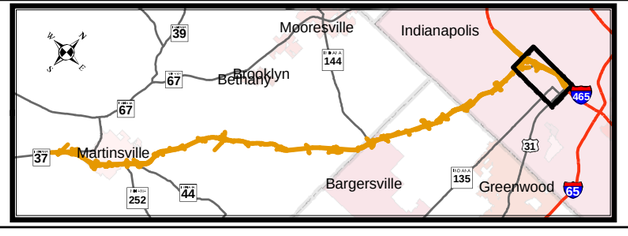
Sheet 11

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Lick Creek
Harding Street
Bluff Road
Lick Creek
Meridian Street
Thompson Road
Thompson Road
I C Railroad
Southside German Market
Gardeners Historic District, NRHP Eligible
5
5
3
3
4
4
31
465
INDIANA
37
INDIANA
135
Harding Street
Epler Ave
Epler Ave
Bluff Road
31
MATCHLINE

N
W E
S

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

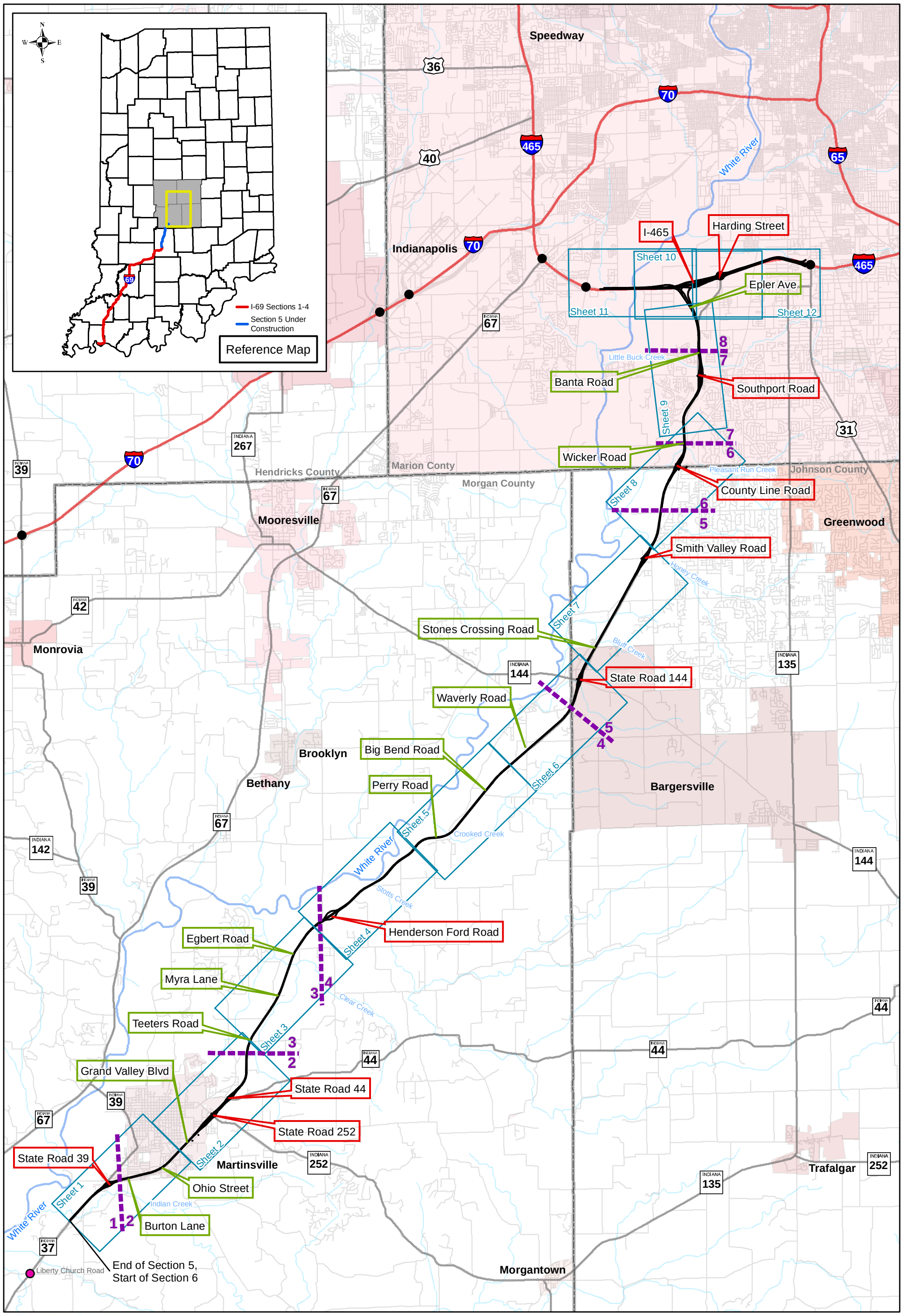
I-69 Section 6

Preliminary Alternatives

Alternative C1

Sheet 12

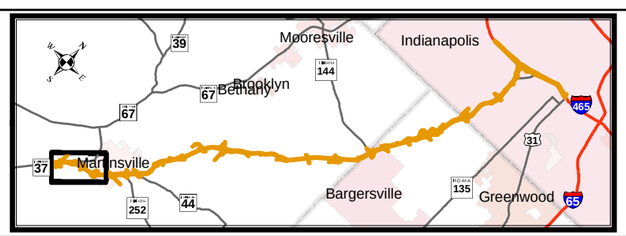
Detailed Mapping for Alternative Alignment C2


Reference Map
I-69 Sections 1-4
Section 5 Under Construction
Speedway
Indianapolis
Hendricks County
Marion Conty
Morgan County
Johnson County
Mooresville
Greenwood
Monrovia
Brooklyn
Bethany
Bargersville
Martinsville
Trafalgar
Morgantown
White River
Little Buck Creek
Pleasant Run Creek
Honey Creek
Bluff Creek
Crooked Creek
Stotts Creek
Clear Creek
Indian Creek
I-465
Harding Street
Epler Ave
Banta Road
Southport Road
Wicker Road
County Line Road
Smith Valley Road
Stones Crossing Road
State Road 144
Waverly Road
Big Bend Road
Perry Road
Egbert Road
Henderson Ford Road
Myra Lane
Teeters Road
Grand Valley Blvd
State Road 44
State Road 252
State Road 39
Ohio Street
Burton Lane
Liberty Church Road
End of Section 5,
Start of Section 6
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Sheet 10
Sheet 11
Sheet 12
1
2
3
4
5
6
7
8
Legend
I-69 Mainline
Interstate Highways
US and State Highways
Subsection Break Line
Interchange Locations
Inset Sheet
Existing Interchanges
Interchange Under Construction
County Line
Grade Seperation Locations
Streams
White River
Local Roads
1 in = 2 miles
0 0.5 1 1.5 2
Miles
I-69 Section 6
Location Map
Preliminary Alternative C2

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Rogers Road
Indian Creek
Martinsville
Conrail Railroad
INDIANA 39
Doris Daily Park
Martinsville West Middle School
Morton Ave
INDIANA 39
Old SR 37
Morgan Co. Bridge No. 224, NRHP Eligible
Poston Road Elementary School
Jordan Road
Burton Lane
Burton Lane
Indian Creek
Bill's Blvd
Ohio Street
Southview Drive
MATCHLINE
Commercial Blvd
James Baldwin Drive
Top Notch Farm, NRHP Eligible
Robert Curry Drive
Mahalasvile Road

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

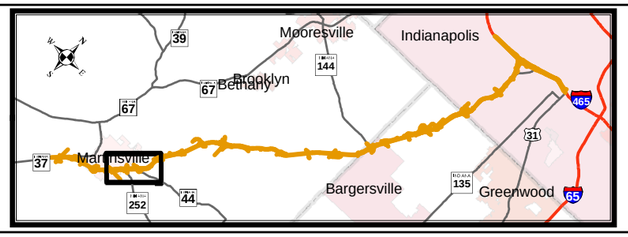
Alternative C2

Sheet 1

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

East Washington Street Historic District, NRHP Listed
Central Elementary School
Morgan Street
W.E. Nutter House, NRHP Eligible
Grassyfork Fisheries, NRHP Listed
MATCHLINE
Martinsville Golf Club
Martinsville
Martinsville East Elementary School
Hospital Drive
Morgan Street
Home Ave
Warren Street
York Street
South Street
Charles L. Smith Elementary School
Morgan County Fairgrounds
Barbara B. Jordan YMCA
Reuben Drive
Kristi Road
Twin Branch Road
West Fork Clear Creek
Martinsville High School (H Robert Hammons School)
MATCHLINE
Birk Road
Flag Stone Drive
Existing Cell Tower
Old SR 44
INDIANA 44
Cikana State Fish Hatchery
Grand Valley Blvd
Cramertown Loop
INDIANA 252
Hess Road

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

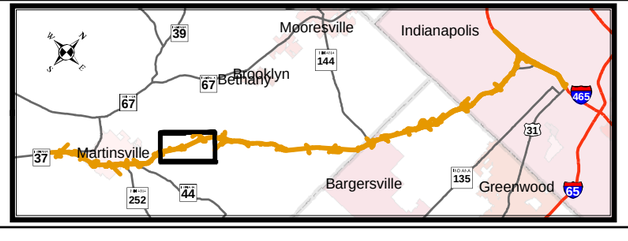
Alternative C2

Sheet 2

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Oak Ridge Way
Maple Turn Road
MATCHLINE
Martinsville Golf Club
Country Club Road
Old SR 37
Clear Creek
Egbert Road
Henderson Ford Road
MATCHLINE
West Fork Clear Creek
Mya Lane
Ozark Fisheries
Stockwell Bridge/Morgan Co
Br 38, NRHP Eligible
Cikana State Fish Hatchery
Teeters Road
Centennial Road
2
3
4

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

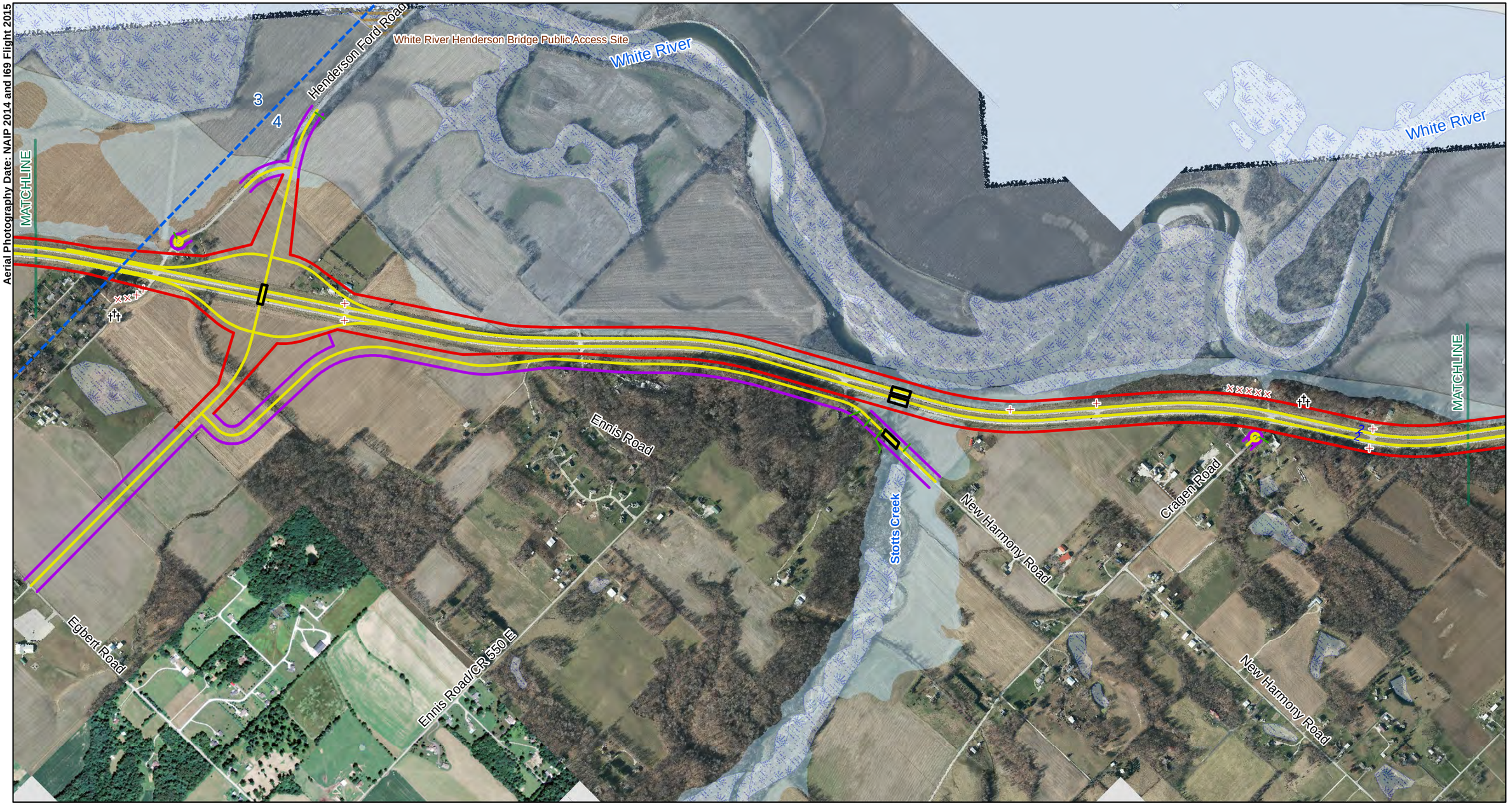
I-69 Section 6

Preliminary Alternatives

Alternative C2

Sheet 3

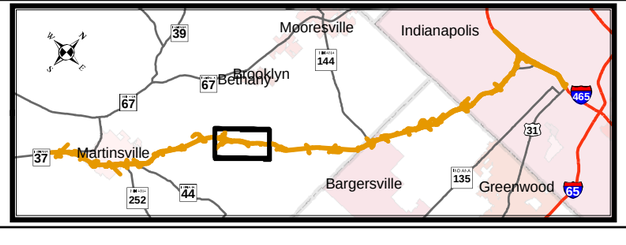
Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015



1 inch = 1,000 feet

0 500 1,000

Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

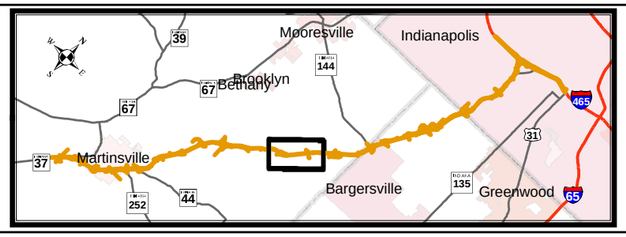
Alternative C2

Sheet 4

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

1 inch = 1,000 feet

0 500 1,000 Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

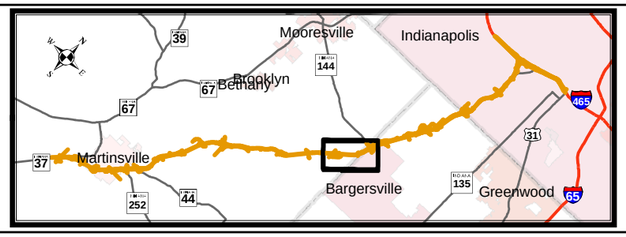
Alternative C2

Sheet 5

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Old SR 37
Morgan Co. Bridge No. 155, NRHP Eligible
White River
INDIANA 144
Old SR 37
MATCHLINE
Waverly Elementary School
Huggin Hollow Road
Huggin Hollow Road
Travis Road
MATCHLINE
Waverly Road
Waverly Road
CR 144
Whiteland Road
Banta Road
4 5
Bargersville
Crooked Creek
Morgan County
Johnson County

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C2

Sheet 6

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River

MATCHLINE

Bluff Acres Drive

Smith Valley Road

Old SR 37

Olive Branch Road

Bluff Creek Golf Course

MATCHLINE

Old SR 37

Travis Creek

Mullinix Road

Bargersville

Travis Hills Historic District, NRHP Eligible

Stones Crossing Road

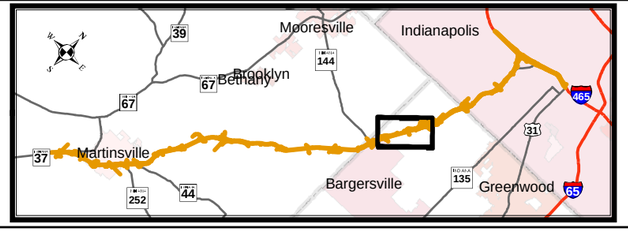
Paddock Road

Travis Road

1 inch = 1,000 feet

0 500 1,000

Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
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- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

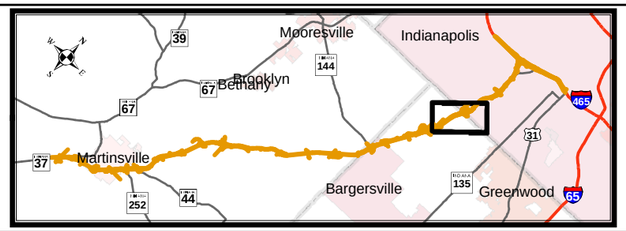
Alternative C2

Sheet 7

Produced Date: 3/23/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River
MATCHLINE
Stop 11 Road
Wicker Road
Glennwood Homes Association Historic District, NRHP Eligible
Cleary-Barnett House, NRHP Eligible
Glenns Valley Nature Park
Bluff Road
Glenn's Valley Nature Park Retreat House, NRHP Eligible
Glenns Valley Nature Park
Marion Co. Br 4513F, NRHP Eligible
Glenns Valley Elementary School
Fairview Road
John Sutton House, NRHP Eligible
County Line Road
Pleasant Run Creek
7
6
3
Bluffdale Road
Bluff Road
Fairview Road
6
5
Morgantown Road
Marion County
Johnson County
County Line Road

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C2

Sheet 8

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Southern Dunes Golf Course
Rosa Parks-Edison Elementary
MATCHLINE
Stop 11 Road
Le Ciel (Charles Laughner House), NRHP Eligible
Glenns Valley Nature Park
Glenn's Valley Nature Park Retreat House, NRHP Eligible
Glennwood Homes Association Historic District, NRHP Eligible
Glenns Valley Nature Park
Cleary-Barnett House, NRHP Eligible
Bluff Road
Belmont Ave
Southern Dunes Apartments
Southport Road
Greenway - Little Buck Creek
Little Buck Creek
Concord Road
Southport Landing Shopping Center
Belmont Ave
Banta Road
Aspen Lake Apartments
Perry Commons Ave
Little Buck Creek
Greenway - Little Buck Creek
Kamper Korner Campground
Edgewood Ave
Harding Street
MATCHLINE
Epler Ave
Epler Ave

1 inch = 1,000 feet
0 500 1,000
Feet

Roads Closed or Removed
Driveways
Bridges and Retaining Walls
Centerlines and Number of Lanes
Conceptual Limited Access Right-of-Way
Conceptual Full Access Right-of-Ways
Subsection Break Line
Incorporated Place
County Boundary
Historic Sites
IDNR Managed Land
NWI Wetlands
Rivers or Streams
Floodways
100 Year Floodplains
Hospital
Police Station
Recreational Facility
Fire Station
Cemetery
School

I-69 Section 6

Preliminary Alternatives

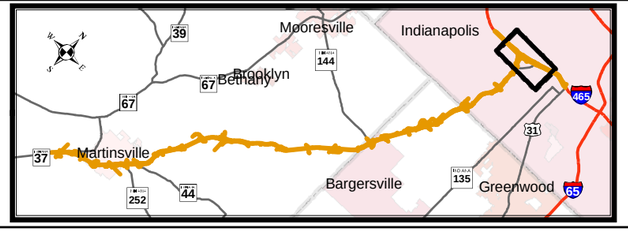
Alternative C2

Sheet 9

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River
Lick Creek
Harding Street
Bluff Road
Southside German Market Gardeners Historic District, NRHP Eligible
Thompson Road
I C Railroad
Byrkit Street
Sunshine Gardens
Concord Street
Warman Ave
Newhart Street
MATCHLINE
Epler Ave
INDIANA 37
MATCHLINE

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

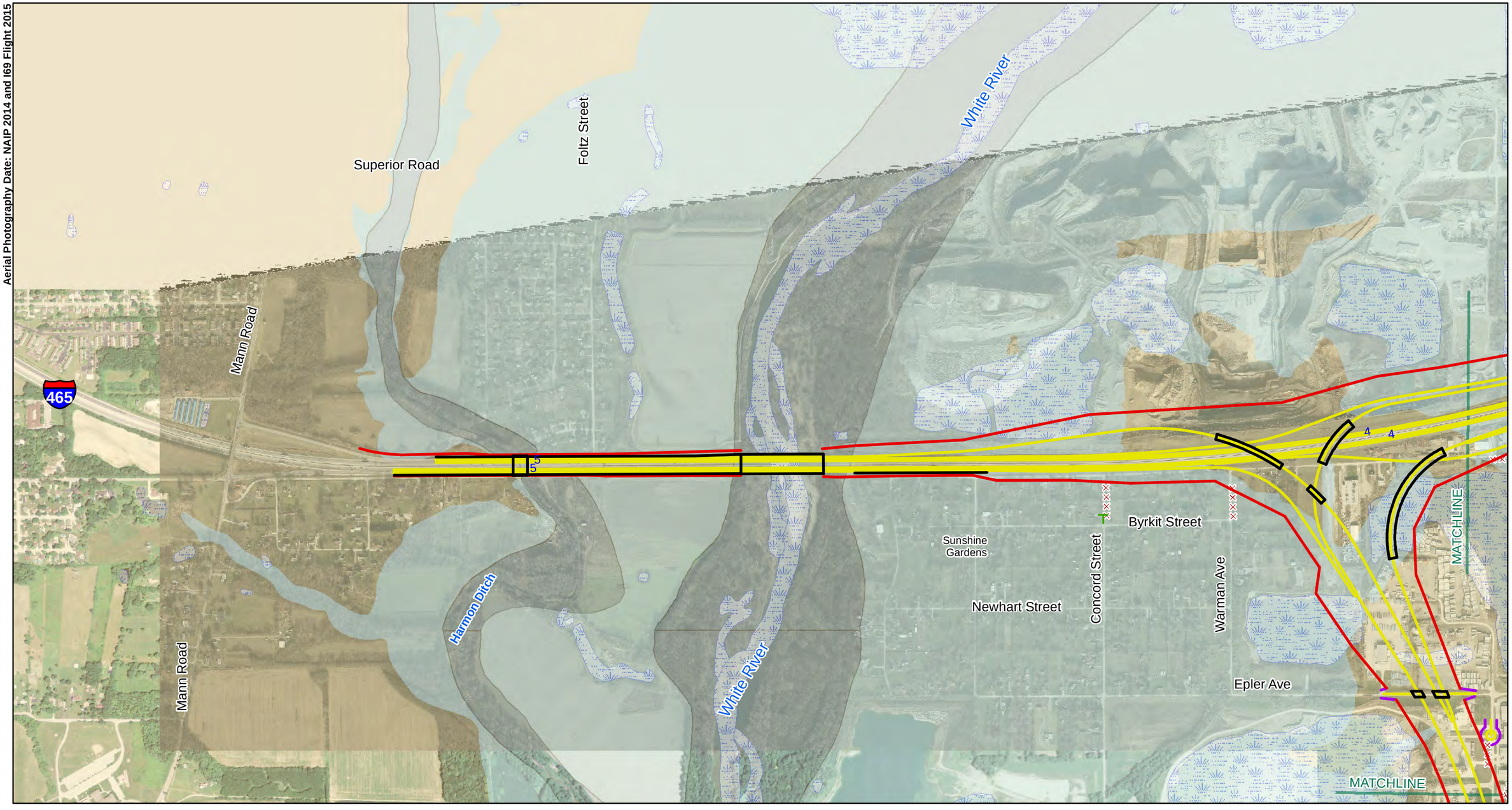
I-69 Section 6

Preliminary Alternatives

Alternative C2

Sheet 10

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

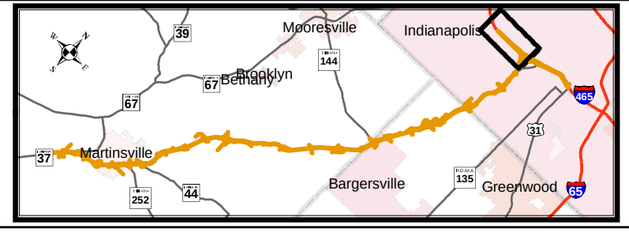


N
W E
S

1 inch = 1,000 feet

0 500 1,000

Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C2

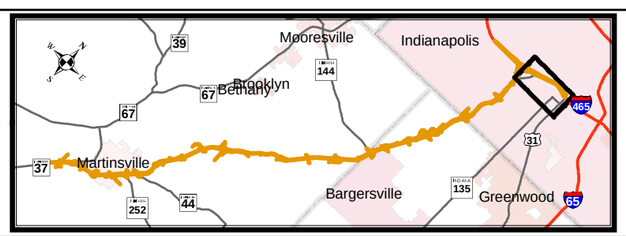
Sheet 11

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Lick Creek
Harding Street
Bluff Road
Southside German Market
Gardeners Historic District, NRHP Eligible
Meridian Street
Thompson Road
I C Railroad
MATCHLINE
INDIANA 37
Epler Ave
INDIANA 135
31
465
MATCHLINE

N W E S

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Limited Access Right-of-Way
- Conceptual Full Access Right-of-Ways
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

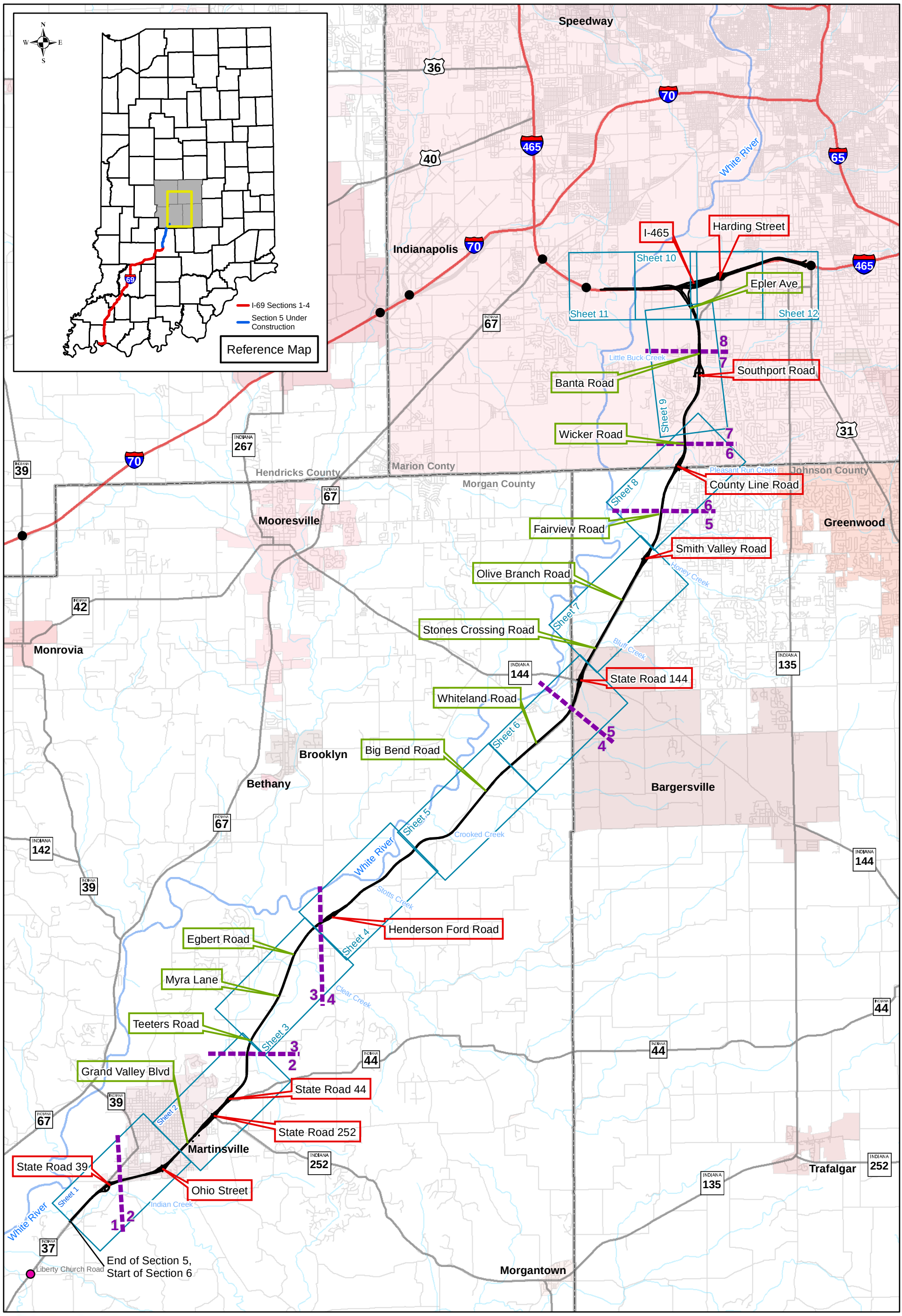
I-69 Section 6

Preliminary Alternatives

Alternative C2

Sheet 12

Detailed Mapping for Alternative Alignment C3


Reference Map
I-69 Sections 1-4
Section 5 Under Construction
Speedway
Indianapolis
Marion Conty
Hendricks County
Morgan County
Johnson County
Mooresville
Monrovia
Brooklyn
Bethany
Bargersville
Greenwood
Martinsville
Trafalgar
Morgantown
I-465
Harding Street
Epler Ave
Southport Road
County Line Road
Wicker Road
Fairview Road
Smith Valley Road
Olive Branch Road
Stones Crossing Road
State Road 144
Whiteland Road
Big Bend Road
Henderson Ford Road
Egbert Road
Myra Lane
Teeters Road
Grand Valley Blvd
State Road 44
State Road 252
State Road 39
Ohio Street
End of Section 5,
Start of Section 6
Liberty Church Road
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Sheet 10
Sheet 11
Sheet 12
White River
Little Buck Creek
Pleasant Run Creek
Honey Creek
Bluff Creek
Crooked Creek
Stotts Creek
Clear Creek
Indian Creek
1
2
3
4
5
6
7
8
Legend
I-69 Mainline
Interstate Highways
US and State Highways
Subsection Break Line
Interchange Locations
Inset Sheet
Existing Interchanges
Interchange Under Construction
County Line
Grade Seperation Locations
Streams
White River
Local Roads
1 in = 2 miles
0 0.5 1 1.5 2
Miles
I-69 Section 6
Location Map
Preliminary Alternative C3

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Rogers Road
Indian Creek
Martinsville
Doris Daily Park
Martinsville West Middle School
Morton Ave
INDIANA 39
Burton Lane
Old SR 37
Morgan Co. Bridge No. 224, NRHP Eligible
Poston Road Elementary School
Jordan Road
Burton Lane
Indian Creek
Bill's Blvd
Ohio Street
Southview Drive
MATCHLINE
Commercial Blvd
James Bladwin Drive
Top Notch Farm, NRHP Eligible
Robert Curry Drive
Mahalasville Road

1 inch = 1,000 feet
0 500 1,000
Feet

Roads Closed or Removed
Driveways
Bridges and Retaining Walls
Centerlines and Number of Lanes
Conceptual Full Access Right-of-Way
Conceptual Limited Access Right-of-Way
Subsection Break Line
Incorporated Place
County Boundary
Historic Sites
IDNR Managed Land
NWI Wetlands
Rivers or Streams
Floodways
100 Year Floodplains
Hospital
Police Station
Recreational Facility
Fire Station
Cemetery
School

I-69 Section 6

Preliminary Alternatives

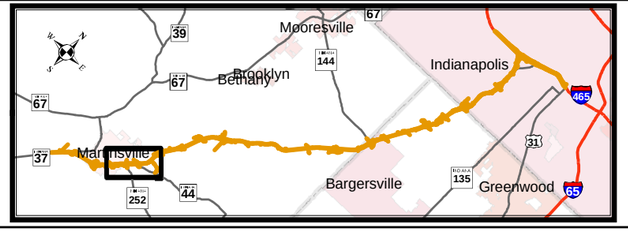
Alternative C3

Sheet 1

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

East Washington Street Historic District, NRHP Listed
Central Elementary School
Morgan Street
W.E. Nutter House, NRHP Eligible
Grassyfork Fisheries, NRHP Listed
MATCHLINE
Martinsville East Park
Martinsville
Martinsville East Elementary School
Hospital Drive
Morgan Street
Morgan Street
Twin Branch Road
Home Ave
Warren Street
York Street
South Street
Charles L. Smith Elementary School
Morgan County Fairgrounds
Barbara B. Jordan YMCA
Reuben Drive
Martinsville High School (H Robert Hammons School)
Krisfi Road
West Fork Clear Creek
MATCHLINE
Existing Cell Tower
Birk Road
Flag Stone Drive
Edna Street
Old SR 44
INDIANA 44
Grand Valley Blvd
Cramertown Loop
INDIANA 252
Cikana State Fish Hatchery
Hess Road

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

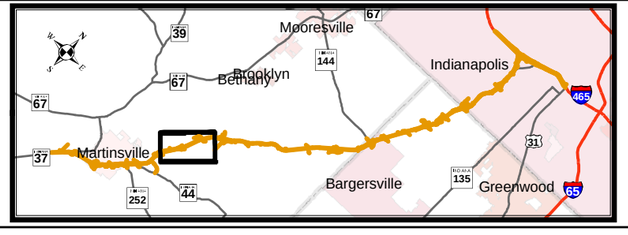
Alternative C3

Sheet 2

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Oak Ridge Way
Maple Turn Road
MATCHLINE
Martinsville Golf Club
County Club Road
Old SR 37
Clear Creek
Egbert Road
Henderson Ford Road
Whispering Meadows
MATCHLINE
Myra Lane
Ozark Fisheries
West Fork Clear Creek
Stockwell Bridge/Morgan Co Br 56 (NRHP Eligible)
Cikana State Fish Hatchery
Teeters Road
Centennial Road
2
3
4

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

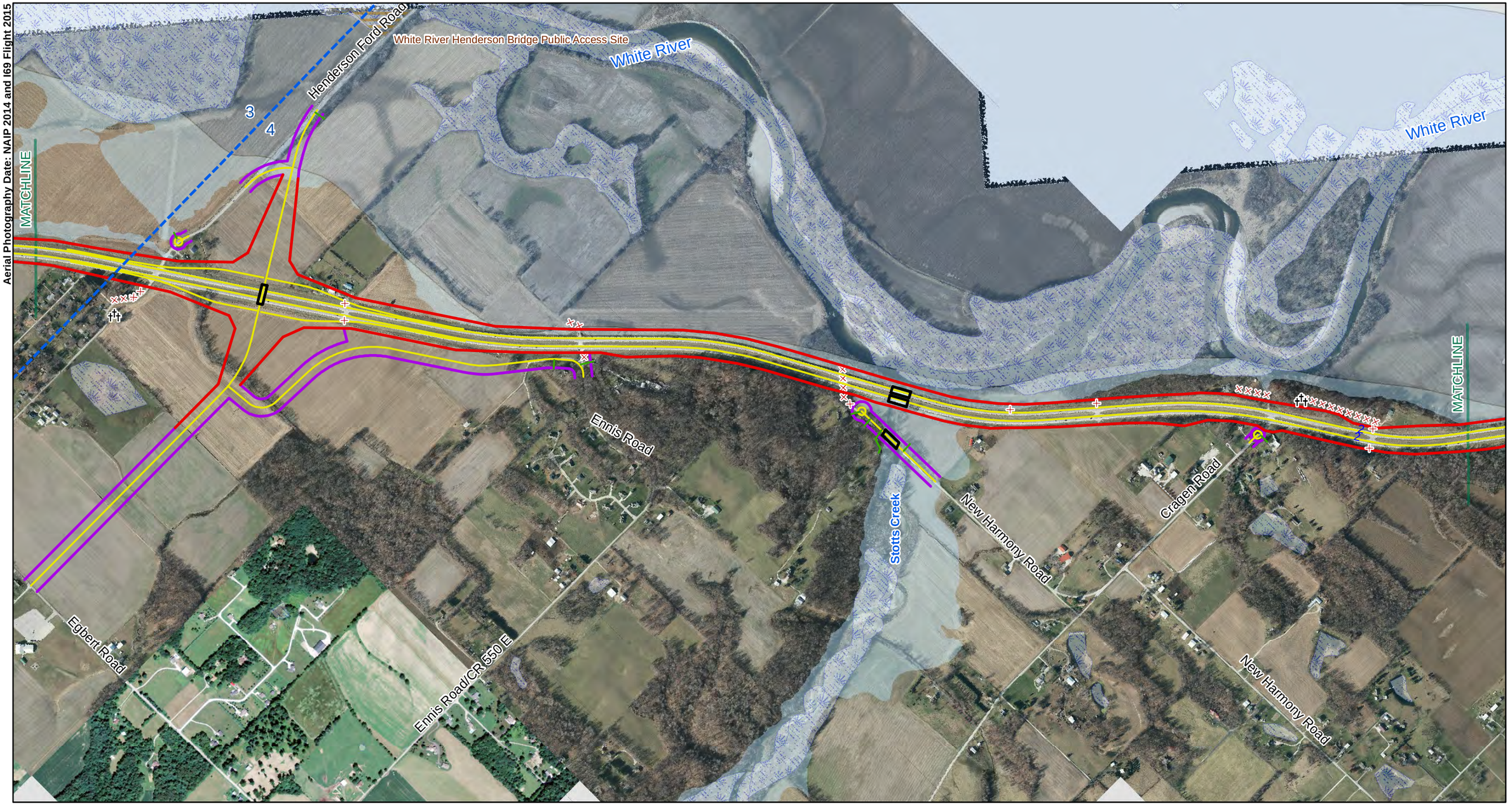
I-69 Section 6

Preliminary Alternatives

Alternative C3

Sheet 3

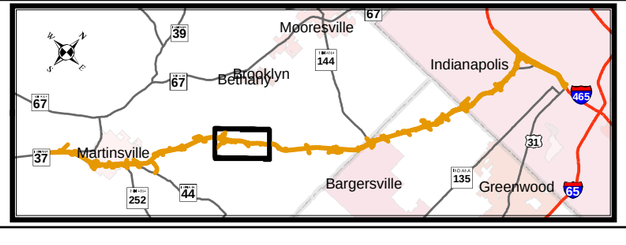
Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015



1 inch = 1,000 feet

0 500 1,000

Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

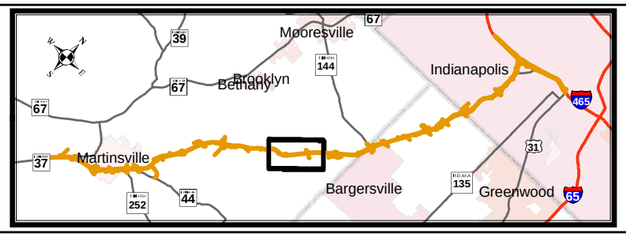
Alternative C3

Sheet 4

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

1 inch = 1,000 feet

0 500 1,000 Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

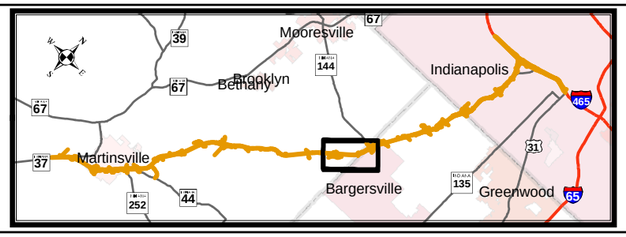
Alternative C3

Sheet 5

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Old SR 37
Morgan Co. Bridge No. 155, NRHP Eligible
White River
INDIANA 144
Old SR 37
MATCHLINE
Waverly Elementary School
Huggin Hollow Road
Huggin Hollow Road
Travis Road
MATCHLINE
Waverly Road
Huggin Hollow Road
CR 144
Whiteland Road
Waverly Road
Banta Road
Bargersville
Crooked Creek
Morgan County
Johnson County

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C3

Sheet 6

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River

MATCHLINE

Bluff Acres Drive

Old SR 37

Smith Valley Road

Olive Branch Road

Bluff Creek Golf Course

Old SR 37

MATCHLINE

Travis Creek

Mullinix Road

Stones Crossing Road

Bargersville

Travis Hills Historic District, NRHP Eligible

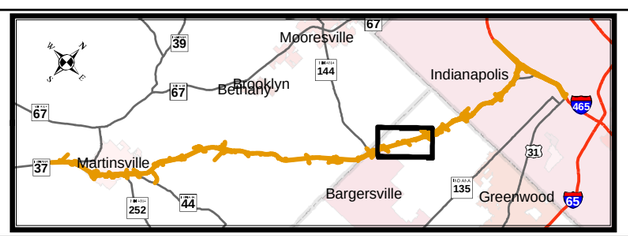
Paddock Road

Travis Road

1 inch = 1,000 feet

0 500 1,000

Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

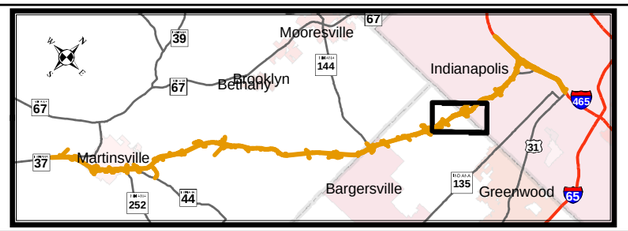
Alternative C3

Sheet 7

Produced Date: 3/23/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River
MATCHLINE
Stop 11 Road
Wicker Road
Glennwood Homes Association Historic District, NRHP Eligible
Cleary-Barnett House, NRHP Eligible
Glenns Valley Nature Park
Bluff Road
Glenn's Valley Nature Park Retreat House, NRHP Eligible
Glenns Valley Nature Park
Glenns Valley Elementary School
Marion Co. Br 4513F, NRHP Eligible
Fairview Road
John Sutton House, NRHP Eligible
County Line Road
Pleasant Run Creek
7
6
Bluffdale Road
Bluff Road
MATCHLINE
Fairview Road
6
5
Morgantown Road
Marion County
Johnson County
County Line Road

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

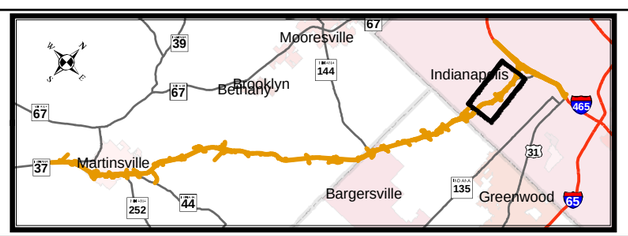
Alternative C3

Sheet 8

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Southern Dunes Golf Course
Rosa Parks-Edison Elementary
MATCHLINE
Stop 11 Road
Southport Road
Little Buck Creek
Greenway - Little Buck Creek
Concord Road
Epler Ave
Banta Road
MATCHLINE
Southern Dunes Apartments
Southport Landing Shopping Center
Le Ciel (Charles Laughner House), NRHP Eligible
Glenns Valley Nature Park
Cleary-Barnett House, NRHP Eligible
Glennwood Homes Association Historic District, NRHP Eligible
Glenns Valley Nature Park
Glenn's Valley Nature Park Retreat House, NRHP Eligible
Aspen Lake Apartments
Belmont Ave
Kamper Korner Campground
Edgewood Ave
Perry Commons Ave
Little Buck Creek
Bluff Road
Harding Street
Epler Ave

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

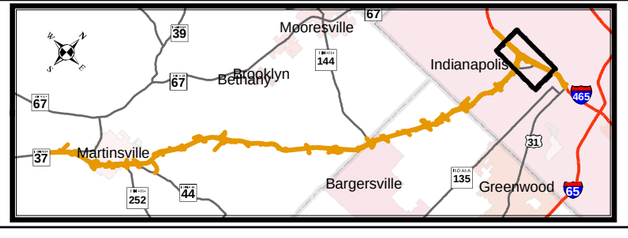
Alternative C3

Sheet 9

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

White River
Lick Creek
Harding Street
Bluff Road
Southside German Market Gardeners Historic District, NRHP Eligible
Thompson Road
Byrkit Street
Sunshine Gardens
Newhart Street
Concord Street
Warman Ave
MATCHLINE
Epler Ave
37
I C Railroad
MATCHLINE

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
- Bridges and Retaining Walls
- Centerlines and Number of Lanes
- Conceptual Full Access Right-of-Way
- Conceptual Limited Access Right-of-Way
- Subsection Break Line
- Incorporated Place
- County Boundary
- Historic Sites
- IDNR Managed Land
- NWI Wetlands
- Rivers or Streams
- Floodways
- 100 Year Floodplains
- Hospital
- Police Station
- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

Alternative C3

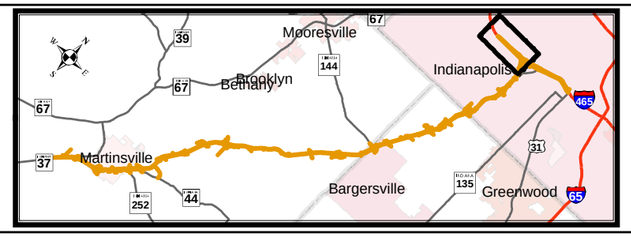
Sheet 10

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Superior Road
Foltz Street
White River
Mann Road
465
3
5
4
4
Byrkit Street
Sunshine Gardens
Newhart Street
Concord Street
Warman Ave
Epler Ave
MATCHLINE
Harmon Ditch
White River
Mann Road
MATCHLINE

N
W E
S

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
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- 100 Year Floodplains
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- Recreational Facility
- Fire Station
- Cemetery
- School

I-69 Section 6

Preliminary Alternatives

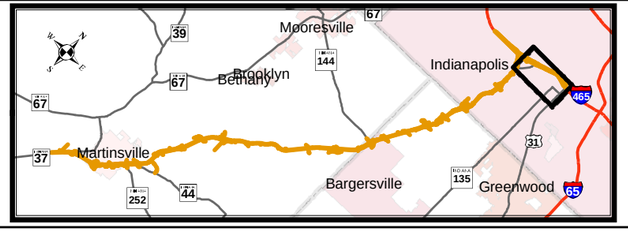
Alternative C3

Sheet 11

Produced Date: 2/29/2016
Aerial Photography Date: NAIP 2014 and I69 Flight 2015

Lick Creek
Harding Street
Bluff Road
Southside German Market
Gardeners Historic District, NRHP Eligible
Meridian Street
Thompson Road
I C Railroad
Epler Ave
MATCHLINE
MATCHLINE
INDIANA 37
INDIANA 135
31
465
5
5

1 inch = 1,000 feet
0 500 1,000
Feet



- Roads Closed or Removed
- Driveways
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I-69 Section 6

Preliminary Alternatives

Alternative C3

Sheet 12