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## CHAPTER 3 – ALTERNATIVES

Since the publication of the Draft Environmental Impact Statement (DEIS), the following changes have been made to this chapter:

- The Introduction has been updated to include an overview of the I-69 Section 6 alternatives development process that begins with 27 conceptual alternatives and ends with a selected alternative. New text is added to describe how the sections of this chapter document the step-by-step alternatives development process and provide the basis for all chapters that follow.
- A new section (**Section 3.8**) has been added to describe the Refined Preferred Alternative (RPA). Adjustments to Alternative C4, the preferred alternative presented in the DEIS, are identified and the reason for each adjustment is explained. Maps are provided to illustrate portions of the RPA that are described in the text.
- The chapter summary has been updated to include the RPA. It is renumbered as **Section 3.9. Table 3-9, Summary of Alternatives**, and has been updated to show the mainline, interchange, grade separation, and local roadway configurations of the RPA.

For Section 6, the Tier 1 Record of Decision (ROD) identified the preferred corridor for I-69 to be within an approximate 2,000-foot-wide corridor centered on existing SR 37 between SR 39 in Martinsville and I-465 in Indianapolis. That alternative, identified in the Tier 1 EIS as Alternative 3C, is referred to as Alternative C in this FEIS.

As discussed in **Section 1.2.3**, the Tier 1 ROD permits the consideration of alternatives outside the selected 3C corridor in Tier 2 when necessary to avoid significant impacts within the selected corridor while still connecting the Tier 2 termini of I-69 near SR 39 in Martinsville and I-465 in Indianapolis.<sup>1</sup> The evaluation of potential alternatives outside the SR 37 corridor for I-69 Section 6 was justified based on the changed conditions in the selected corridor since the Tier 1 ROD and the potential to avoid impacts with an alternate route. This was noted in the Notice of Intent published on October 15, 2014, to advise the public and resource agencies that Tier 2 studies for I-69 Section 6 were resuming.<sup>2</sup>

This chapter describes the process and results of the alternatives definition process for I-69 Section 6, beginning with 27 conceptual alternatives between Martinsville and Indianapolis and ending with the RPA for final review and approval in the ROD. Public and agency input was solicited throughout the process leading to the definition of the RPA.

A screening process was used to define the initial 27 conceptual alternatives and narrow them to five preliminary alternatives for more detailed study. These preliminary alternatives were evaluated and presented at agency and public meetings to complete the screening process. The

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<sup>1</sup> See Tier 1 ROD, Section 2.3.5 (*Potential to Consider Alternatives Outside Selected Corridor*).

<sup>2</sup> Notice of Intent published October 15, 2014, Federal Register, Vol. 79, No. 199, pp. 61926-7.





*Conceptual Alternatives Evaluation Report (Appendix CC), Preliminary Alternatives Selection Report (Appendix DD), and the Preliminary Alternatives Screening Report (Appendix EE)* provide a detailed description of the screening process.

Ultimately, three alternative configurations, known as Alternatives C1, C2, and C3, were defined for consideration in the DEIS. These were reviewed with local engineers and planners, government officials, resource agencies, project advisory committees, various stakeholder groups, and the public. Input was solicited at public meetings, at the project office, and online. Based on this input and additional analysis of engineering features, a fourth “hybrid” alternative, Alternative C4, was developed using a combination of features from the other three alternatives, and all four alternatives were advanced for evaluation.

The environmental impacts of Alternatives C1, C2, C3, and C4 were described in **Chapter 5, Environmental Consequences**, of the DEIS. An evaluation of these four alternatives was provided in **Chapter 6, Comparison of Alternatives**, of the DEIS. Based on that evaluation, Alternative C4 was identified as the preferred alternative in the DEIS. The DEIS was published with an invitation for comment from agencies and the public. A public hearing (repeated for two nights at two locations) was held to present the findings of the DEIS and encourage public comment.

During the comment period, refinements were made to Alternative C4 to better define project elements and construction limits. These technical adjustments continued after all comments on the DEIS had been received to meet the project purpose and need while balancing community priorities, environmental impacts, and construction costs. The product of this refinement process is the RPA, which is presented in this chapter.

In addition to describing the alternatives development process, the definition of the RPA in this chapter provides the basis for the update of all subsequent chapters of this FEIS, as impact measures, evaluations, and commitments are updated to support the issuance of a ROD.

This chapter is organized to describe the process and results of I-69 Section 6 alternatives development, as follows:

**Section 3.1, Alternatives Screening Process**, provides a brief overview of the process.

**Section 3.2, Project Scoping**, begins with 27 initial conceptual alternatives and narrows them to 14 conceptual alternatives.

**Section 3.3, Conceptual Alternative Screening**, begins with 14 conceptual alternatives and narrows them to 5 preliminary alternatives, including four outside the SR 37 corridor.

**Section 3.4, Preliminary Alternative Screening**, begins with five preliminary alternatives and ends with one route alternative, using the SR 37 corridor.

**Section 3.5, Components of Alternatives**, describes the components that define alternatives to be evaluated – mainline, interchanges, and local service road configurations.



**Section 3.6, Alternatives C1, C2, and C3 (by Subsection)**, identifies the components of three alternatives, all in the SR 37 corridor, to be presented to agencies, advisory committees, and the public.

**Section 3.7, Alternative C4 (by Subsection)**, identifies the components of this hybrid of Alternatives C1, C2, and C3, incorporating features of the other alternatives following public, agency, and advisory committee input.

**Section 3.8, Refined Preferred Alternative**, describes the adjustments to Alternative C4 (preferred alternative in the DEIS) to define the RPA, based on engineering refinements, public and agency comments on the DEIS, and value engineering studies.

**Section 3.9, Summary of Alternatives**, provides a table showing interchanges, overpasses, underpasses, and roadway closures (cul-de-sacs or local roadway connections) of Alternatives C1, C2 C3, C4, and the RPA.

Together, the above sections describe how the alternatives were developed, including the RPA, and define the mainline, interchanges, and local service roads in each alternative. This provides the basis for the presentation of impacts and comparison of impacts in subsequent chapters of this FEIS.

### **3.1 Alternative Screening Process**

A screening process was used to define a broad range of potential alternatives and to narrow them to a relative few for detailed evaluation as reasonable alternatives. The process is illustrated in **Figure 3-1**. In this stepped approach, alternatives are defined, evaluated, and screened using successively more detailed methods. This provides opportunities for public review and input at key points in the process. It also allows for an efficient use of resources by reserving detailed data collection, engineering, and evaluation efforts for the most promising alternatives.

The steps used in the screening process, from initial definition of conceptual alternatives to final designation of a selected alternative for design and construction in the ROD, are listed below:

1. Conduct **project scoping** activities to define conceptual alternatives.
2. Refine **conceptual alternatives** and screen to preliminary alternatives.
3. Refine **preliminary alternatives** and screen to reasonable alternatives.
4. Refine **reasonable alternatives** for evaluation in the DEIS.
5. Identify a **preferred alternative** based on evaluation in the DEIS.
6. Identify a **selected alternative** in the Tier 2 ROD.

As described at the beginning of this chapter, **Section 3.2** through **Section 3.9** document this process for I-69 Section 6, beginning with project scoping and ending with the definition of the RPA. Public input has been solicited and reviewed at each step of the process.



Figure 3-1: Alternative Evaluation and Screening Process



### 3.2 Project Scoping

The first step in the alternatives selection process is project scoping. FHWA and INDOT recognized the potential for increased impacts and/or changed conditions in the SR 37 corridor since the Tier 1 ROD was issued in 2004. They initiated a scoping process that addressed these issues when studies for the I-69 Section 6 Tier 2 EIS resumed in 2014.

The scoping process was designed to obtain input and identify issues related to the Tier 2 alternatives, including those that are outside of the approved Tier 1 corridor. The scoping process was also designed to inform the agencies about current local needs for the I-69 Section 6 project area and to solicit input regarding potential routes to be considered.

The scoping process included resource agency and public meetings, advisory committee meetings, and working group participation (**Figure 3-2**), 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.

**Figure 3-2: I-69 Stakeholder Working Group**



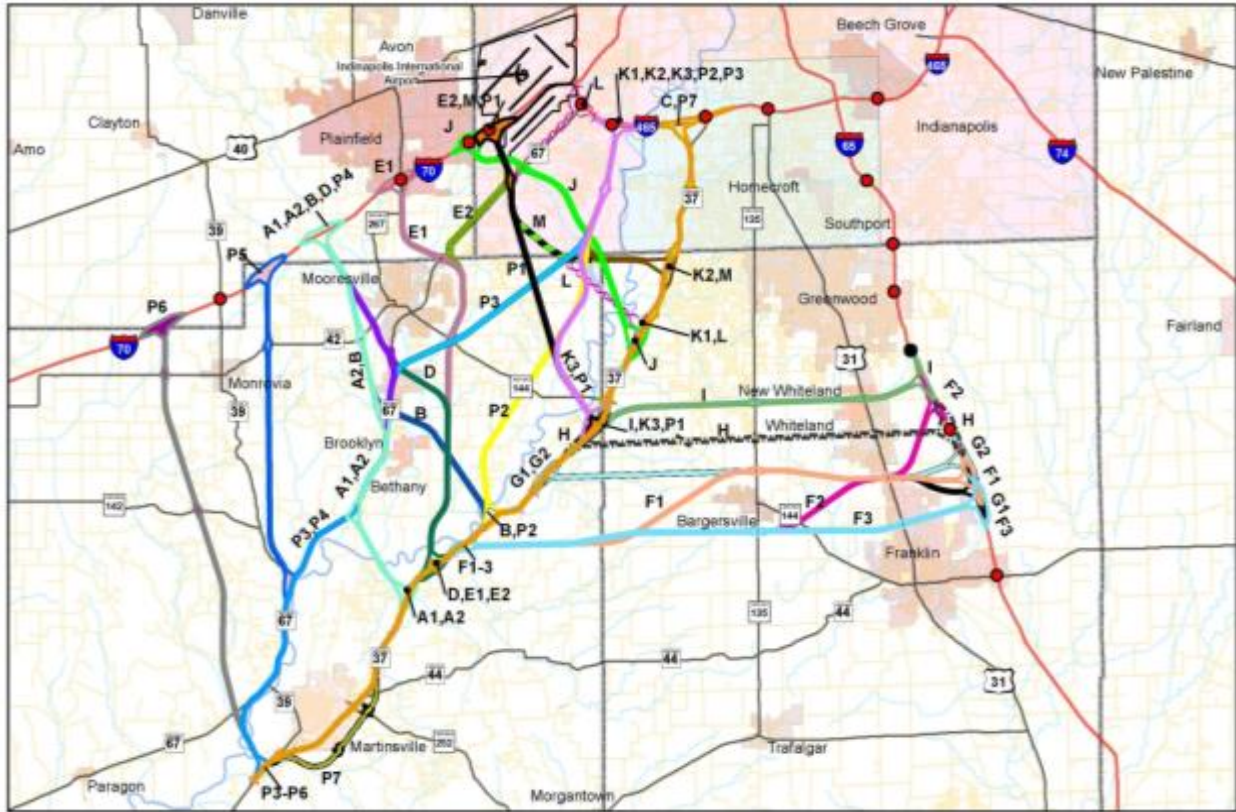
FHWA affirmed that alternatives outside the SR 37 corridor would be reviewed along with the Tier 1 Alternative 3C (Alternative C in this FEIS) to determine whether they should be considered as reasonable alternatives. Twenty-six initial conceptual alternatives in addition to Alternative C were identified at the beginning of the alternatives development process. These initial conceptual alternatives are shown in **Figure 3-3**.

The definition of initial conceptual alternatives was supported by two Community Advisory Committees (CACs) and a Stakeholder Working Group (SWG). These groups were established for I-69 Section 6 to advise about local interests and to share project information (see **Chapter 11, Comments, Coordination, and Public Involvement**). Nineteen conceptual alternatives were identified by the study team and confirmed by these groups in meetings held to discuss potential alternatives. Seven additional conceptual alternatives were developed based on suggestions at public information meetings held in February 2015.<sup>3</sup>

<sup>3</sup> Public information meetings were held on February 23, 2015 at Center Grove High School and on February 25, 2015 at Martinsville High School.



Figure 3-3: Initial Conceptual Alternatives



Each initial conceptual alternative was drawn with a 400-foot wide footprint to represent the estimated area of direct impacts. Footprints were widened at potential interchange locations. Engineers and environmental scientists reviewed the alternatives to identify appropriate interchange locations and spacing, consider freeway design and local access requirements, and minimize impacts to environmental resources identified by geographic information systems (GIS) data and aerial photography. Wetlands, floodplains, forests, businesses, residential properties, managed lands, and other land uses were considered in developing the initial conceptual alternatives.

Maps showing the location of environmental resources and a preliminary listing of qualitative advantages and disadvantages were developed for each initial conceptual alternative. This list of advantages and disadvantages is included in the *Conceptual Alternatives Evaluation Report*, located in **Appendix CC**.

Examples of the advantages identified were re-use of state owned right of way or infrastructure, lower levels of impact on the natural environment than the other alternatives, and better service to regional destinations such as Indianapolis International Airport. Example disadvantages



included direct impacts to large numbers of residential or commercial properties, direct impacts to protected Indiana bat habitat mitigation areas, and costly or highly impactful interchange configurations.

The study team<sup>4</sup> conducted preliminary reviews of the 26 initial conceptual alternatives to identify alternatives that should be eliminated based on engineering or environmental flaws or due to a clear lack of advantage over other alternatives. Half of the alternatives were eliminated in this review. The SR 37 alternative (Alternative C) and 13 conceptual alternatives remained.

The 13 conceptual alternatives were advanced for further quantitative evaluation as described in subsequent sections. These alternatives are shown in **Figure 3-4**. More detailed maps of the conceptual alternatives, grouped by geographic location, are provided in the *Conceptual Alternatives Evaluation Report*, located in **Appendix CC**.

### 3.3 Conceptual Alternative Screening

To facilitate screening, the 13 conceptual alternatives plus the SR 37 alternative (Alternative C) were divided into four groups based on geographic location and the position of the northernmost interchange. The groups are as follows:

- West/I-70. These alternatives leave the SR 37 corridor at various locations and connect with a new I-70 interchange west of Indianapolis International Airport (Alternatives A1, A2, B, D, P).
- West/Mann Road. These alternatives leave the SR 37 corridor at various locations and connect with a new I-465 interchange at Mann Road (Alternatives K1, K3, K4).
- SR 37 Corridor. These alternatives follow SR 37, with a potential realignment at Martinsville, and link with I-465 near the existing SR 37 interchange (Alternatives C, N).
- East/I-65. These alternatives leave the SR 37 corridor at various locations and connect with a new I-65 interchange south of Greenwood (Alternatives F1, F2, G1, G2)

The conceptual alternatives were presented to environmental resource agencies on April 30, 2015, and to the SWG and CAC on May 11 and May 12, 2015. Public information meetings were held on May 18 and May 19, 2015, to present the alternatives to the public.<sup>5</sup> Handouts, project data, and public meeting information were placed on the I-69 project website and were displayed at the I-69 Section 6 project office. Comments were received until June 10, 2015.

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<sup>4</sup> The study team consists of INDOT project management and engineering/environmental professionals from INDOT, FHWA, HNTB Corporation and Lochmueller Group.

<sup>5</sup> Meetings were held on May 18, 2015 at Center Grove North Middle School and on May 19, 2015 at Martinsville High School.

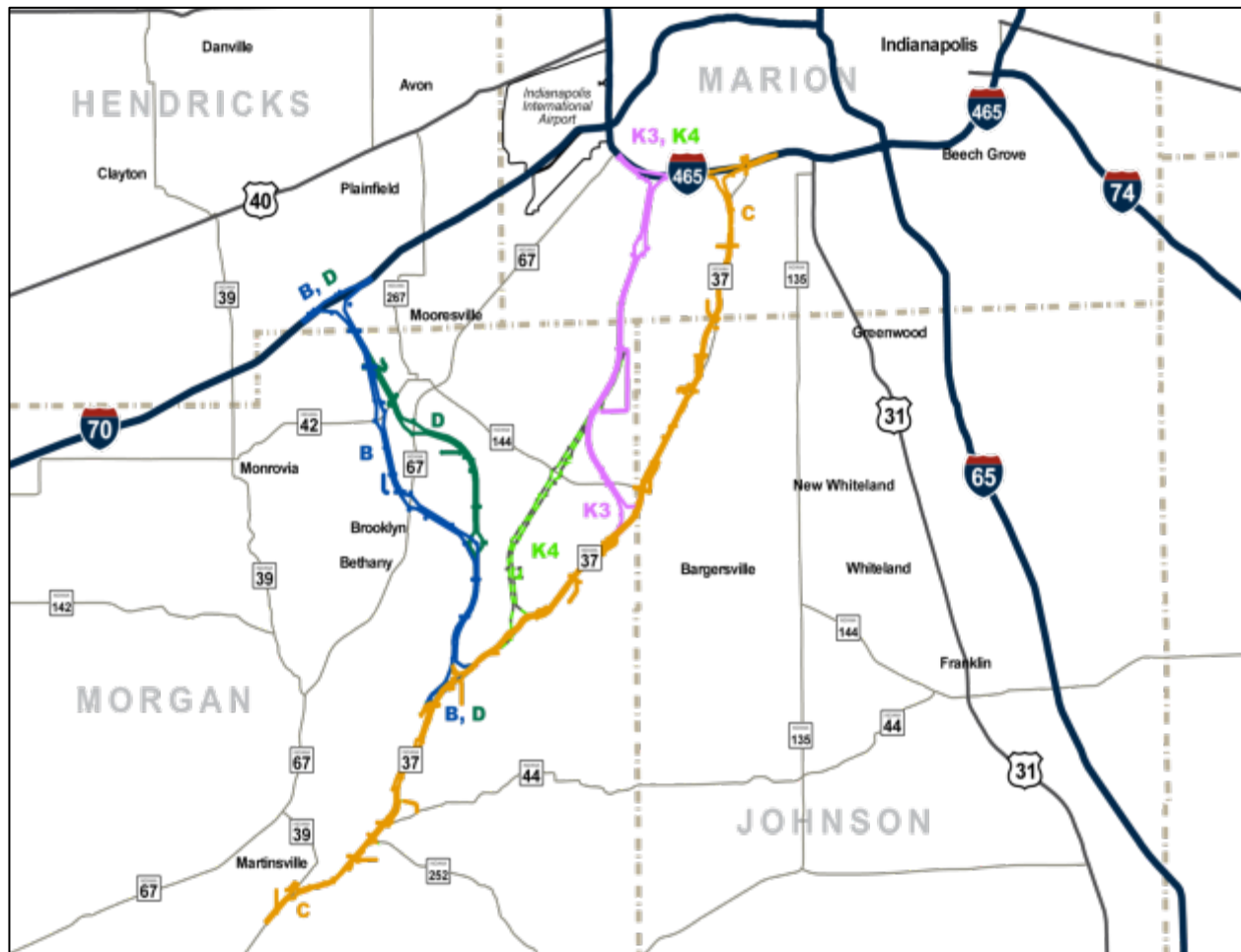




the natural environment compared to other alternatives, and agency support from IDNR and USEPA. Alternative N (an east bypass of Martinsville) was eliminated due to environmental impacts and lack of agency and community support.

All East/I-65 conceptual alternatives (F1, F2, G1, and G2) were screened out due to poor performance with respect to purpose and need (travel time, crash reduction, and truck benefits), high agricultural impacts, and lack of support from stakeholders, resource agencies, and the public.

**Figure 3-5: Preliminary Alternatives**



The result of the conceptual alternatives screening process was the identification of five preliminary alternatives for further refinement and continued screening, as shown in **Figure 3-5**. Two alternatives (B and D) would link the SR 37 corridor to I-70 west of Indianapolis International Airport. Two alternatives (K3 and K4) would link the SR 37 corridor to I-465 near Mann Road. One alternative (C) would follow the SR 37 corridor from Martinsville to I-465.



### 3.4 Preliminary Alternative Screening

The first task in the preliminary alternative screening process was to refine the alternatives and performance measures based on more detailed project definition and more complete site data, consistent with the step-by-step screening process described in **Section 3.1**. Minor adjustments were made to all alternatives as design tools were used to refine the alignment and elevations of pavement sections. In conceptual screening, standard 400-foot right of way widths were assumed. At this stage, design tools were used to estimate preliminary construction limits, and these were used to refine the right of way needs for each preliminary alternative.

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 preliminary alternative. The model also provided the traffic-related performance measures used to evaluate the achievement of project goals related to purpose and need.

Interchange, grade separation, and local access road concepts were refined based on traffic forecasts and design criteria typically used by INDOT. The intent at this stage was to establish a basis for estimating costs and impacts to support the alternative evaluation process.

In some cases, adjustments were made to preliminary alternative alignments to avoid major impacts identified in the conceptual screening process. Refinements to alignment and right of way were made to reduce cost, avoid environmentally sensitive areas, better define access to properties, establish continuity for the existing road system, and minimize residential and commercial relocations.

#### 3.4.1 Preliminary Alternative Descriptions

The five preliminary alternatives, as refined in this evaluation, are shown in **Figure 3-5**. All preliminary alternatives would originate just south of SR 39 in Martinsville and follow the SR 37 corridor for at least 9 miles. From this point, they would vary in alignment and interchange connection points or linkages with I-465.

The preliminary alternatives are described below. Alternatives B and D, and Alternatives K3 and K4 are described together because they use the SR 37 alignment over a portion of their routes.

##### 3.4.1.1 Alternatives B and D

A refinement was made to Alternative B after conceptual screening, shifting the interchange point with existing SR 37 to be the same as Alternative D, at Henderson Ford Road in Morgan County. The original location between Cragen Road and Perry Road (2 miles further north) would impact a larger area of floodplain at the White River crossing with no operational benefit.

Alternative B would leave SR 37 about 9 miles north of SR 39 near Henderson Ford Road, link with I-70 west of Plainfield, and follow I-70 to I-465. Alternative B would be 30 miles long, with



11 miles of new terrain freeway, 9 miles of reconstructed arterial (SR 37), and 10 miles of existing freeway (I-70).

An adjustment was made to the alignment of Alternative D at White Lick Creek to provide a more perpendicular crossing which would reduce the area of floodway impacted.

Alternative D would leave SR 37 near Henderson Ford Road and continue north and northwest to link with I-70 west of Plainfield. From that point, I-70 would be used to access I-465. The total length of Alternative D would be 31 miles, with 12 miles of new terrain freeway, 9 miles of reconstructed arterial (SR 37), and 10 miles of existing freeway (I-70).

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

#### 3.4.1.2 Alternatives K3 and K4

Alternatives K3 and K4 would use the SR 37 corridor for the first 12 miles north of SR 39 to near Cragen Road. Alternative K4 would leave SR 37 at this location, cross the White River, and extend northward. Alternative K3 would continue northward 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 would use the same alignment for 7 miles to link with I-465 at the location of the existing Mann Road interchange.

Alternative K3 would be 27 miles long, with 10 miles of new terrain freeway and 17 miles of reconstructed arterial (SR 37). Alternative K4 would be 26 miles long, with 14 miles of new terrain freeway and 12 miles of reconstructed arterial (SR 37). Both alternatives would require a new White River bridge.

#### 3.4.1.3 Alternative C

Alternative C would follow the SR 37 corridor for nearly the entire length, from the north terminus of Section 5 of I-69 at SR 39 in Martinsville, to I-465. For the last mile (north of Edgewood Avenue), the roadway would shift to the west of SR 37 to minimize impacts to commercial properties caused by construction of the I-465 interchange. Alternative C would include 26 miles of reconstructed arterial on SR 37 and 1 mile of new terrain freeway at the approach to the I-465 interchange.

### 3.4.2 Preliminary Alternatives Evaluation

Each preliminary alternative was evaluated based on performance with respect to purpose and need, relative cost, and impacts to the natural and human environment. Information related to



each of these factors for the five preliminary alternatives was presented at public meetings in November and December, 2015<sup>6</sup> (Figure 3-6).

The information presented and a summary of comments received are provided in the *Preliminary Alternatives Screening Report* (Appendix EE).

**Figure 3-6: Public Meeting at Mooresville High School**



**3.4.2.1 Project Performance**

Project performance was evaluated by quantifying measures that describe relative achievement of the project goals (see Chapter 2, Purpose and Need). All preliminary alternatives meet the project purpose and need, but they do so to different degrees.

Performance measures for the preliminary alternatives are quantified in Table 3-1. The performance information came from the TREDIS economic model and the I-69 Corridor Travel Model, which was used to provide preliminary horizon year (2045) travel forecasts for each preliminary alternative and for a no-build scenario. Documentation of these corridor models and results are provided in Appendix Y. See Section 2.5 for a description of performance measures. The no-build scenario assumes completion of I-69 between Evansville and Martinsville, along with improvements shown by INDOT and the Indianapolis MPO in fiscally constrained transportation improvement plans.<sup>7</sup>

Alternatives C, K3 and K4 would provide similar safety benefits, congestion benefits, travel time savings, truck travel savings, and economic benefit. Alternatives B and D would provide a more direct and quicker path to the airport, but they would perform poorly compared to the other alternatives in all other purpose and need categories. The largest shortfalls would occur in crash reduction and daily hours of freight travel saved, where the other alternatives perform better by a factor of three 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.

<sup>6</sup> Public information meetings were held on November 30, 2015 at Perry Meridian High School, December 2, 2015 at Mooresville High School, and December 3, 2015 at Martinsville High School.

<sup>7</sup> I-69 from Henderson to Evansville was amended into the Evansville TIP on November 3, 2016, and into the INDOT Statewide TIP on November 18, 2016. This project will be assumed in roadway network modeling for the I-69 Section 6 FEIS.



Overall, Alternative C performs the best with respect to achievement of project goals. With routing that is similar to Alternative C, Alternatives K3 and K4 are nearly as effective. Alternatives B and D are clearly less effective in meeting project goals.

**Table 3-1: Preliminary Alternatives Performance Measures**

| Preliminary Alternatives   |                   | Alt C                   | Alt B    | Alt D    | Alt K3   | Alt K4   |
|--|-------------------|-------------------------|----------|----------|----------|----------|
| <b>Length of Alternative (miles)</b>                             |                   |                         |          |          |          |          |
| New Terrain Freeway  |                   | 1                       | 11       | 12       | 10       | 14       |
| Reconstructed SR 37 Corridor                                     |                   | 26                      | 9        | 9        | 17       | 12       |
| Existing Interstate Highway                                      |                   | 0                       | 10       | 10       | 0        | 0        |
| Total Distance, SR 39 to I-465                                   |                   | 27                      | 30       | 31       | 27       | 26       |
| <b>Performance Measure</b>                                       |                   |                         |          |          |          |          |
| <b>Regional Traffic Safety (number crashes)</b>                  |                   |                         |          |          |          |          |
| Annual Crash Reduction in the Study Area                         |                   | 1,379                   | 238      | 357      | 1,225    | 1,235    |
| <b>Peak Hour Travel Time (minutes)</b>                           |                   |                         |          |          |          |          |
| Sample Trips, SR 39 to:  | No-Build Duration | Time Saved <sup>1</sup> |          |          |          |          |
| Indianapolis Airport   | 39                | 3                       | 10       | 10       | 6        | 7        |
| Downtown Indianapolis  | 50                | 11                      | 10       | 10       | 12       | 13       |
| I-69 Northeast   | 69                | 13                      | 7        | 7        | 12       | 13       |
| <b>Regional Traffic Congestion (vehicle miles traveled, VMT)</b> |                   |                         |          |          |          |          |
| Reduction in Congested VMT (thousands) <sup>2</sup>              |                   | 603                     | 233      | 300      | 566      | 577      |
| <b>Regional Freight Truck Travel (hours)</b>                     |                   |                         |          |          |          |          |
| Daily Truck Travel Time Saved (thousands) <sup>1</sup>           |                   | 4.2                     | 1.2      | 1.5      | 4.1      | 4.2      |
| <b>Regional Economic Impact of I-69</b>                          |                   |                         |          |          |          |          |
| Increase in Regional Wages (\$billion) <sup>3</sup>              |                   | \$ 1.7 B                | \$ 0.8 B | \$ 0.8 B | \$ 1.5 B | \$ 1.4 B |
| Increase in Regional GDP (\$billion) <sup>4</sup>                |                   | \$ 2.4 B                | \$ 1.1 B | \$ 1.0 B | \$ 2.1 B | \$ 1.9 B |

1. Travel routes are 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 in urban areas, or LOS D, E, or F in rural areas.
3. Cumulative additional regional wages earned over a 20-year period by the population of the four-county study area.
4. Cumulative additional regional gross domestic product created over a 20-year period within the four-county study area.

**3.4.2.2 Relative Cost**

At the preliminary alternative stage, project details were not developed sufficiently to provide reliable construction cost estimates, so relative cost was used for screening. Representative costs were estimated for major components of construction, right of way (including relocations), major utilities, environmental mitigation, and improvements required on other routes. Relative cost estimates for Alternatives B, D, K3, and K4 were expressed as a percentage, with Alternative C providing the 100 percent baseline. The results are shown in **Figure 3-7**.

Estimated relative costs for Alternatives B and D were one to six percent lower than Alternative C, mainly due to fewer miles of freeway construction since they would use 10 miles of I-70 to

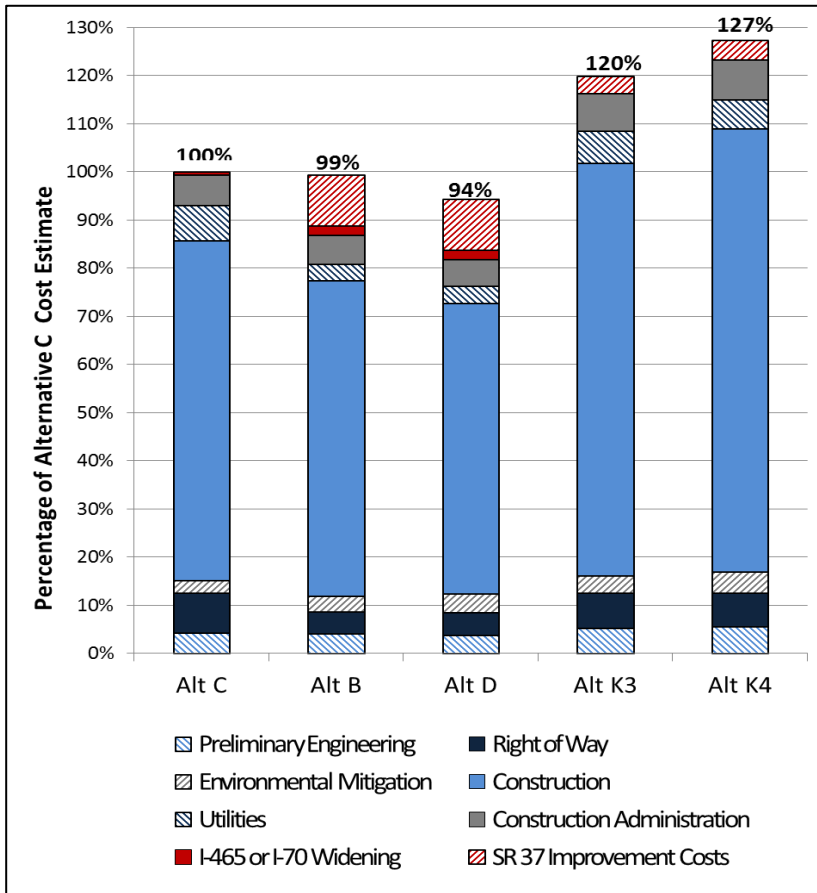




connect with I-465. Construction of a 2.5-mile lane is assumed each way on I-70 from SR 267 to the I-69 interchange.

The construction savings would be greater with Alternatives B and D if the provision of added lanes and upgrades on remaining sections of SR 37 was not necessary. The need to improve SR 37 results from the large number of motorists that would continue to use SR 37 with Alternative B or D since I-69 would provide a less direct route for many trips. This continued use of SR 37 would necessitate a high degree of investment on SR 37 in addition to the cost of constructing part of I-69 on another alignment.

Figure 3-7: Relative Cost of Preliminary Alternatives



The relative costs of Alternatives K3 and K4 were estimated to be approximately 20 to 27 percent higher than Alternative C. The length of these alternatives would be comparable to Alternative C, but they would involve construction on new terrain and would require the installation of a new bridge across the White River. Alternatives K3 and K4 would entail higher mitigation costs than Alternative C, and would require improvements along the segment of SR 37 that remains in place, although to a lesser extent than Alternatives B and D.

### 3.4.2.3 Environmental Impact

As with performance and cost, the review of environmental impacts during preliminary alternatives screening was intended to support the comparison of alternatives rather than to fully define the impacts from a NEPA perspective. A range of impact indicators were reviewed in the *Preliminary Alternatives Screening Report (Appendix EE)* for both the natural and human environment. Key impact categories that portray the differences between preliminary alternatives are summarized in **Table 3-2**. Impacts to the natural environment are categorized as water resources, land resources, and property acquisition for mitigation areas. 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.

With respect to water resources, Alternative C would have a larger area of total floodplain impact than the other preliminary alternatives, meaning that it would affect more of the area that floodwaters might be reasonably expected to reach. Alternative C would affect 403 acres compared with 225 acres for Alternative B, 233 acres for Alternative D, 288 acres for Alternative K3, and 282 acres for Alternative K4. On the other hand, Alternative C would impact less floodway than the other preliminary alternatives, affecting 72 acres, compared with 178 acres for Alternatives B and D, 106 acres for Alternative K3, and 182 acres for Alternative K4. Because floodway impacts affect the flow of the water itself, they are a more critical measure. Alternatives B, D, K3, and K4 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 impact a smaller area of wetlands than the other preliminary alternatives, at 9 acres, compared with 19 acres for Alternatives B, 18 acres for Alternative D, 12 acres for Alternative K3, and 19 acres for Alternative K4. The 173,000 linear feet of previously disturbed streams impacted by Alternative C would be greater than the 130,000 feet for Alternative B, 135,000 feet for Alternative D, 159,000 feet for Alternative K3, and 151,000 feet for Alternative K4, but undisturbed stream impact would be less for Alternative C, at 4,000 feet compared with 20,000 feet for Alternatives B and K4, 19,000 feet for Alternative D, and 13,000 feet for Alternative K3.

With respect to land resources, Alternative C would impact a smaller area of agricultural and forested property than the other preliminary alternatives, since it requires less construction on new alignment. Alternatives B and D would impact about three times as much farmland as Alternative C (1,073 and 1,010 acres compared to 342 acres). Alternatives K3 and K4 would use more than double the farmland (837 acres and 975 acres). Forest land impacted would be 143 acres for Alternative C, compared with 229 acres for Alternative B, 274 acres for Alternative D, 238 acres for Alternative K3, and 319 acres for Alternative K4.

Since a smaller area of wetlands and forested property would be impacted, estimated mitigation area requirements would also be less for Alternative C, at 441 acres, compared with 709 acres for Alternative B, 843 acres for Alternative D, 729 acres for Alternative K3, and 979 acres for Alternative K4.

As shown in **Table 3-2**, property acquisition for road construction would be less for Alternative C than for the other preliminary alternatives (1,056 acres for Alternative C, compared with 1,476 acres for Alternative B, 1,448 acres for Alternative D, 1,430 acres for Alternative K3, and 1,556 acres for Alternative K4). The type of property required for construction would also vary by alternative. Alternative C would impact the least total area, but it would require the highest number of commercial and industrial relocations. Residential relocations would be similar for Alternatives B, C, and D (232 to 279 properties) and higher for Alternatives K3 and K4 (474 and 450 properties, respectively).





**Table 3-2: Preliminary Alternatives Environmental Impact Measures**

| Preliminary Alternatives                       | Alt C        | Alt B        | Alt D        | Alt K3       | Alt K4       |
|--|--------------|--------------|--------------|--------------|--------------|
| <b>Water Resources</b>                         |              |              |              |              |              |
| Floodway (acres)                               | 72           | 178          | 178          | 106          | 182          |
| Floodplain (acres, excludes Floodway)          | 403          | 225          | 233          | 288          | 262          |
| Wetlands (acres, per NWI <sup>1</sup> )        | 9            | 19           | 18           | 12           | 19           |
| Undisturbed Streams & Rivers (feet)            | 4,000        | 20,000       | 19,000       | 13,000       | 20,000       |
| Previously Disturbed Streams & Rivers (feet)   | 173,000      | 130,000      | 135,000      | 159,000      | 151,000      |
| <b>Land Resources (acres)</b>                  |              |              |              |              |              |
| Agricultural                                   | 342          | 1,073        | 1,010        | 837          | 975          |
| Forested                                       | 143          | 229          | 274          | 238          | 319          |
| <b>Mitigation Area Requirements (acres)</b>    |              |              |              |              |              |
| Upland Forest (3 x area)                       | 413          | 638          | 776          | 686          | 910          |
| Emergent Wetlands (2 x area)                   | 6            | 6            | 6            | 6            | 6            |
| Forested Wetlands (4 x area)                   | 22           | 65           | 61           | 37           | 63           |
| <b>Total</b>                                   | <b>441</b>   | <b>709</b>   | <b>843</b>   | <b>729</b>   | <b>979</b>   |
| <b>Property Acquisition (acres, by Zoning)</b> |              |              |              |              |              |
| Residential                                    | 234          | 175          | 200          | 357          | 384          |
| Commercial                                     | 207          | 106          | 113          | 106          | 94           |
| Industrial                                     | 105          | 1            | 1            | 12           | 1            |
| Agricultural                                   | 510          | 1,194        | 1,174        | 955          | 1,077        |
| <b>Total</b>                                   | <b>1,056</b> | <b>1,476</b> | <b>1,488</b> | <b>1,430</b> | <b>1,556</b> |
| <b>Relocations</b>                             |              |              |              |              |              |
| 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 <sup>2</sup>                             | 8            | 10           | 6            | 10           | 10           |
| <b>Total</b>                                   | <b>443</b>   | <b>329</b>   | <b>363</b>   | <b>602</b>   | <b>564</b>   |

1. NWI = National Wetland Inventory

2. Other includes schools, religious facilities, cemeteries, public facilities, etc.

With respect to historic resources, Alternative C would potentially affect the fewest above ground resources and the most archaeological sites compared to the other preliminary



alternatives. This assessment is based on historic sites and districts identified within the right of way of the preliminary alternative alignments. Historic sites and districts are those eligible or potentially eligible for the National Register of Historic Places (NRHP) and archaeological sites included in the State Historic Architectural and Archaeological Research Database (SHAARD), as confirmed by visual survey. Sites not previously identified may be present. The preliminary right of way of Alternative C includes 2 above ground historic sites and 26 archaeological sites, compared to 4 above ground historic sites and 5 archaeological sites for Alternative B; 5 above ground historic sites and 14 archaeological sites for Alternative D; 3 above ground historic sites and 15 archaeological sites for Alternative K3; and 5 above ground historic sites and 12 archaeological sites for Alternative K4. The preliminary rights of way of Alternatives K3 and K4 include the Nicholson-Rand House near the intersection of Southport and Mann Roads, which is listed on the NRHP, likely resulting in a Section 4(f) use of this property.

All alternatives have some degree of impact on the same recreational properties. 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 Alternatives B, D, or C. 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 and therefore not result in a Section 4(f) use. This would be evaluated in coordination with the Indianapolis Department of Parks and Recreation as the EIS is prepared. Alternatives B, D, K3, and K4 would not impact any existing or planned trails.

The effect on public facilities is similar for all the alternatives. All the alternatives follow SR 37 near Martinsville High School, where a parking lot and lawn would be impacted. Impacts to the school's grounds are not anticipated to result in a Section 4(f) use. The preliminary rights of way of Alternatives C, B, and D each pass through a portion of one known cemetery. Alternatives K3 and K4 do not pass through or near any known cemeteries.

In summary, Alternative C would generally have less impact on the natural environment and farmland than the other alternatives. With respect to the human environment, Alternative C would have a greater impact than the other preliminary alternatives on commercial and industrial properties. Alternative C would have more impact on residential properties than Alternative B and D, though still less than Alternatives K3 and K4.

#### 3.4.2.4 Preliminary Alternatives Public Comment

Prior to narrowing the preliminary alternatives to a smaller number of reasonable alternatives for consideration in the EIS, public input was solicited at public information meetings held in Indianapolis, Martinsville, and Mooresville as part of the screening process.<sup>8</sup> Maps and exhibits

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<sup>8</sup> Public information meetings were held on November 30, 2015 at Perry Meridian High School, December 2, 2015 at Mooresville High School, and December 3, 2015 at Martinsville High School.



describing the estimates of relative cost, performance and environmental impact were presented at these meetings, placed on the project website, and displayed at the I-69 Section 6 project office. The information was also presented to the CACs and SWG for input.

Comments were encouraged at public meetings, at the project office, and by mail or email. More than 900 comments were received within the comment period of November 19 to December 17, 2015. Comments ranged from preference for a particular alternative to narratives, pictures and maps associated with specific design features. All comments were reviewed by members of the study team, and statistics were compiled to capture trends with respect to alternative selection. This information is summarized in Appendix E of the *Preliminary Alternatives Screening Report* (**Appendix EE**).

### **3.4.3 Preliminary Alternative Route Selection**

Relative cost, performance with respect to purpose and need, environmental impact and public input were considered in selecting an alternative route among the preliminary alternatives to carry forward for reasonable alternatives. Each factor is reviewed in the following sections, leading to the definition of one selected route for reasonable alternatives.

#### **3.4.3.1 Cost**

Alternatives B, D, K3, and K4 would not provide a significant cost advantage over Alternative C. Preliminary estimates indicate that the overall program cost for Alternatives B and D would be equal or about six percent less than Alternative C. Alternatives K3 and K4 would have overall program cost about 20 percent higher than Alternative C.

#### **3.4.3.2 Performance**

Alternatives B and D would perform poorly, falling 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 would be travel time to the airport since they would provide a more direct route to that destination. Alternatives K3 and K4 would perform relatively well with respect to all performance measures, but would still fall below the performance of Alternative C.

#### **3.4.3.3 Environmental Impact**

Alternatives B and D would not provide a net advantage over Alternative C with respect to the human and natural environment. They would impact larger areas of wetlands and forests, and they might 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 would be agricultural property, but a large number of residences would also be impacted, similar to Alternative C.

Alternatives K3 and K4 would 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 would impact less residential property than Alternatives K3 and K4, but it would impact more commercial and industrial properties.

Although Alternative C would impact more commercial and industrial properties than the other preliminary alternatives, economic forecasts show that overall increases in regional wages and gross domestic product would be greater for Alternative C.

#### 3.4.3.4 Public Input

As indicated in the public input summary in the *Preliminary Alternatives Screening Report* (**Appendix EE**), Alternative C was the preliminary alternative most preferred by those participating in the project's public involvement process. Of those that supported a specific alternative (724 respondents), 85 percent expressed a preference for Alternative C as the route for I-69. Of those opposed to a specific alternative or alternatives (1,257 respondents), only 4 percent expressed opposition to Alternative C. This supports the technical conclusion with respect to cost, performance, and environmental impact.

#### 3.4.3.5 Reasonable Alternatives Route Selection

This evaluation establishes that alternatives outside the SR 37 corridor are either more expensive with no notable advantage in performance or environmental impact (Alternatives K3 and K4), or have similar cost and environmental impacts with much lower performance (Alternatives B and D). Alternatives B, D, K3, and K4 do not avoid significant impacts to a degree that warrants an alignment outside the selected corridor of SR 37.

Based on the quantitative information and public input summarized above, Alternatives B, D, K3, and K4 are eliminated from further consideration. All alternatives in the DEIS follow the route identified as Alternative C (SR 37). This corresponds to the alternative selected in the I-69 Tier 1 ROD, known as Alternative 3C.



### 3.5 Components of Alternatives

With the route identified, alternatives are defined by roadway alignments and configurations within the SR 37 corridor. The alternatives are defined by the design features of the I-69 *mainline* (segments between interchanges), *interchanges* (locations and layouts), and *local service roads* (configurations).

Design criteria set the parameters for defining the layout of the alternatives. 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 alternatives 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).

Potential impacts were considered in the layout of three alternatives using GIS data and preliminary right of way footprints.<sup>9</sup> Efforts were made to minimize impacts to wetlands, floodplains, potential Section 4(f) resources, and relocations. These three alternatives were described as “alternative alignments” in the *Preliminary Alternatives Screening Report* (**Appendix EE**), and were presented at public meetings on April 4, 2016 and April 5, 2016.<sup>10</sup>

The alternatives were structured to include the full range of project components that may comprise the preferred alternative. These components include the I-69 mainline, interchanges, and local service road configurations. As defined, the alternatives do not represent “low, medium, high” impacts or benefits. They are intended only to demonstrate the range of components that might be combined to define a preferred alternative.

Detailed descriptions of three alternatives, referenced as Alternative C1, C2, and C3, are provided in subsequent sections. Maps of each of the alternatives at 1 inch = 500 feet are provided at the end of this chapter. Following the public presentation of Alternatives C1, C2, and C3, an opportunity for comment was provided to local units of government as well as public and agency stakeholders. Based on this input and more detailed evaluation of some features, a fourth alternative, referred to as Alternative C4 was developed as the preferred alternative.<sup>11</sup> All four alternatives (C1, C2, C3, and C4) were carried forward for identification of impacts in **Chapter**

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<sup>9</sup>Previously considered alignments were reviewed as these three alternatives 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 alternatives described here.

<sup>10</sup> Public information meetings were held on April 4, 2016 at Center Grove Middle School and April 5, 2016 at Martinsville High School.

<sup>11</sup> Minor adjustments were also made to Alternatives C1, C2, and C3 based on the same input at this stage. These adjustments are reflected in the description of alternatives in this section.



**5, Environmental Consequences** and evaluation in **Chapter 6, Comparison of Alternatives**, of the DEIS.

Mainline options are described first since there is a degree of continuity over the length of the project. It is 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 interchange designs and local service road configurations.

Location and design options for interchanges and service roads (including grade separations over or under I-69) are identified in the context of local factors. These components are described in a subsection by subsection review of Alternatives C1, C2, and C3. Alternative C4 is defined by combining the preferred components from Alternatives C1, C2, and C3.

**3.5.1 Mainline Options**

The mainline component of the reasonable alternatives is the portion of the interstate highway located between interchanges. Mainline options differ in the degree that they utilize existing pavement and other features of SR 37. The opportunity to use existing pavement is based primarily on local constraints and the design criteria used for I-69. Horizontal and vertical design criteria and 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.

Preliminary 2045 traffic forecasts were developed to provide a preliminary estimate of mainline lane requirements. Estimated future traffic volume ranges and lane requirements are shown in **Table 3-3**. These lane requirements would be the same for all mainline options at this stage. The I-69 Section 6 Corridor Travel Model forecasts were refined for the reasonable alternatives and lane requirements were validated for peak hour volume forecasts as a part of traffic impacts review. See **Section 5.6**.

Aerial photography and GIS base mapping of existing rights of way, surface elevations, environmental resources, and parcel boundaries were 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. Potential right of way needs and impacts were reviewed throughout the corridor based on different design standard options, and minor shifts in the alignment were made to minimize impacts with each of the alternative alignments.

Generally, the I-69 mainline will utilize the design criteria for new or reconstructed freeways in Chapter 53 of the IDM.<sup>12</sup> When a proposed roadway feature does not meet the minimum design criteria specified, a “design exception” must be justified and approved by INDOT and FHWA. The justification must consider the cost and safety impacts of the design exception and show that

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<sup>12</sup> 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).





**Table 3-3: Preliminary I-69 Lane Requirements**

| Location <sup>1</sup>                 | Rural / Urban | 2045 Estimated Daily Traffic Volume | Lanes |
|---------------------------------------|---------------|-------------------------------------|-------|
| Indian Creek to SR 39                 | Rural         | 50,000 – 53,000                     | 4     |
| SR 39 to SR 252/SR 44                 | Urban         | 44,000 – 47,000                     | 4     |
| SR 252/SR 44 to Henderson Ford Road   | Rural         | 46,000 – 47,000                     | 4     |
| Henderson Ford Road to SR 144         | Rural         | 47,000 – 48,000                     | 4     |
| SR 144 to Smith Valley Road           | Urban         | 51,000 – 54,000                     | 6     |
| Smith Valley Road to County Line Road | Urban         | 65,000 – 68,000                     | 6     |
| County Line Road to Southport Road    | Urban         | 77,000 – 81,000                     | 6     |
| Southport Road to I-465               | Urban         | 91,000 – 96,000                     | 8     |

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](http://www.in.gov/indot/projects/i69/files/Alt_C_Map_reduced.pdf) or [www.i69indyevn.org](http://www.i69indyevn.org)

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.

The mainline options provide different levels of infrastructure reuse and adherence to IDM design criteria 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. Several different typical cross sections are used for layout of the I-69 Section 6 mainline, depending on the mainline option and the number of lanes required.

The mainline options are described below, and typical cross section illustrations with lane widths, shoulders, medians, and clear zones are shown in **Figure 3-8** through **Figure 3-10**. The figures show typical reuse of existing SR 37 lanes in the context of total planned travel lanes for each typical section.

- **Mainline Option M1 – Desirable Design Criteria.** This mainline option 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<sup>13</sup>) at specific locations to minimize right of way impacts. At most other

<sup>13</sup> A roadway can be elevated either by constructing it on bridge structure or on earth embankment, 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.





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.

This mainline option would be elevated through Martinsville to minimize right of way impacts along existing cross streets. I-69 would be elevated on embankment to approximately 22 feet above the existing SR 37 grade between SR 39 and SR 44. This elevation would provide sufficient clearance for crossroads to pass underneath. Between SR 44 and County Line Road, mainline option M1 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 48 to 60 feet. It does not comply with IDM width criteria for interstate highways through much of I-69 Section 6. Therefore, one side of SR 37 would be reconstructed to provide a wider median. In this alternative, a 60-foot wide median would be provided for the entire length of I-69 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 mainline option M1 follows the existing SR 37 grade.

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.

- Mainline Option M2 – Narrow Median, Standard Shoulders and Side Slopes. This mainline option would be designed to reuse existing SR 37 pavement where practical. 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.

South of Southport Road, including through Martinsville, this mainline option would be located at the same elevation as existing SR 37. Option M2 would use the existing 48-foot to 60-foot wide SR 37 median and the existing two 12-foot travel lanes in both directions where practical. Although the existing median width does not meet IDM minimum design criteria at all locations, it does meet the minimum criteria specified by the AASHTO Interstate Design Policy and thus would not require a design exception per the IDM. The use of cable barrier or double-sided guardrail would be considered for use in the median with this option.



Figure 3-8: I-69 Mainline Typical Sections (4 Lanes)

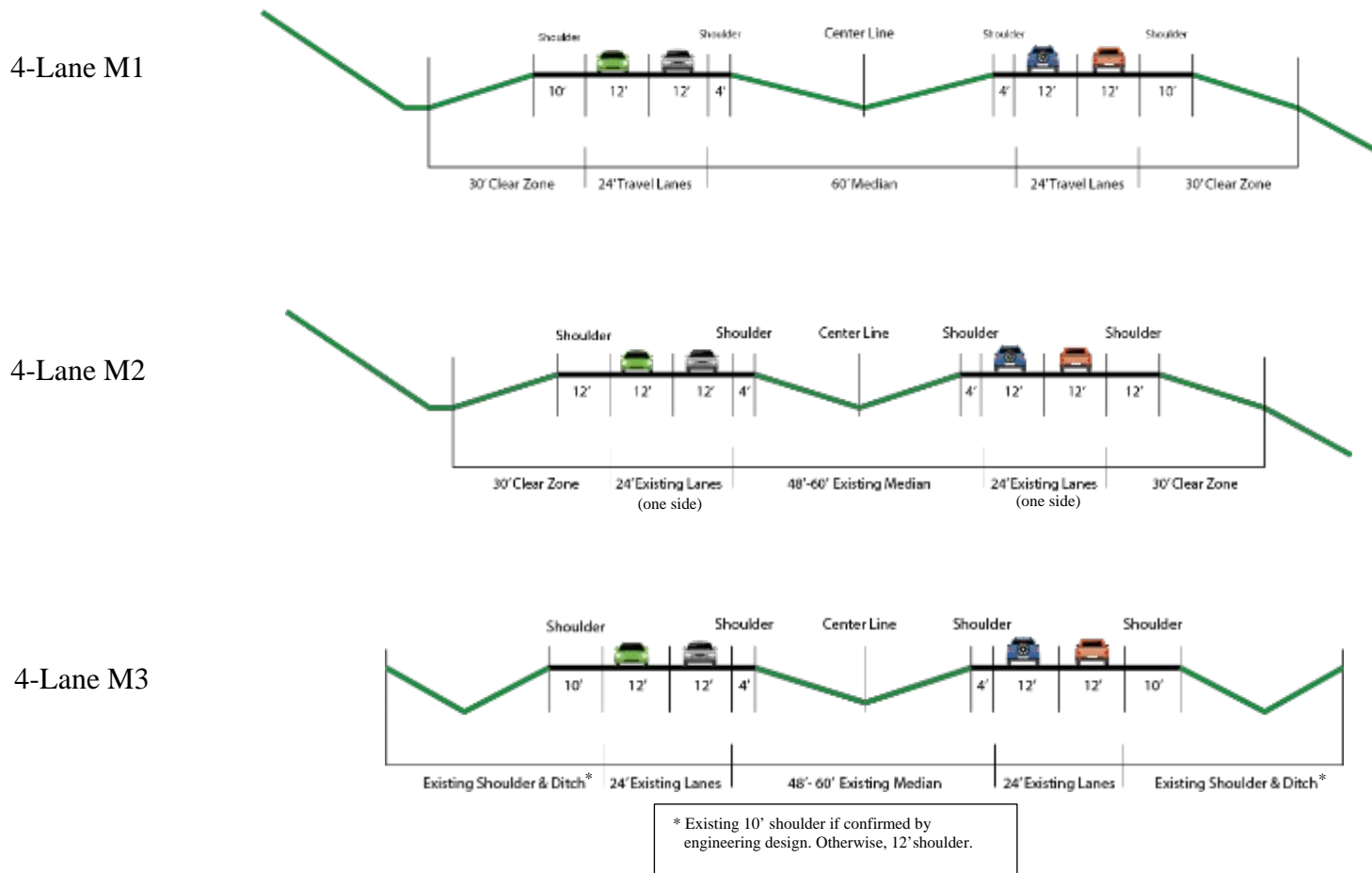
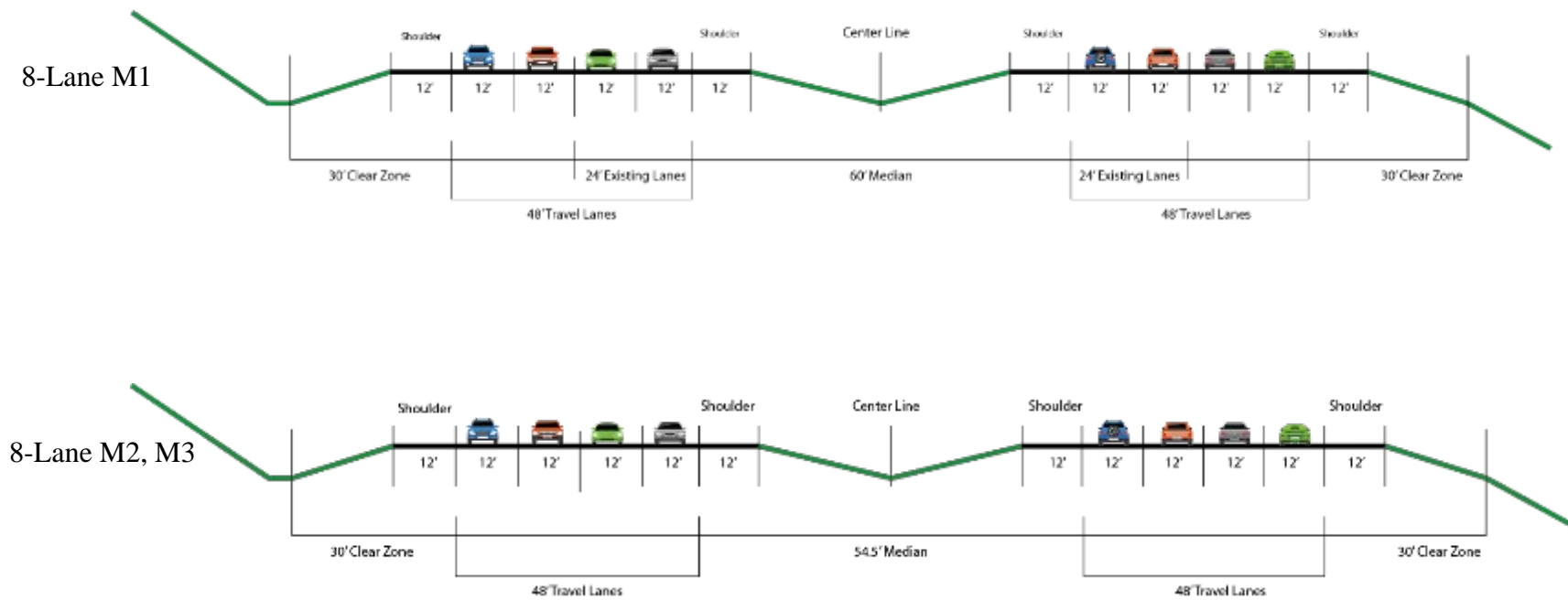


Figure 3-9: I-69 Mainline Typical Sections (6 Lanes)





**Figure 3-10: I-69 Mainline Typical Sections (8 Lanes)**





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. Most of the existing outside shoulder is 10 feet wide, and it would be widened to 12 feet throughout. Outside side slopes and clear zones would be provided to meet IDM design criteria.

From just south of Southport Road to I-465, I-69 would have eight travel lanes and would be elevated approximately 22 feet above the existing SR 37 grade using a combination of earth embankment and structure. This would allow the provision of underpasses at crossroads with sufficient clearance to meet current standards. The elevated section for I-69 would minimize the need for changes to local roadways since they would remain at their existing grade. Pavement reuse is not practical in this area because of the shifts in horizontal and vertical alignment of the I-69 mainline. The road would be reconstructed to meet minimum IDM design criteria, with a median width of 54.5 feet.

- Mainline Option M3 – Narrow Median, Narrow Shoulders, Existing Ditches. Like option M2, this mainline option would reuse existing SR 37 pavement where practical. In addition, it would also reuse existing outside shoulders and ditches where practical. A Level 1 design exception may be required for outside shoulder width where existing outside shoulders to be maintained are narrower than 12 feet.

Mainline option M3 would use the existing SR 37 median and the existing two 12-foot travel lanes in both directions where practical. As with mainline option M2, cable barrier or double-sided guardrail would be considered for use with the existing median. 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 and 8-lane segments. Existing 10-foot paved outside shoulder and existing outside side slopes, ditches, and clear zones would be maintained as much as possible for 4-lane segments. Where the road is widened on the outside to provide six lanes in mainline option M3, a 12-foot outside shoulder would be provided and outside side slopes and clear zones would be constructed to meet IDM design criteria.

South of Southport Road, including through Martinsville, this mainline option would be located at the same elevation as existing SR 37. As with mainline option M2, the road would be elevated from Southport Road to I-465 and would be reconstructed to meet minimum IDM design criteria.

All mainline options include a minimum 30-foot clear zone between the outside lane and the right of way line. The clear zone must accommodate roadway drainage, maintenance (including mowing and shrub clearing), and fencing in addition to the paved roadway and shoulder area. 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 alternatives ranges from 196 to 480 feet outside interchange areas, depending on the alignment and terrain features.

Freeway design criteria require full access control along the mainline 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. This distance would vary depending upon the urban/rural nature of the area and is evaluated on a case-by-case basis.

### 3.5.2 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.

The Tier 1 EIS identified potential interchange locations and grade separations along I-69 Section 6, providing a basis for Tier 1 traffic forecasts and environmental impact estimates. The Tier 1 ROD made it clear, however, that the actual number, type, and location of access points would be determined in 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.”

Interchanges can have extensive effects on local travel patterns since they provide the only opportunity to enter or leave the interstate highway. They can cause induced development and other secondary and cumulative types of impacts. Interchanges vary in cost and impact based on location, type, and footprint. Factors considered for locating interchanges 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 I-69 Section 6 (see **Chapter 2, Purpose and Need**).
- Spacing Guidelines. Minimum interchange spacing policy and design criteria have been established by AASHTO and adopted by INDOT as part of IDM design criteria. These minimum spacing standards are 1 mile in urban areas and 3 miles in rural areas. Spacing greater than the minimums is desirable for reasons of safety, operational characteristics, and cost effectiveness.
- Functional Classification.<sup>14</sup> Arterials are considered for interchanges ahead of collectors, and collectors are considered ahead of local roads.<sup>15</sup> In general, arterials would be

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<sup>14</sup> Functional classification is the process by which roads are classified according to the character of the service they are intended to provide. Classifications include arterial, collector, and local roadways.



considered first for interchanges, while collectors and local roads would not always be considered for direct access treatment.

- **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 considered better locations for interchanges.
- **Travel Time.** Travel time within or across the I-69 corridor will be dependent on the location and spacing of interchanges, as well as grade separations.
- **Traffic Volume.** In general, crossroads having higher traffic volumes are considered for interchanges ahead of those with lower traffic volumes.
- **Road Jurisdiction.** Generally, state jurisdiction routes (i.e., state, US, and interstate highways) are considered ahead of local roads (city streets or county roads), but there is no specific requirement that interchanges be placed at state highways or local roads.
- **National Highway System<sup>16</sup> Designation.** All National Highway System (NHS) routes should receive an interchange. Current NHS routes in the SR 37 corridor are SR 37, SR 39, and I-465.
- **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. **Figure 3-11** shows examples of the interchange types being considered. Interchange types are evaluated based on surrounding land use, INDOT design guidance and traffic operations.

A standard or wide diamond is preferred in rural areas, typically with 800 to 1,320 feet between intersections at the end of ramps. This provides good sight distance for drivers and allows 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. Diamond interchanges that use roundabouts at the intersections of ramps and crossroads are sometimes referred to as roundabout interchanges.

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<sup>15</sup> 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.

<sup>16</sup> The National Highway System (NHS) is a network of strategic highways within the United States, including the Interstate Highway System and other roads serving major airports, ports, rail or truck terminals, railway stations, pipeline terminals and other strategic transport facilities.





Figure 3-11: Proposed Interchange Types



**TRUMPET INTERCHANGE:** Consists of an overpass with one intersection for the ramp connections, used where two roadways meet in a “Y” requiring a three-leg interchange. Traffic flow at the intersection can be controlled via stop signs, signals, or roundabouts depending on the traffic volumes.



**DIAMOND/ TIGHT DIAMOND INTERCHANGE:** Consists of an overpass with intersections on both sides for the ramp connections. Flow can be controlled via stop signs, traffic signals, or roundabouts depending on traffic volumes. Generally used in rural areas. In tight diamonds, the ramps are spaced closer together, typically about 400 feet from the mainline, generally used in urban areas.



**ROUNDABOUT INTERCHANGE:** Diamond interchange, consisting of an overpass with intersections on both sides of the mainline for the ramp connections. Traffic flow at ramp intersections is controlled via roundabouts, sometimes with more than four roadways entering or leaving the roundabout.



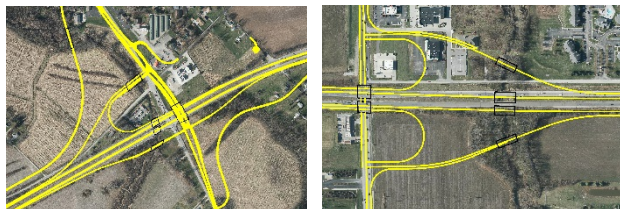
**SPLIT DIAMOND INTERCHANGE:** Consists of overpasses at two crossroads with frontage roads between the crossroads and mainline access and egress at each end. Used where two roads requiring access are too close for two standard interchanges. Ramp lanes are continuous between the two “halves” of the interchange. Cross street flow is controlled in the same manner as a diamond interchange.



**SINGLE-POINT INTERCHANGE:** This is a variation of a tight diamond interchange in which the ramps and crossroad traffic converge at a single intersection in the center of the interchange which is controlled by a traffic signal. It is generally used when left-turns to and from the ramps dominate the traffic movements.



**DIVERGING DIAMOND INTERCHANGE:** This is a variation of a diamond interchange in which the two directions of traffic on the crossing road use the opposite side of the road to drive through the interchange. It is unusual in that traffic on the crossroad briefly drives on the opposite side of the road from what is customary. A diverging diamond interchange can improve traffic flow by removing all left turn movements from the interchange.



**FOLDED LOOP INTERCHANGE:** Sometimes called a “partial cloverleaf,” this is a variation of a diamond interchange, with a loop ramp in one or more quadrants. It is typically used to avoid a physical constraint opposite the loop. Flow at ramp intersections is controlled with stop signs, signals, or roundabouts.



In urban areas, a tight diamond (with ramp termini spacing of 400 feet or less), diverging diamond, or a single-point interchange is typically used since less property is impacted. 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.

### 3.5.3 Local Service Road Configurations

In addition to serving long distance travelers, SR 37 currently serves many local trips by providing access to the roadway network or by serving as a link between local roadways. Currently there are around 75 streets, ramps, roads, or driveways with access to SR 37 in the I-69 Section 6 study area. These access points will be eliminated when I-69 is constructed, and access will be provided by interchanges with connections to local service roads. Integrating these local service roads into the overall roadway network is a major component of I-69 construction.

Local service roads are the portion of the roadway network maintained by local jurisdictions (cities, towns, counties). When I-69 is constructed, local service roads may be realigned and extended, truncated (typically with a cul-de-sac), or linked with another local service road to maintain network continuity and/or access to properties.

Grade separations (underpasses or overpasses) are the components of the local service roads that maintain the connectivity of existing roadways across 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. A local road overpass would have a bridge over I-69, while local road underpass would pass under a bridge carrying I-69.

The following factors are considered in developing service road configurations along I-69 and locating grade separations for crossing the freeway.

- 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 are considered for grade separation based on local network factors and access needs. In general, collectors are considered for grade separation before local roads.
- Route Continuity. Route continuity and community cohesion are factors in determining realignments of local service roads and whether 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.
- Travel Time for Local Trips: Travel time between origin and destination points outside the corridor can be significantly impacted by local service road configurations and the ability to cross the interstate on strategically placed grade separations. Travel time in the



study area is a major consideration in developing plans for I-69 and local service road configurations.

- School Bus and Emergency Vehicle Routes. Travel time for school buses and emergency vehicles are considered in identifying local service road linkages and possible grade separation locations. Local school corporations and emergency management services providers will continue to be consulted and their input considered during project design.
- Growth Patterns. Localized growth patterns, whether residential, commercial, industrial, or other development, are considered when laying out service roads and identifying possible grade separations. Local planning and zoning information, as well as input from planning officials, is considered.
- Site Topography. Constraints with respect to terrain and ground conditions may influence local service road configurations and locations 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. Local plans, non-motorized travel demand, and existing facilities are considered.
- Local Agency and Public Input. Input received from local governmental officials and engineers, local organizations and groups, and the public are key considerations as local service road configurations and grade separations are identified.

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 and local service roads (including grade separations) to meet long-term mobility, circulation, and property access needs throughout the project area.

Refining local roadway circulation (including interchanges, local service roads, grade separations, 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 I-69 Section 6 Corridor Travel Model forecasts were refined and used for the evaluation of local service road needs as well as for evaluating I-69 mainline and interchange operations (see **Section 5.6**).



### 3.6 Alternatives C1, C2, and C3 (by Subsection)

This section describes the Alternatives C1, C2, and C3 in each of the eight subsections, including proposed I-69 mainline alignments, locations of interchanges, and local service road configurations (including grade separated crossings). Geographic subsections provide a structure for describing issues and differences among the alternatives at specific locations. They also allow an informative comparison of impacts resulting from design differences. Each alternative (C1, C2, and C3) is illustrated in a series of maps at a scale of 1 inch = 500 feet at the end of this chapter.

Generally, Alternatives C1, C2, and C3 are presented as they appeared in public meetings and as they are described in the *Preliminary Alternatives Screening Report*. Adjustments were made at a few locations to respond to new information or stakeholder comments. These adjustments are identified in the description of the alternatives.

The basic objective in preparing Alternatives C1, C2, and C3 was to display options for the mainline, interchanges, and local service road configurations. Although mainline option M1 was used with Alternative C1, mainline option M2 with Alternative C2, and mainline option M3 with Alternative C3, this association is not required. It is used for illustration of options only.

Mainline options are generally independent of interchange and local service road options, meaning any mainline option can be used with any of the alternatives. A description of the mainline options in Alternatives C1, C2, and C3 is provided in **Table 3-4**. Segments shown in the table are based on the 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.

Interchange and local service road options are identified for Alternatives C1, C2, and C3 at 23 locations within the I-69 Section 6 corridor. These locations, referred to as decision areas, are listed for each of the eight subsections in **Table 3-5**. Design options for each decision area are described in the remainder of this section and are illustrated on the maps of the alternatives provided on alternating pages throughout this section. In addition, these decision areas are used to organize the definition of impacts in **Chapter 5, Environmental Consequences**. These impacts are compared by decision area in **Chapter 6, Comparison of Alternatives**.

By illustrating possible combinations of potential I-69 mainline, interchange, and local service road configurations, Alternatives C1, C2, and C3 provide a basis for investigation, review, and input leading to the development of a hybrid alternative of apparent best features along the entire route. This hybrid alternative was carried forward as a preferred alternative for analysis and evaluation, with the other alternatives, in the DEIS.

A subsection by subsection description of interchange and service road configurations associated with Alternatives C1, C2, and C3 follows.





Table 3-4: Mainline Options shown with Alternatives C1, C2, and C3

| Location <sup>1</sup>          | Area  | Lanes | Alt C1<br>(Mainline Option M1)  | Alt C2<br>(Mainline Option M2)   | Alt C3<br>(Mainline Option M3)   |
|--------------------------------|-------|-------|---|--|--|
| Indian Creek to SR 39          | Rural | 4     | <ul style="list-style-type: none"> <li>Reuse part of existing mainline pavement where practical</li> <li>Meets minimum design criteria. Meets desirable criteria where practical</li> </ul> | <ul style="list-style-type: none"> <li>Reuse existing mainline pavement</li> <li>Meets minimum design criteria</li> <li>Median barrier may be justified</li> </ul> | <ul style="list-style-type: none"> <li>Reuse existing mainline pavement, shoulders, and outside ditches</li> <li>Median barrier may be justified</li> <li>Potential Level 1 and 2 design exceptions</li> </ul> |
| SR 39 to SR 44                 | Urban | 4     | <ul style="list-style-type: none"> <li>Meets minimum design criteria. Meets desirable criteria where practical</li> <li>Elevated up to 22 feet above existing SR 37 grade</li> </ul>        | <ul style="list-style-type: none"> <li>Reuse existing mainline pavement</li> <li>Meets minimum design criteria</li> <li>Median barrier may be justified</li> </ul> | <ul style="list-style-type: none"> <li>Reuse existing mainline pavement shoulders, and outside ditches</li> <li>Median barrier may be justified</li> <li>Potential Level 1 and 2 design exceptions</li> </ul>  |
| SR 44 to SR 144                | Rural | 4     | <ul style="list-style-type: none"> <li>Reuse part of existing mainline pavement where practical</li> <li>Meets minimum design criteria. Meets desirable criteria where practical</li> </ul> | <ul style="list-style-type: none"> <li>Reuse existing mainline pavement</li> <li>Meets minimum design criteria</li> <li>Median barrier may be justified</li> </ul> | <ul style="list-style-type: none"> <li>Reuse existing mainline pavement shoulders, and outside ditches</li> <li>Median barrier may be justified</li> <li>Potential Level 1 and 2 design exceptions</li> </ul>  |
| SR 144 to County Line Rd       | Urban | 6     | <ul style="list-style-type: none"> <li>Reuse part of existing mainline pavement where practical</li> <li>Meets minimum design criteria. Meets desirable criteria where practical</li> </ul> | <ul style="list-style-type: none"> <li>Reuse existing mainline pavement</li> <li>Meets minimum design criteria</li> <li>Median barrier may be justified</li> </ul> | <ul style="list-style-type: none"> <li>Reuse existing mainline pavement shoulders, and outside ditches</li> <li>Median barrier may be justified</li> </ul>   |
| County Line Rd to Southport Rd | Urban | 6     | <ul style="list-style-type: none"> <li>Meets minimum design criteria. Meets desirable criteria where practical</li> <li>Elevated up to 22 feet above existing SR 37 grade</li> </ul>        | <ul style="list-style-type: none"> <li>Meets minimum design criteria</li> <li>Elevated up to 22 feet above existing SR 37 grade</li> </ul>                         | <ul style="list-style-type: none"> <li>Meets minimum design criteria</li> <li>Elevated up to 22 feet above existing SR 37 grade</li> </ul>   |
| Southport Rd to I-465          | Urban | 8     | <ul style="list-style-type: none"> <li>Meets minimum design criteria. Meets desirable criteria where practical</li> <li>Elevated up to 22 feet above existing SR 37 grade</li> </ul>        | <ul style="list-style-type: none"> <li>Meets minimum design criteria</li> <li>Elevated up to 22 feet above existing SR 37 grade</li> </ul>                         | <ul style="list-style-type: none"> <li>Meets minimum design criteria</li> <li>Elevated up to 22 feet above existing SR 37 grade</li> </ul>   |

<sup>1</sup> 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.

<sup>2</sup> 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 3.5.1 for a discussion of design exceptions.



**Table 3-5: Interchange and Local Service Road Decision Areas by Subsection**

| Subsection   | Interchange and Local Service Road Decision Areas  |
|--|--|
| <p><b>Subsection 1:</b><br/>Indian Creek to SR 39<br/>(1.5 miles)</p>                              | <ul style="list-style-type: none"> <li>• SR 39 interchange design</li> <li>• Jordan Road connection</li> <li>• Rogers Road connection</li> </ul>   |
| <p><b>Subsection 2:</b><br/>SR 39 to Morgan Street/Twin Branch Road<br/>(4.3 miles)</p>            | <ul style="list-style-type: none"> <li>• Burton Lane grade separation or closure</li> <li>• Ohio Street interchange or grade separation design</li> <li>• Grand Valley Boulevard connection</li> <li>• SR 252 and SR 44 interchange design</li> <li>• Twin Branch Road connection/ Cikana State Fish Hatchery</li> </ul> |
| <p><b>Subsection 3:</b><br/>Morgan Street to Henderson Ford Road<br/>(3.4 miles)</p>               | <ul style="list-style-type: none"> <li>• Morgan Street and Myra Lane grade separation</li> <li>• Egbert Road grade separation design</li> </ul>  |
| <p><b>Subsection 4:</b><br/>Henderson Ford Road to Banta Road in Morgan County<br/>(7.6 miles)</p> | <ul style="list-style-type: none"> <li>• Henderson Ford Road interchange design</li> <li>• New Harmony Road connection</li> <li>• Perry Road grade separation or closure</li> <li>• Waverly Road or Whiteland Road grade separation</li> </ul>   |
| <p><b>Subsection 5:</b><br/>Banta Road to Fairview Road<br/>(4.9 miles)</p>                        | <ul style="list-style-type: none"> <li>• SR 144 interchange design</li> <li>• West local service road/Olive Branch Road grade separation</li> <li>• Smith Valley Road interchange design</li> <li>• West local service road/Fairview Road grade separation</li> <li>• Wakefield Road connection</li> </ul>               |
| <p><b>Subsection 6:</b><br/>Fairview Road to Wicker Road<br/>(1.6 miles)</p>                       | <ul style="list-style-type: none"> <li>• County Line Road interchange design</li> <li>• West local service road (continued from Subsection 5)</li> </ul>   |
| <p><b>Subsection 7:</b><br/>Wicker Road to Banta Road in Marion County<br/>(2.2 miles)</p>         | <ul style="list-style-type: none"> <li>• Southport Road interchange design</li> </ul>  |
| <p><b>Subsection 8:</b><br/>Banta Road to and including I-465<br/>(1.5 miles)</p>                  | <ul style="list-style-type: none"> <li>• I-69/I-465 system interchange design</li> </ul>   |



### **3.6.1 Subsection 1: Indian Creek to SR 39**

Features addressed in this subsection relate to the design of the SR 39 interchange and the configuration of local roadway linkages for Jordan Road and Rogers Road. Impacts would vary according to the layout of SR 39 and local service road connections, especially for the link to Jordan Road, which is located next to Indian Creek.

Alternative C1 would reuse the alignment of the northbound SR 37 lanes in this subsection to avoid impacts to Indian Creek on the east side. Alternative C1 would replace the bridges over Indian Creek and raise the grade of the roadway over the White River floodway at Indian Creek. Alternatives C2 and C3 would also replace and raise the bridges over the Indian Creek. Alternatives C2 and C3 would maintain the existing horizontal alignment of SR 37.

After crossing Indian Creek, SR 37 links with SR 39 by means of an existing interchange. See **Figure 3-12**. Alternatives 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. Alternative C1 would terminate the local service road 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. Alternative C2 would extend the local service road across Indian Creek with a new bridge and connect it to Burton Lane and the existing segment of Jordan Road.

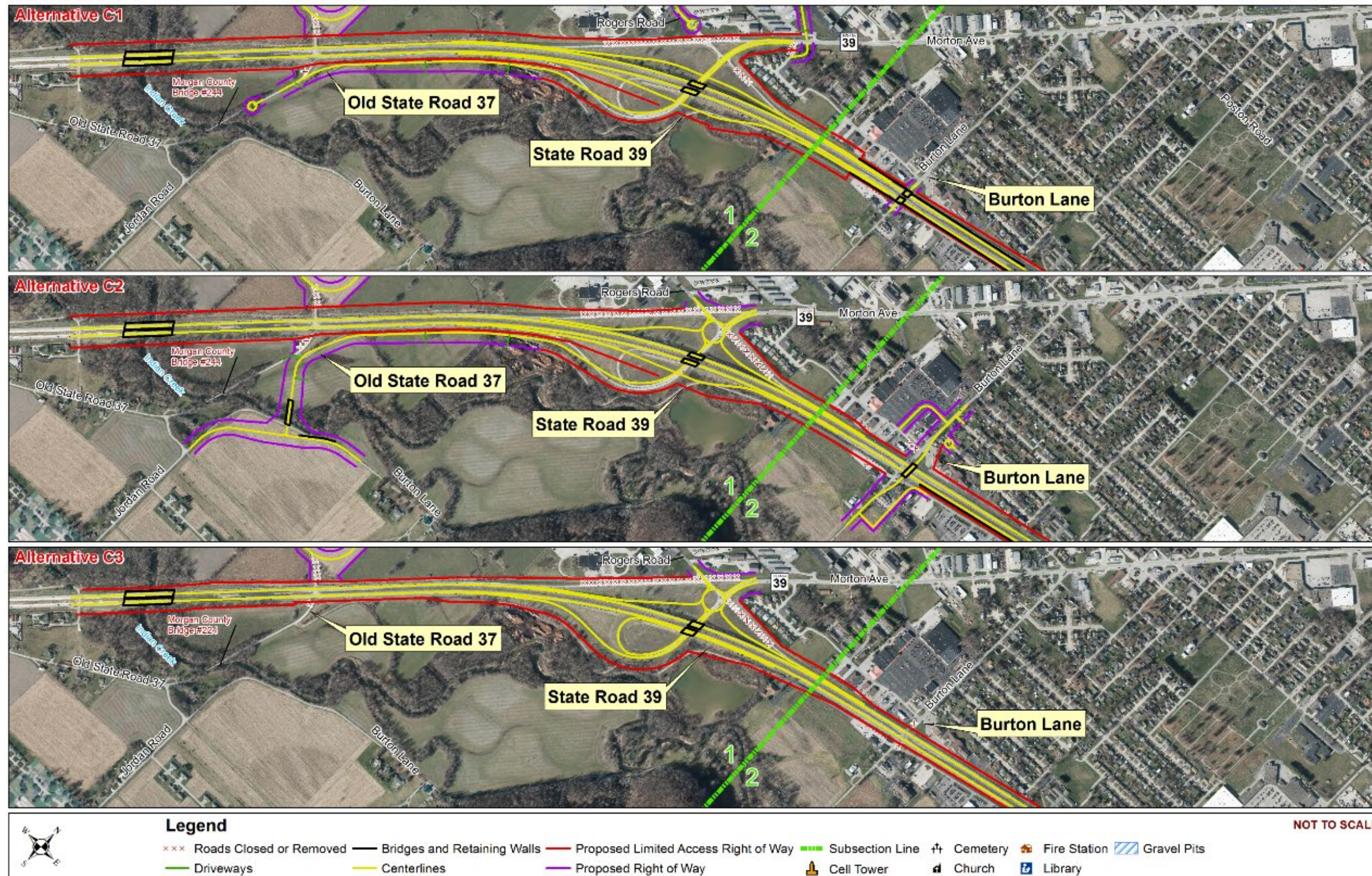
Alternative C2 would include a five-legged roundabout west of I-69 to connect the I-69 southbound ramp terminals with SR 39 and Rogers Road. Alternative C1 would utilize a signalized intersection rather than a roundabout, and Rogers Road would be realigned to the west to allow adequate distance between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

Alternative C3 would retain the existing SR 39 interchange layout without a local service road on the east side of the interchange. It would require less construction than the other alternatives, 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 C3 would be configured like Alternative 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 C3 would utilize a 25-mph loop ramp to serve northbound I-69 traffic entering at SR 39. 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 White River floodway at Indian Creek.



Figure 3-12: Alternatives C1, C2, and C3 from Indian Creek to Burton Lane







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

Subsection 2 passes through the urbanized area of Martinsville. Interchange and local service road decision areas are located at Burton Lane, Ohio Street, Grand Valley Boulevard, SR 252, SR 44, and Twin Branch Road near the Cikana State Fish Hatchery.

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 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 embankment 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 and reduce 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 Alternatives C2 and C3, the I-69 mainline would not be elevated and would remain 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 alternatives between Grand Valley Boulevard and SR 44 (northbound), and between Morgan Street and SR 44 (southbound).

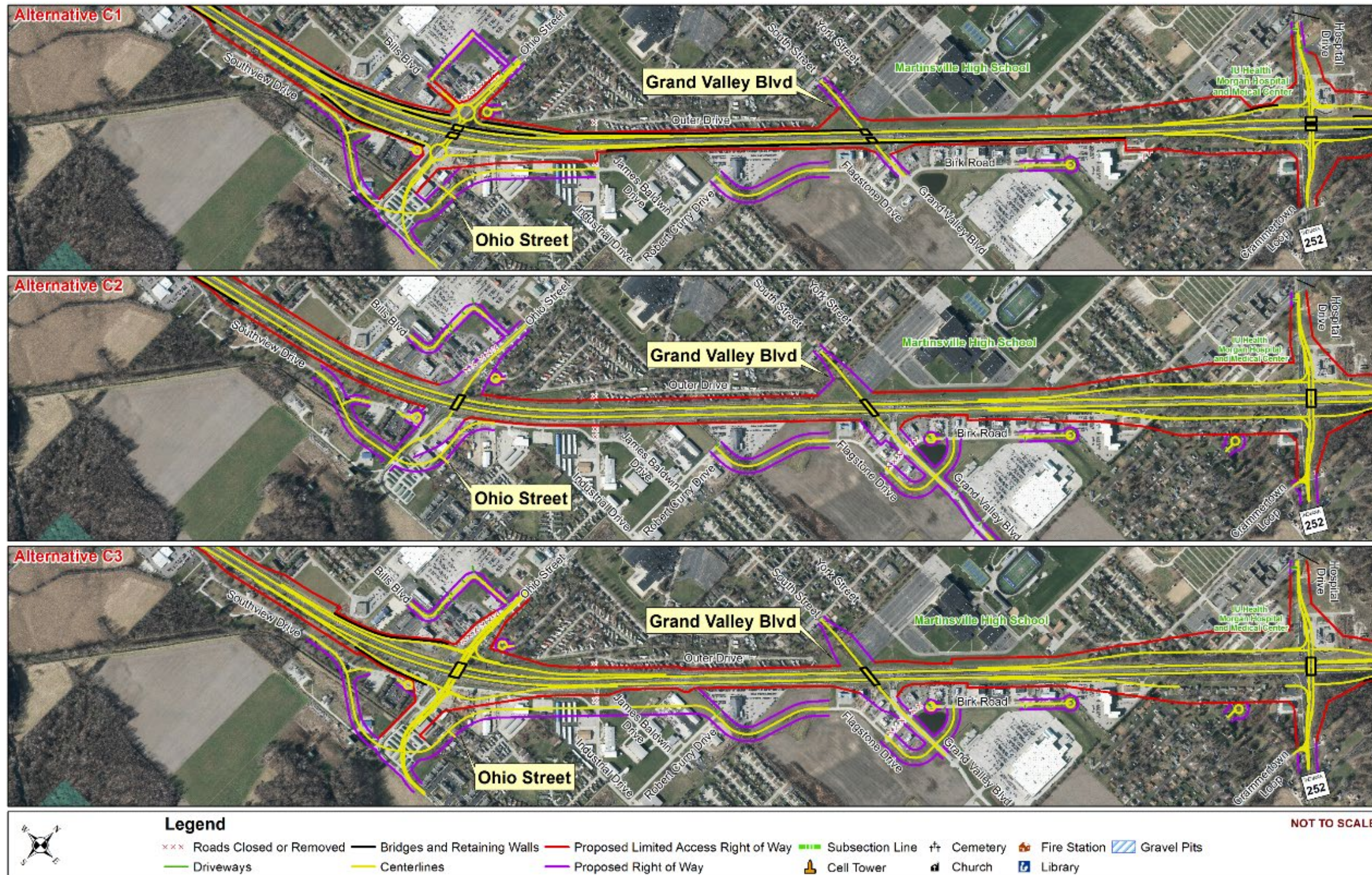
Consistent with the criteria for interchanges presented in **Section 3.5.2**, access would be provided to I-69 for both SR 252 and SR 44 on the north side of Martinsville. Through the rest of Martinsville, between SR 39 and SR 252, various options exist for interchanges, grade separations and realignment of local roadways to provide access and maintain circulation. Within the urban portions of Martinsville, pedestrian and bicycle accommodations would be included at I-69 crossings as appropriate to the character of the area.

#### 3.6.2.1 Burton Lane, Ohio Street Interchange, Grand Valley Boulevard

Access considerations between SR 39 and SR 252 relate to three local streets: Burton Lane, Ohio Street, and Grand Valley Boulevard (see **Figure 3-13**). The most appropriate location for an interchange in this segment would be at 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



Figure 3-13: Alternatives C1, C2, and C3 from Ohio Street to SR 252







Martinsville, the treatments 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 3-6**.

**Table 3-6: Martinsville Access Options**

| Alternative | 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<sup>17</sup> and the Morgan County SR 37/SR 144 Corridor Plan<sup>18</sup> support an interchange at Ohio Street, and grade separations at Burton Lane and Grand Valley 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 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 these local street crossings to minimize impacts to adjacent properties. A diamond interchange would be provided at Ohio Street, with roundabouts at the ramp terminals. The southbound ramp terminal would use a 5-legged roundabout to provide access to both Ohio Street and Bills Boulevard.

In Alternative C1, Ohio Street would be shifted slightly east near Bills Boulevard to reduce impacts to the adjacent commercial properties on the west side of the street. Residential properties on the east side of Ohio Street would be impacted by this shift. Local access would be maintained along the east side of I-69 in both directions from the Ohio Street interchange by 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 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 C2 would not include an interchange at Ohio Street. Grade separations would be provided at Burton Lane, Ohio Street, and Grand Valley Boulevard. The I-69 mainline would be

<sup>17</sup> *Strategic Development Group; Hannum, Wagle & Cline; & The Planning Workshop. Comprehensive Plan for the City of Martinsville.* January, 2010

<sup>18</sup> *Strategic Development Group; Hannum, Wagle & Cline; & The Planning Workshop. Morgan County SR 37 / 144 Corridor Plan.* February, 2010



at the existing SR 37 elevation with local roads passing over. 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 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 to properties south of Ohio Street and provide a connection to Burton Lane.<sup>19</sup>

Alternative C3 would include closure of Burton Lane at I-69, an interchange at Ohio Street, and a grade separation at Grand Valley Boulevard. I-69 would be at the existing SR 37 elevation, and Ohio Street and Grand Valley Boulevard would both pass over the mainline. Commercial Drive would be relocated north of Ohio Street to accommodate the new interchange ramps and provide a more direct connection to commercial development near Grand Valley Boulevard.<sup>20</sup> The intersections of Birk Road, Flag Stone Drive, and Grand Valley Boulevard would be relocated farther from I-69 to allow room for the overpass.

As with Alternative C1, Grand Valley Boulevard would not be extended to Cramertown Loop in Alternative C3. 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 near Martinsville High School. Sidewalks would be included along Grand Valley Boulevard to connect the high school and neighborhoods west of I-69 to the commercial development east of I-69 (see **Section 7.3.2**). The connection to South Street would have less impact on the school parking lot than a connection to York Street and would provide better local network connectivity. The South Street connection was supported by both the City of Martinsville and Martinsville High School.

### 3.6.2.2 SR 252 and SR 44 Interchanges

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

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<sup>19</sup> Alternative C2 shows Southview Drive terminating in a cul-de-sac north of Burton Lane in the Preliminary Alternatives Screening Report. The connection of Southview Drive to Burton lane would require it to be relocated just north of Burton Lane. This connection was requested by the City of Martinsville to improve local access and circulation.

<sup>20</sup> The Preliminary Alternatives Screening Report shows Commercial Drive as being relocated only south of Industrial Drive in Alternative C3. This relocation is now extended to Flagstone Drive behind the Ray Skillman Ford dealership. This change was made at the request of local stakeholders to allow better truck access to Walmart and other commercial businesses.



37 are approximately ½ mile apart, which is too close to provide two independent interchanges. See **Figure 3-13** and **Figure 3-14** to see intersections of both SR 252 and SR 44 with SR 37, as well as local road connections to each highway.

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. 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 (see **Figure 3-11**). Modifications would be made to the basic split diamond configuration to best meet local conditions, as described below.

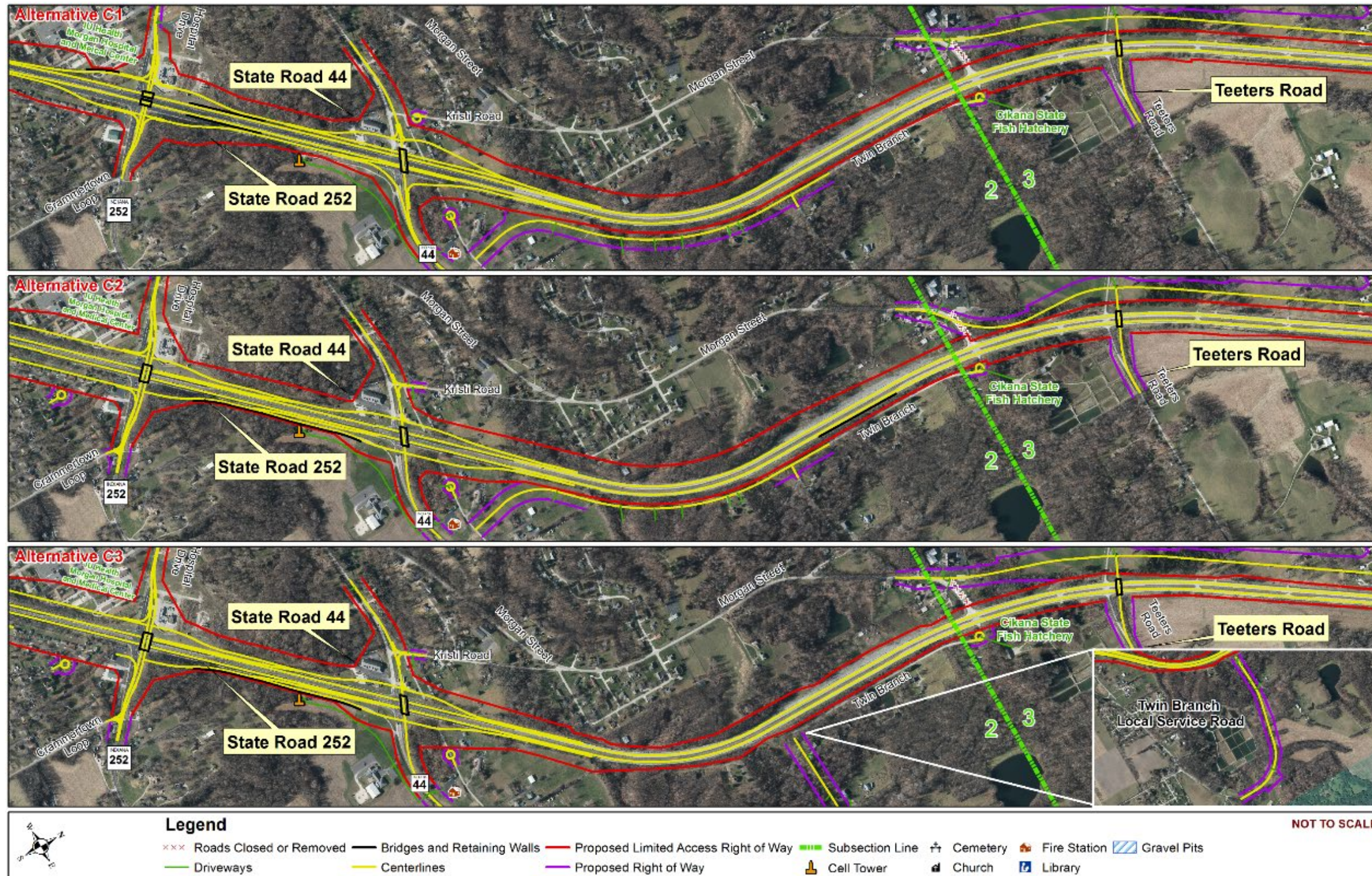
With Alternatives C2 and C3, northbound traffic would exit I-69 at SR 252 to access either highway. Traffic from SR 44 would enter I-69 northbound at SR 44. Southbound traffic would exit I-69 at SR 44 to access either highway. Traffic from SR 252 would enter I-69 southbound at SR 252. Collector-distributor roads on either side of the mainline would allow access between SR 44 and SR 252. Slip ramps (short connector links) would allow traffic to enter I-69 from the southbound or northbound collector-distributor roads without traveling through both ramp terminal intersections. This would allow traffic from SR 44 to enter southbound I-69 without passing through SR 252 and traffic from SR 252 to enter northbound I-69 without passing through SR 44. I-69 would pass underneath both SR 252 and SR 44, and a wall adjacent to the northbound collector-distributor road east of I-69 would reduce the footprint and avoid the adjacent cell tower.

Alternative 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. As with the other alternatives, the northbound collector-distributor road would provide direct access from SR 252 to northbound I-69 via a slip ramp under SR 44. The modified design would also locate the northbound collector-distributor road closer to the I-69 mainline than in the other alternatives, thus allowing it to connect SR 252 and Hospital Drive with eastbound SR 44 without requiring a wall to avoid the adjacent cell tower. Because Alternative 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 with Alternative 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 also 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.



Figure 3-14: Alternatives C1, C2, and C3 from SR 252 to Teeters Road







Options to 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 connectivity with I-69 for both roads. A single combined interchange 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. 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. This option would also result in longer emergency response times from the Washington Township Fire Department to properties west of I-69 unless a separate bridge were constructed to connect SR 44 with Reuben Drive.

Due to the proximity of Kristi Road to the planned I-69 ramp terminals at SR 44, this Road would be closed north of SR 44 in Alternative C1. In Alternatives C2 and C3, movements would be restricted to right-turn in/right turn out at the SR 44/Kristi Road intersection. The Washington Township Fire Department asked that the northbound to westbound movement be accommodated at this location.<sup>21</sup>

### **3.6.2.3 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 with all alternatives and access would be provided via Twin Branch Road to the south. With Alternatives 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 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 (see **Figure 3-14**).

### **3.6.3 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. Decision areas are the Myra Lane grade separation and connection to Morgan Street and the Egbert Road grade separation and connection to Old SR 37. Multiple options are provided in the three alternatives.

An issue to be addressed in this subsection is local access, which is currently provided by local road connections to SR 37. All alternatives 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.

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<sup>21</sup> Kristi Road had been shown as closed with a cul-de-sac at SR 44 with Alternatives C1, C2, and C3. The adjustment to Alternatives C2 and C3 was included in modifications to the alternatives after publication of the Preliminary Alternatives Screening Report.



All alternatives would also provide connections across I-69 at Teeters Road, Myra Lane, and Egbert Road, although the alignments of the Myra Lane and Egbert Road crossings would differ.

Assuming the wider mainline option (M1), Alternative 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. Alternatives C2 and C3 (with mainline options M2 and M3) would reuse existing SR 37 lanes in both directions.

#### 3.6.3.1 Morgan Street Connections, Myra Lane

The existing intersection of Morgan Street and Twin Branch Road with SR 37 would be closed with all alternatives. Twin Branch Road would end in a cul-de-sac that would provide driveway access to Cikana State Fish Hatchery. Morgan Street would be extended along the west side of I-69 to connect to Old SR 37 at Myra Lane. The alignment of Morgan Street near Prince of Peace Lutheran Church would be slightly different with Alternative C2 than with Alternatives C1 or C3 in order to reduce impacts to the church parking area and septic field.<sup>22</sup>

Alternative C1 would begin this section at the same elevation as existing SR 37. A grade separation would be constructed to allow Teeters Road to pass over I-69 and intersect with Morgan Street. 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. The existing access to Ozark Fisheries from SR 37 at Country Club Road would be closed, and a new access drive would be constructed from Myra Lane. See **Figure 3-15**.

Access would be similar with Alternatives 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 its existing intersection with SR 37 to allow more room to get over I-69 and to maintain access to First United Methodist Church and Ozark Fisheries.

#### 3.6.3.2 Egbert Road

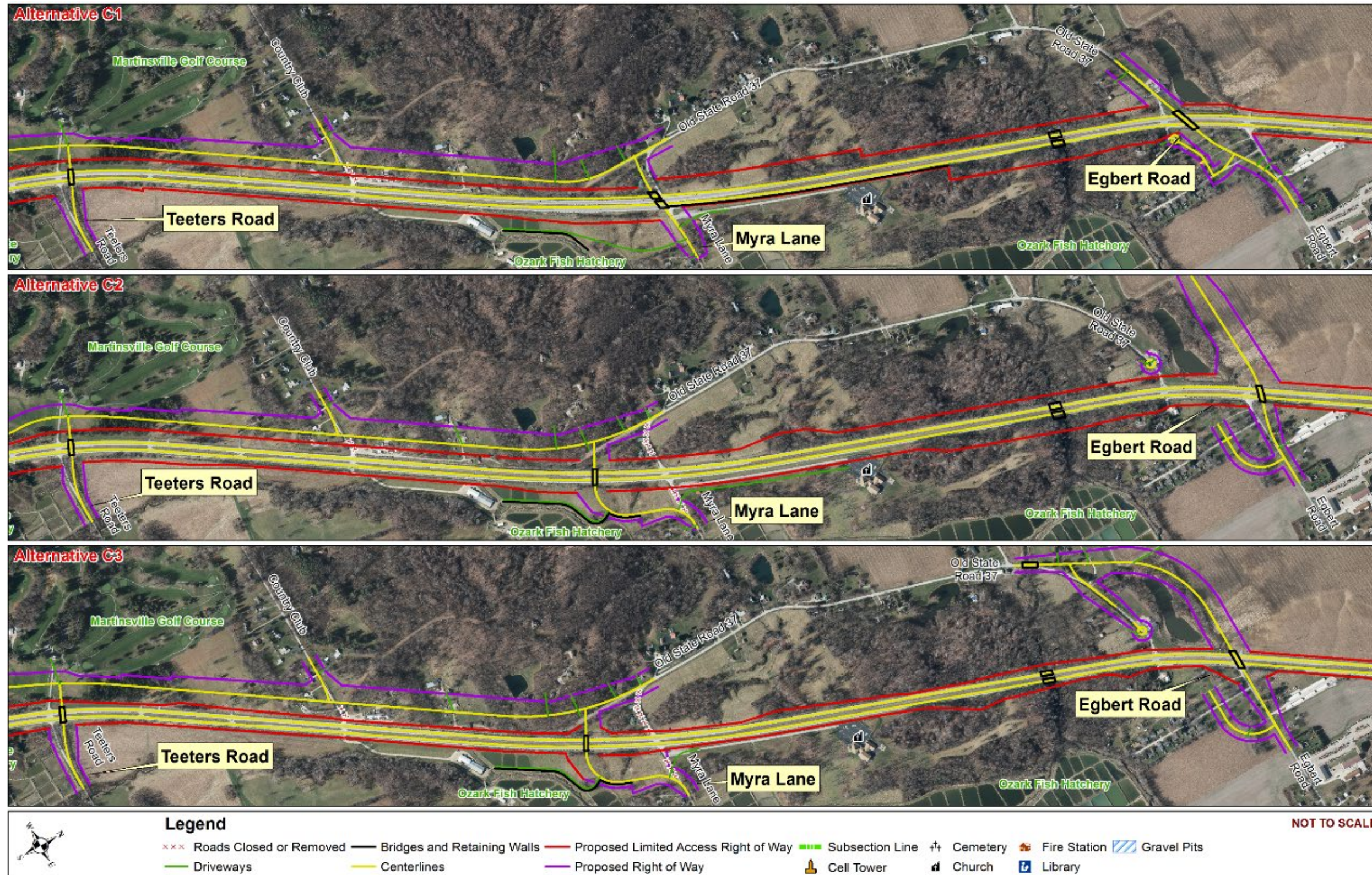
The Tier 1 ROD identified Egbert Road as a potential interchange location in this subsection. However, local planning documents and CAC members expressed a preference for an interchange at Henderson Ford Road due to its greater prominence in the Morgan County transportation network. Egbert Road extends approximately 4 miles east of SR 37, but it does not provide connectivity across the White River to the west. Henderson Ford Road crosses the White

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<sup>22</sup> The adjustment of the alignment of Morgan Street in Alternative C2 was made after publication of the Preliminary Alternatives Screening Report in order to reduce impacts to the Prince of Peace Church.



Figure 3-15: Alternatives C1, C2, and C3 from Teeters Road to Egbert Road







River, and with a connector to Centennial Road, an 8-mile north-south thoroughfare would be provided through eastern Morgan County.

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 is not carried forward. Instead, a grade separation would be provided at Egbert Road, with a link to Old SR 37 and to Maple Turn Road on the west side of I-69. Old SR 37 would provide a connection from Egbert Road to the Foxcliff residential neighborhoods and other areas to the west.

All alternatives connect Egbert Road to Old SR 37 and Maple Turn Road west of I-69. Alternative C1 would provide the most direct connection, which would minimize impacts to wetlands, but it would require a longer bridge than the less direct connections of Alternatives C2 and C3 (see **Figure 3-15**).

#### **3.6.4 Subsection 4: Henderson Ford Road to Banta Road (Morgan County Road 800W)**

Decision areas in Subsection 4 relate to the Henderson Ford Road interchange design, New Harmony Road connection, Perry Road grade separation or closure, and whether to place an overpass at Waverly Road or Whiteland Road. As discussed in the previous section, all alternatives would include an interchange at Henderson Ford Road (see **Figure 3-16**).

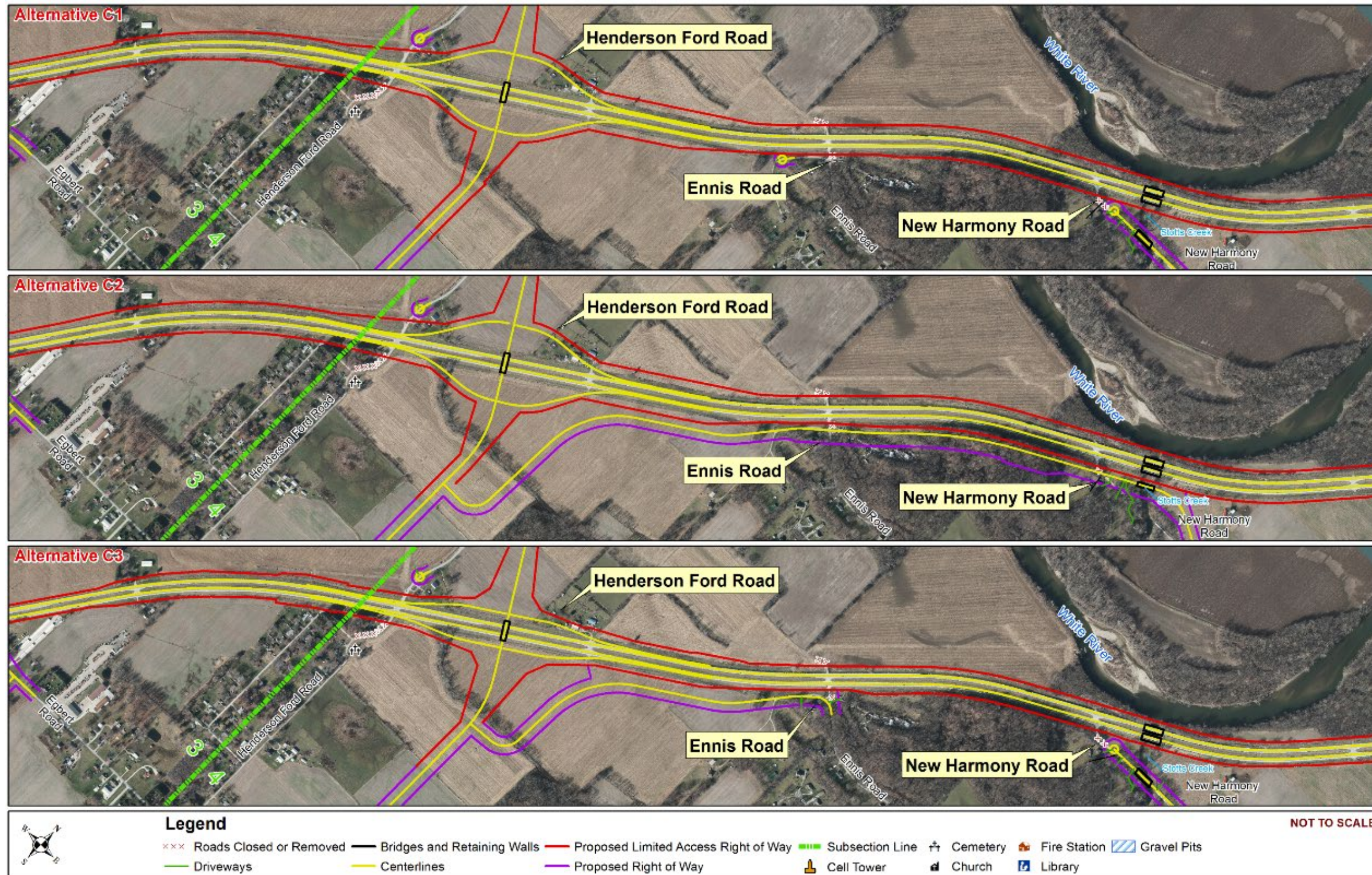
Big Bend Road, located midway between the interchanges proposed at Henderson Ford Road and SR 144, is the only reasonable location in this subsection that would meet federal interchange spacing guidelines. An interchange is identified in local planning documents based on an anticipated large residential 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, but that area is also served by Waverly Road. An interchange is not proposed, but a grade separation would be provided at Big Bend Road in all alternatives.

The existing SR 37 median is sufficiently wide from north of Egbert Road to north of Cragen Road that mainline option M1 (shown with Alternative C1) would reuse both northbound and southbound pavement. North of this point, Alternative C1 would reuse the existing southbound lanes and shift the northbound lanes outward to maintain a 60-foot median width. With the narrower mainline options M2 and M3, Alternatives C2 and C3 would reuse existing northbound and southbound pavement throughout this subsection.



Figure 3-16: Alternatives C1, C2, and C3 from Henderson Ford Road to New Harmony Road







#### 3.6.4.1 Henderson Ford Road Interchange

Henderson Ford Road would be realigned through the interchange area to connect to Centennial Road on the east side of I-69 (see **Figure 3-16**). 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. Either a diamond (Alternatives C1 and C2) or a tight diamond (Alternative C3) interchange configuration could be used at this location (see **Figure 3-11**).

#### 3.6.4.2 New Harmony Road, Ennis Road, Cragen Road

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

North of the Henderson Ford Road interchange, existing access to SR 37 from Ennis Road would be closed. No alternate access is proposed for this area with Alternative C1, resulting in a 1.3-mile segment of Ennis Road with no outlet except to Egbert Road. Alternative C2 would extend a local service road from Henderson Ford Road to New Harmony Road, which would also serve Ennis 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. The bridge that previously existed at this location has been removed. The alignment of New Harmony Road and the bridge over Stotts Creek was modified in Alternative C2 after publication of the *Preliminary Alternatives Screening Report* to provide a better crossing of the creek, as requested by resource agencies. Alternative C3 would provide a local service road between Henderson Ford Road and Ennis Road (see **Figure 3-16** and **Figure 3-17**).

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 alternatives would provide a local service road to the cemetery, extending from Old SR 37 near Crooked Creek. This local service road was included in modifications to the alternatives after publication of the *Preliminary Alternatives Screening Report*.

#### 3.6.4.3 Perry Road, Old SR 37

Alternatives 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 C3 would not include this grade separation and Perry Road would be closed at I-69. This would result in a road segment having



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no outlet for about 1.8 miles, from the end of Lincoln Road to the intersection of Perry Road with New Harmony Road.

#### **3.6.4.4 Waverly Road, Whiteland Road**

SR 37 intersections with Waverly Road and Whiteland Road are approximately 0.33 mile apart. These roads serve north-south and east-west movements, respectively. 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. With Alternatives C1 and C3, the grade separation would be at Whiteland Road. Alternative C2 would provide the grade separation at Waverly Road (see **Figure 3-18**).

All alternatives include a local service road on the east side of I-69 to link Waverly Road and Whiteland Road, so both corridors can be served by the overpass regardless of which crossing location is selected.

#### **3.6.5 Subsection 5: Banta Road (Morgan County Road 800W) to Fairview Road**

Decision areas in this subsection relate to the interchange design for SR 144, the extent of new service road construction on the west side of I-69, Smith Valley Road interchange design, grade separations at Olive Branch Road and Fairview Road, and the potential realignment of a small segment of Wakefield Road.

A number of commercial properties would be impacted in this subsection due to their locations at virtually every crossroad. These properties would be impacted by local service road alignments, approaches to grade separations, and interchange configurations.

Assuming the wider mainline option M1, southbound pavement would be reused for Alternative C1 from Cragen Road to Smith Valley Road. From Smith Valley Road to Bluff Road, the alignment would shift to the west in Alternative C1, and the existing southbound lanes would be reused for northbound I-69 movements. This would minimize impacts to the fire station at Smith Valley Road and avoid residential property impacts on the east side of I-69. Near Fairview Road, Alternative C1 would shift back to the east, and pavement would be reused on the southbound side for I-69 southbound travel lanes. A six-lane typical section is assumed north of SR 144.

With Alternatives C2 and C3, one of the narrower mainline options (M2 or M3) is assumed, allowing existing SR 37 pavement to 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.



Figure 3-17: Alternatives C1, C2, and C3 from Cragen Road to Perry Road

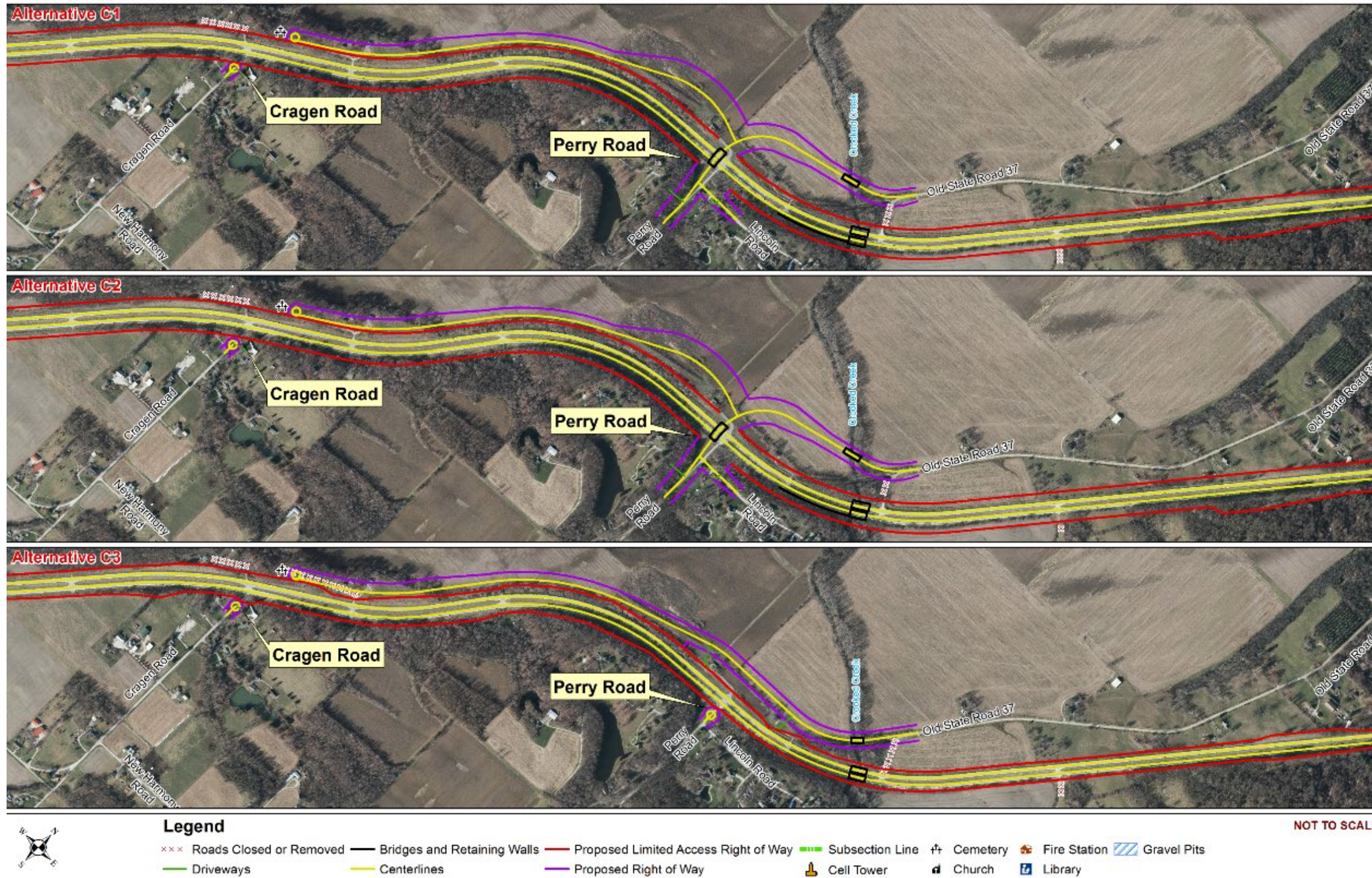
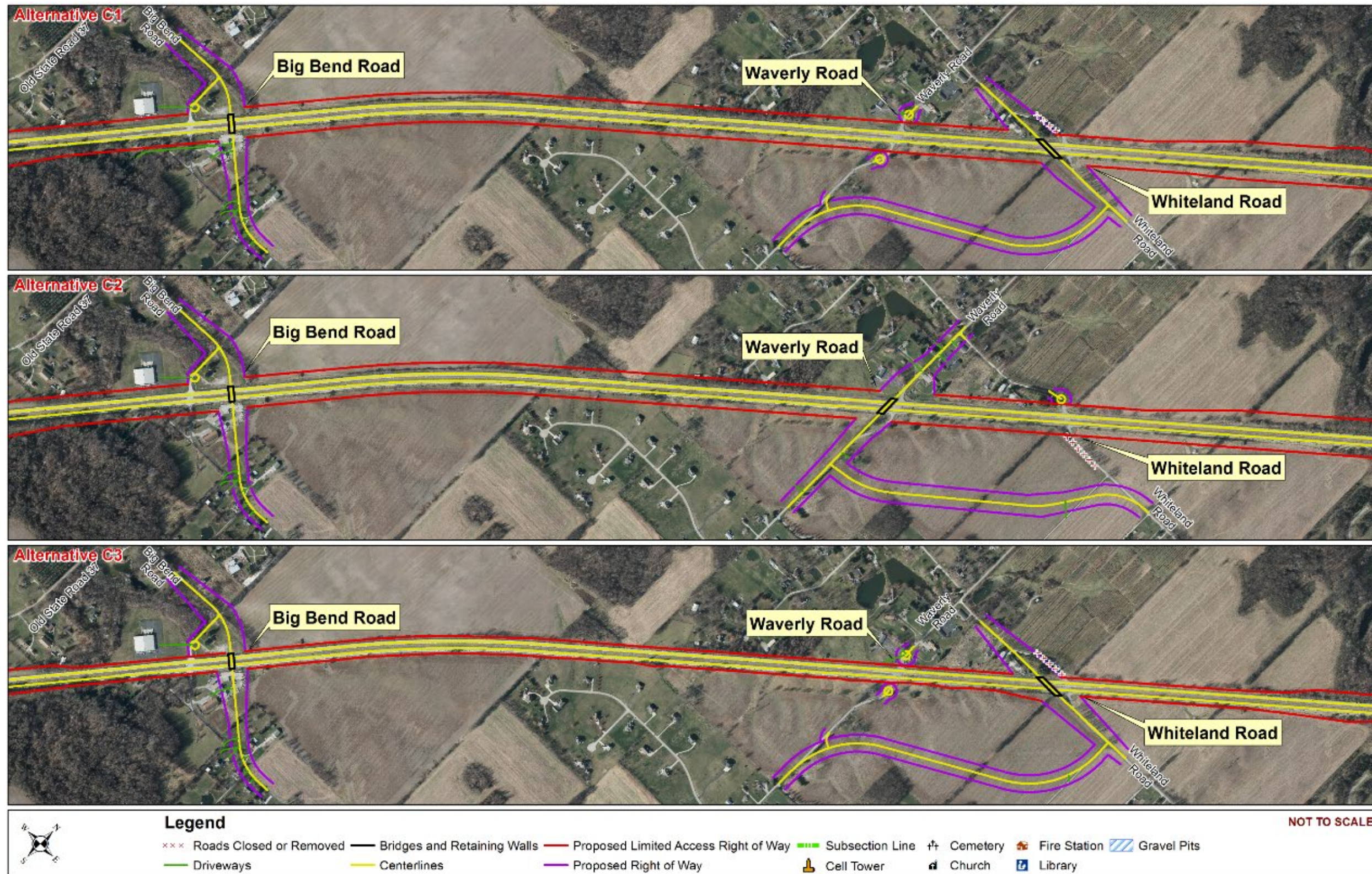




Figure 3-18: Alternatives C1, C2, and C3 from Big Bend Road to Whiteland Road







#### 3.6.5.1 SR 144 Interchange

A diamond interchange would be provided at SR 144 with all alternatives (see **Figure 3-19**).

To the west of the I-69 interchange with SR 144, Huggin Hollow Road 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 Road with no outlet except to Old SR 37 in Waverly. Direct access to SR 144 would be restricted between I-69 and Old SR 37.

The Waverly branch of the Morgan County Public Library, located north of SR 144 between Huggin Hollow Road and Old SR 37, would be impacted by Alternatives C1 and C3. Alternative C2 would avoid the library by using steeper side slopes and a section of guard rail along SR 144.

To the east of the I-69 interchange with SR 144, a new local connection would be provided from Travis Road to SR 144. Direct access to SR 144 would be restricted between I-69 and the Travis Road connector. Grade separations at nearby Stones Crossing Road and/or Olive Branch Road would provide access to residential areas east of I-69.

#### 3.6.5.2 West Local Service Road, Stones Crossing Road, Olive Branch Road

Old SR 37 currently extends north from SR 144 on the west side of I-69 and links with Stones Crossing Road to serve destinations east of SR 37. All alternatives would maintain this link and provide a grade separation of Stones Crossing Road over I-69.

Stones Crossing Road provides access to Center Grove Schools, and it is well located (midway between I-69 interchanges) for maintaining connectivity. 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.

Alternatives C1 and C2 would include a local service road on the west side of I-69 to reconnect Old SR 37 by extending a new roadway northward through the residential neighborhood north of Stones Crossing Road. See **Figure 3-19** and **Figure 3-20** for location details. With Alternative C1, this local service road would be an extension of Old SR 37 from Stones Crossing Road through the Greenwood Mobile Home Community to end in the vicinity of Olive Branch Road.

Alternative C2 would extend the local service road further to provide a continuous link from Stones Crossing Road to Smith Valley Road and beyond. With Alternative C2, the west local service road would be located immediately adjacent to I-69 as it passes the Greenwood Mobile Home Community instead of along the alignment of Old SR 37, which bisects the neighborhood. The service road would pass under Stones Crossing Road alongside I-69 and intersect Old SR 37 just south of Stones Crossing Road. The I-69 mainline would be shifted to the east in the vicinity



Figure 3-19: Alternatives C1, C2, and C3 from SR 144 to Olive Branch Road

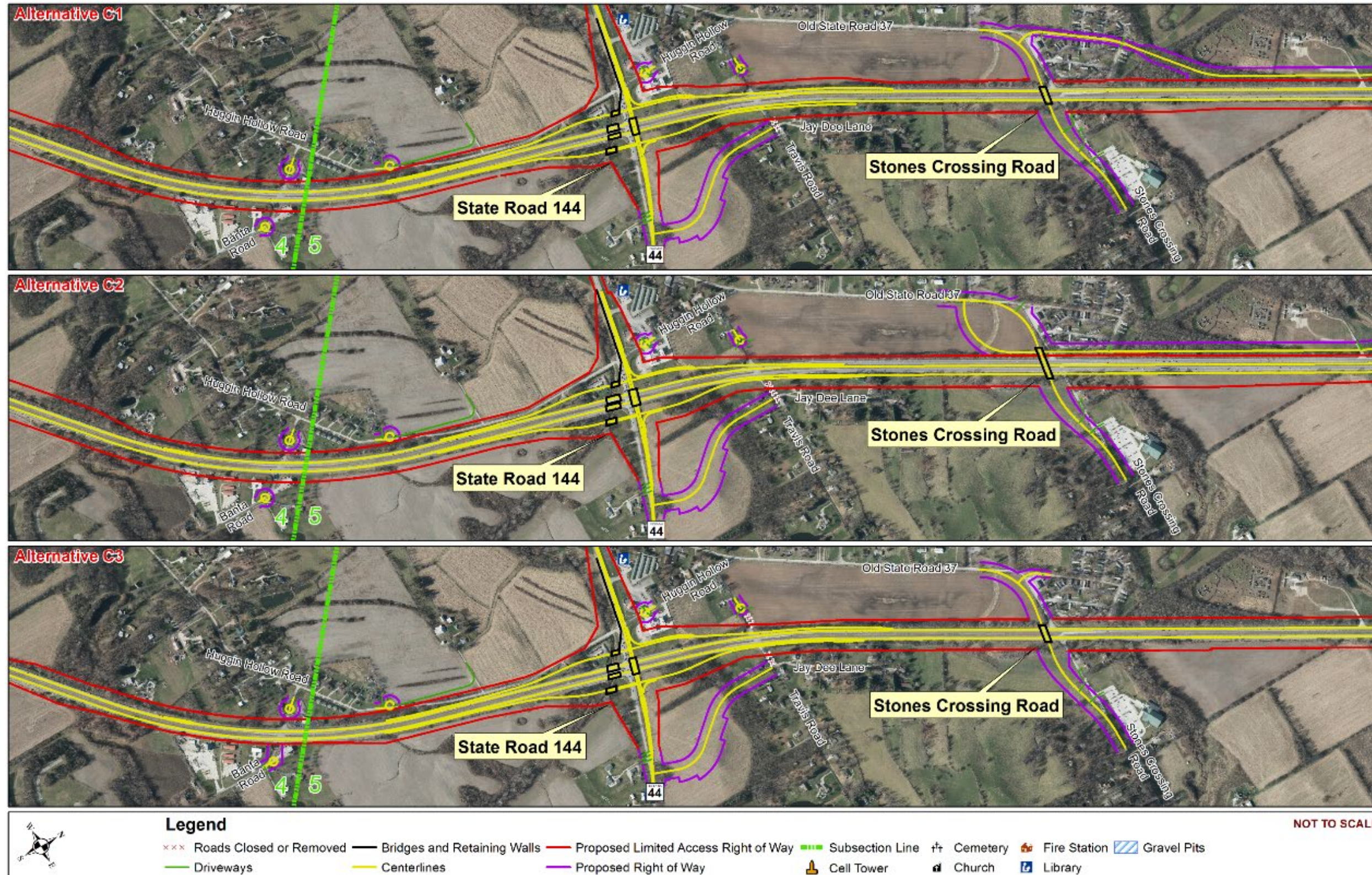
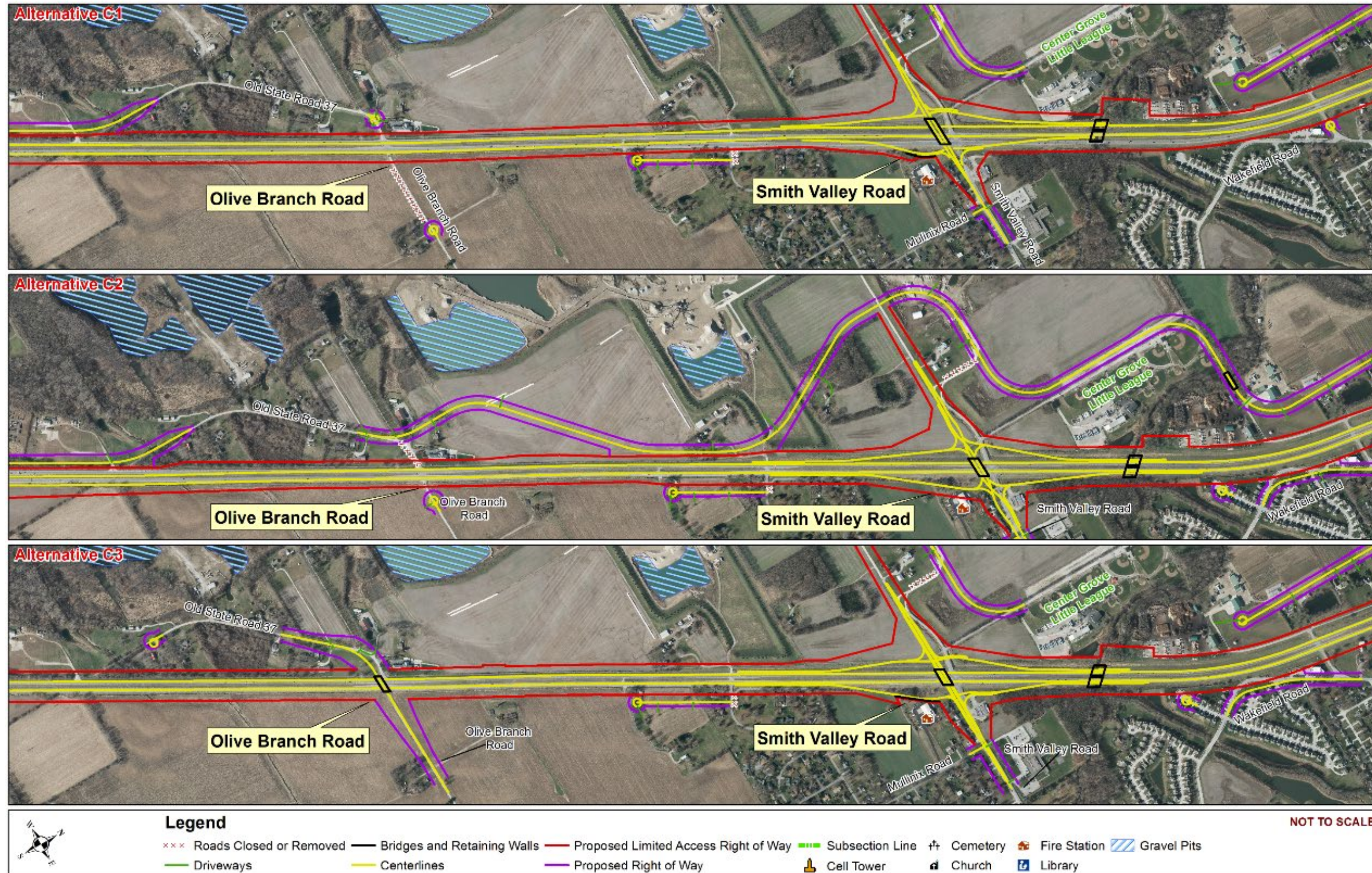




Figure 3-20: Alternatives C1, C2, and C3 from Olive Branch Road to Smith Valley Road







of Stones Crossing Road with Alternative C2. In the *Preliminary Alternatives Screening Report*, the Alternative C2 service road alignment through the Greenwood Mobile Home Community is the same as shown for Alternative C3. The alignment was modified in Alternative C2 to reduce impacts to this residential neighborhood.

An option in which the service road crosses over I-69 south of Olive Branch Road to connect to Stones Crossing east of I-69 was also investigated. This option was rejected due to the steep terrain near where it would intersect with Stones Crossing Road, the need to widen Stones Crossing Road to meet current standards, and the impact this option would have on the Travis Hills Historic District.

With Alternatives C1 and C2, Olive Branch Road would be closed at I-69, and property access on the west side of I-69 would be provided by the new local service road. An Olive Branch Road overpass would be constructed with Alternative C3, providing access to residences along Old SR 37 west of I-69.

### **3.6.5.3 Smith Valley Road Interchange, Wakefield Road Connection**

Due to its continuity and service to downtown Greenwood, an interchange at Smith Valley Road would be constructed with any of the alternatives. Due to its compact size and simple operation, a diamond interchange with roundabouts at the ramp terminals would be the preferred configuration.

With Alternative 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.

With Alternatives C2 and C3, the I-69 mainline would not be shifted from existing SR 37. Alternative C2 would require the fire station to be relocated, and Alternative C3 would use a retaining wall to allow the fire station to remain. Reconfiguration of the fire station driveway would be required, as with Alternative C1. For Alternatives C2 and C3, the distance from the northbound ramp terminal intersections to Mullinix Road would be approximately 350 feet, which would be acceptable per the IDM.

Due to its proximity to SR 37, realignment of Wakefield Road would be needed with Alternatives C2 and C3 along the eastern edge of I-69 just north of the Smith Valley Road interchange. Wakefield Road connects with Bluff Road just north of this location. Because the mainline is shifted slightly west, this realignment would not be necessary with Alternative C1.



#### 3.6.5.4 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. Alternatives 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 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.

#### 3.6.6 Subsection 6: Fairview Road to Wicker Road

Decision areas in this section relate to the configuration of the County Line Road interchange, the configuration of southbound local service roads on the west side of I-69, and linkages with Wicker Road.

Just north of Fairview Road, Alternative C1 would be raised 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 C2 would also be elevated just north of Fairview Road, passing over County Line Road and all other crossing roads north to I-465. Alternative C3 would remain at the existing SR 37 grade past the County Line Road interchange, and would be elevated just north of the interchange (see **Figure 3-21**).

##### 3.6.6.1 County Line Road Interchange

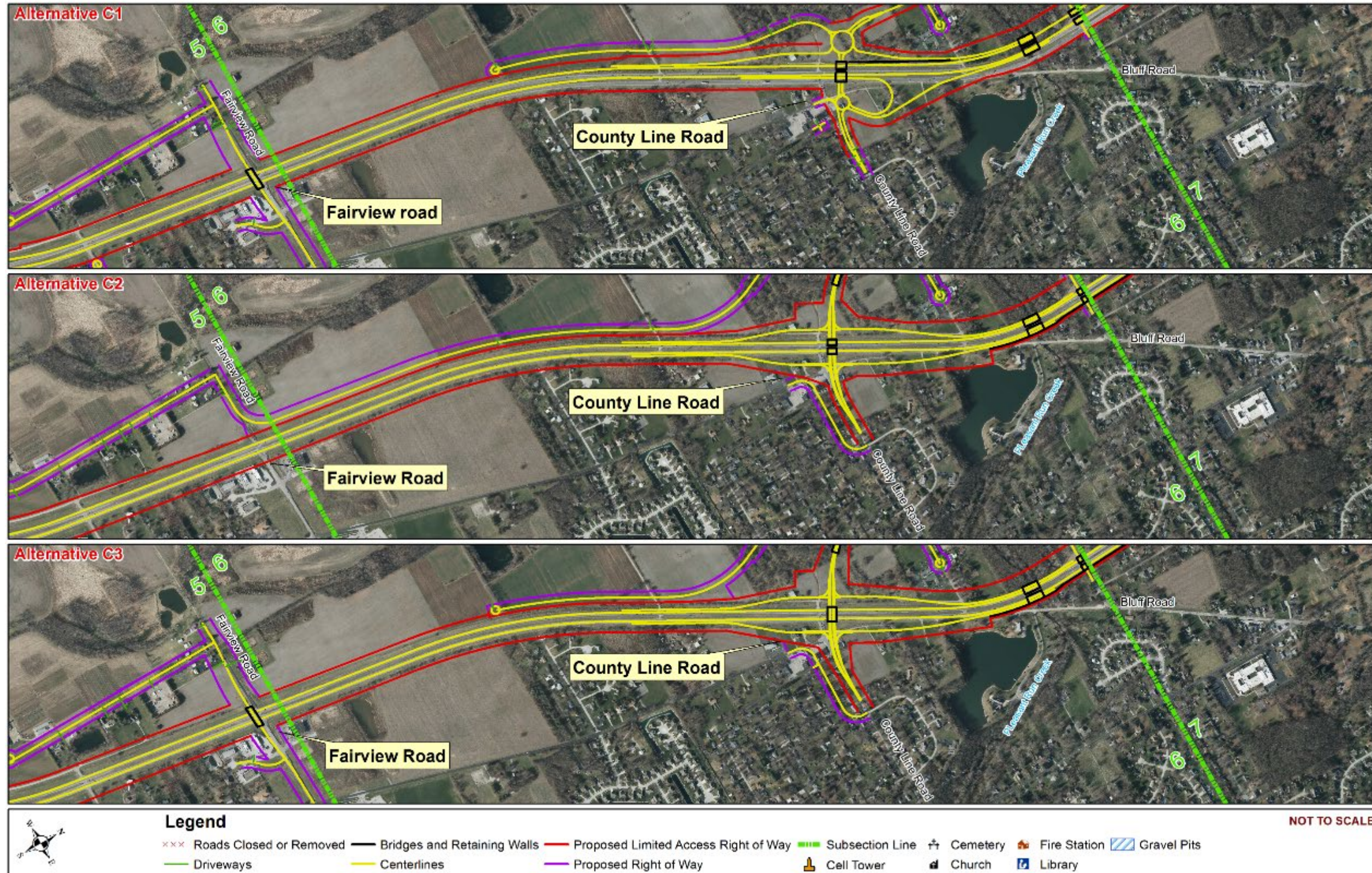
County Line Road extends east from SR 37 and passes through Greenwood as it approaches an interchange with I-65. There are no documented plans to extend County Line Road west of SR 37. All alternatives would provide an interchange at County Line Road, with a local service road extension turning north to connect with Wicker Road.

With Alternatives C1 and C2, the I-69 mainline would pass over both County Line Road and Wicker Road to minimize impacts to adjacent property. With Alternative C3, the mainline would remain at existing grade through the interchange area to maximize reuse of SR 37 pavement. County Line Road would pass over the I-69 mainline, but the mainline would be elevated farther north to pass over Wicker Road.





Figure 3-21: Alternatives C1, C2, and C3 from Fairview Road to Wicker Road







Alternative 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.

Alternatives C2 and C3 would use a tight diamond interchange configuration at County Line Road with signalized ramp termini intersections. This configuration would provide acceptable operation at forecasted traffic levels, 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 with Alternative 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 (see **Figure 3-21**).

#### 3.6.6.2 West Local Service 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 with Alternative C1 would allow the connector road to turn northward before reaching Pleasant Run Creek, approximately 500 feet west of the interchange. This would minimize bridge construction for both the connector road and the adjacent local service roads. With Alternatives 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 (see **Figure 3-21** and **Figure 3-22**).

All alternatives would have a grade separation at Wicker Road, with Wicker Road passing under I-69. Wicker Road would link with Bluff Road on the east and connect with the large Southern Dunes residential development on the west.

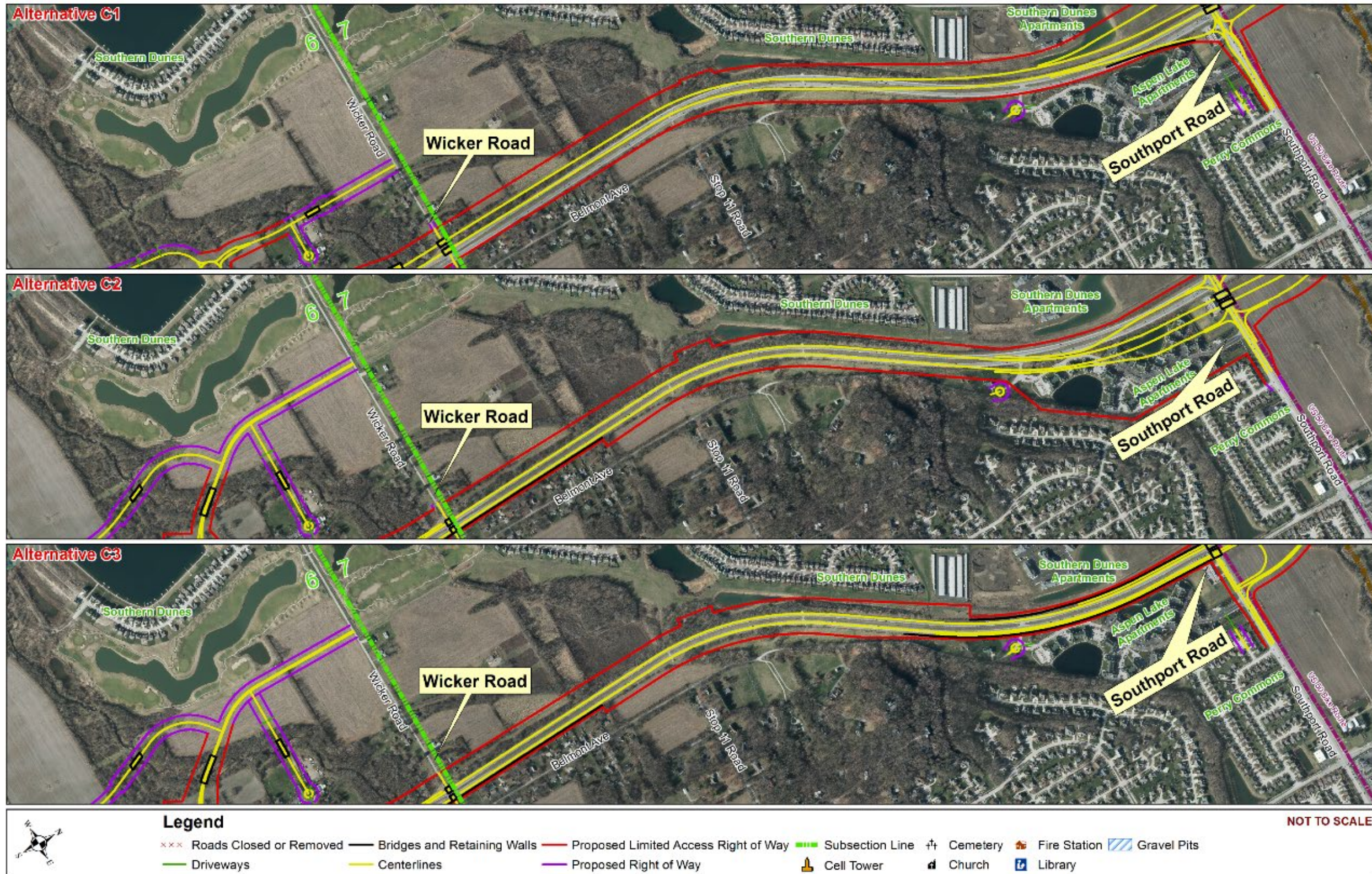
Alternatives C1 and C3 provide access to areas south of County Line Road west of I-69 by way of a local service road extending about halfway to Fairview Road. Alternative C2 would extend this roadway further as part of a continuous local service road extending southward to SR 144 in Bargersville.

#### 3.6.7 Subsection 7: Wicker Road to Banta Road (Marion County)

The decision area located in this subsection is the Southport Road interchange. The I-69 mainline would be elevated from south of Southport Road to I-465 with all alternatives, using retaining walls and other features to minimize impacts to adjacent properties. This design would facilitate crossings under I-69 by major roadways at their existing grade, which would reduce impacts at existing SR 37 intersection locations. No SR 37 pavement would be reused in this subsection.



Figure 3-22: Alternatives C1, C2, and C3 from Wicker Road to Southport Road







#### 3.6.7.1 Southport Road Interchange

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, is served by an interchange at I-65, and has the only bridge across the White River between SR 144 and I-465. The planned Little Buck Creek Trail is located along Little Buck Creek just north of Southport Road<sup>23</sup> and U.S. Bicycle Route 50 is designated to follow Southport Road through the proposed I-69 interchange. Options for both trails are provided as part of the alternatives.

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.

Alternative C1 would provide a diverging diamond interchange shifted west of SR 37 to minimize impacts on the east side of I-69. Aspen Lakes apartment buildings in the southeast quadrant would not be impacted and access to these apartments from the south on Belmont Avenue would be maintained. Access to these apartments from Southport Road would be moved approximately 600 feet further east via a new connecting road into the adjacent Perry Commons residential neighborhood, allowing access to be limited along Southport Road to meet IDM standards (see **Figure 3-22** and **Figure 3-23**).

West of I-69, the Southern Dunes Apartments on the south and the Southport Landing shopping center on the north would be impacted by Alternative 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 west along Southport Road. This would impact part of the building on the west end, but it would provide an entrance along Southport Road approximately 900 feet west of the diverging diamond intersection.

Alternative C2 would provide a single point interchange that is shifted east of SR 37 to minimize impacts to the west. The main entrance to the Southport Landing shopping center and the side entrance from Belmont Avenue would both be maintained. East of I-69, acquisition of the Aspen Lakes apartments and relocation of all residents would be required with Alternative C2. Belmont Avenue would be closed south of the apartments. Alternative C2 as shown in the *Preliminary Alternatives Screening Report* would allow five of the 13 buildings at Aspen Lakes to remain in place with no clubhouse or pool. This alternative has been modified to assume acquisition of all buildings. The single access to the remaining buildings would have used a new service road constructed through the adjacent Perry Commons neighborhood since no other reasonable access

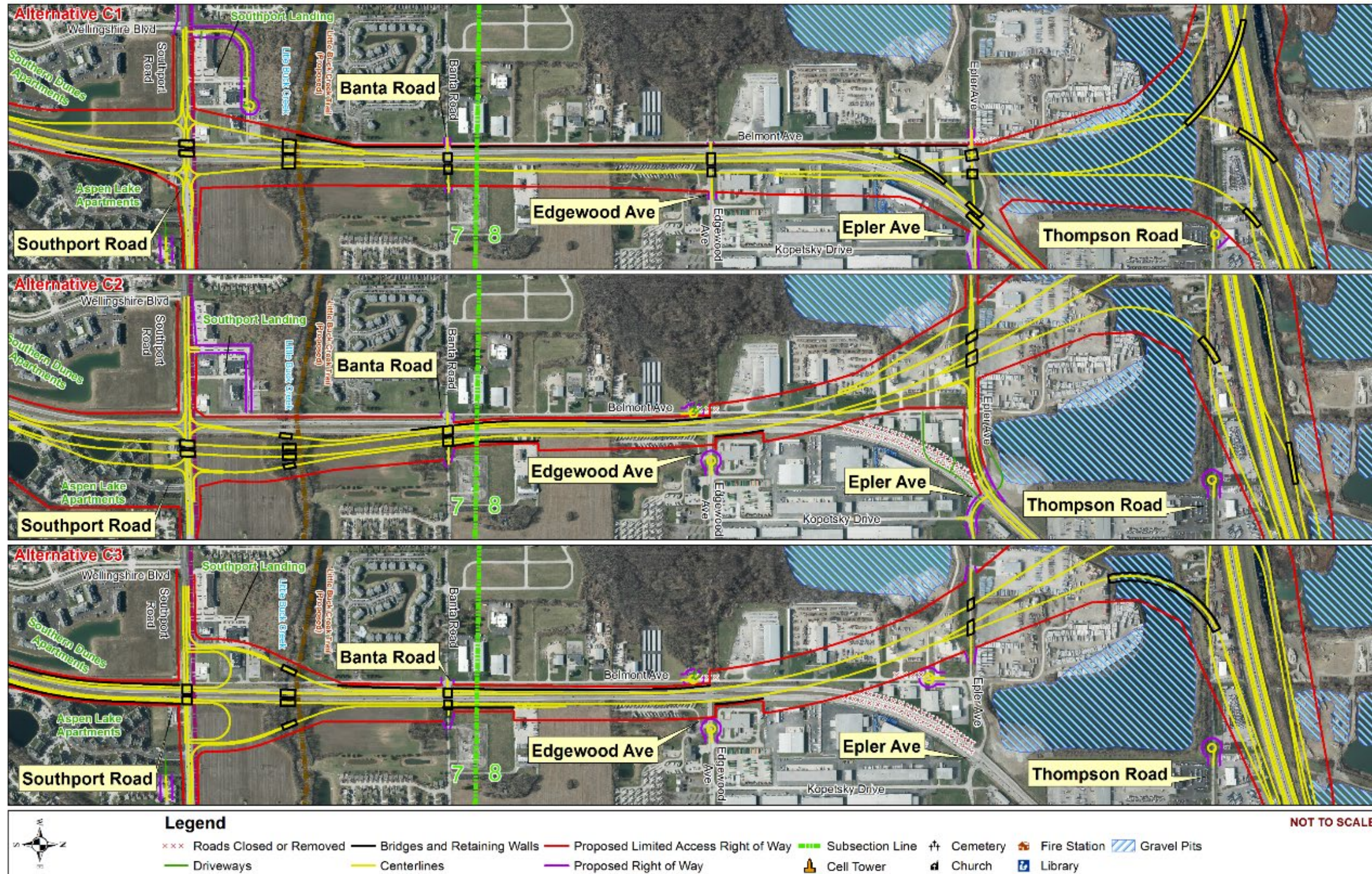
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<sup>23</sup> *Indy Greenways Full Circle Plan, 2013-2023 Master Plan, May 2014*, <https://indygreenwaysmasterplan.wordpress.com/full-circle-master-plan-2/>





Figure 3-23: Alternatives C1, C2, and C3 from Southport Road to Thompson Road







could be provided. Alternatives C1 and C3 assume the same access configuration, combined with a second access option from Belmont Avenue.

Alternative C3 includes a folded diamond interchange with I-69. 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 Alternative C1, the Southport Road entrance to the Aspen Lake Apartments would be relocated to a new drive connection to the adjacent Perry Commons residential neighborhood and access to the apartments from the south on Belmont Avenue would be maintained.

### 3.6.8 Subsection 8: Banta Road to and including I-465

The interchange with I-465 is the singular decision area in this subsection. To maintain access and connectivity in the area, all alternatives would provide grade separations at Banta Road and at Epler Avenue. The Alternative C1 interchange configuration would provide for the addition of a third grade separation at Edgewood Avenue (see **Figure 3-23**).

#### 3.6.8.1 I-465 Interchange

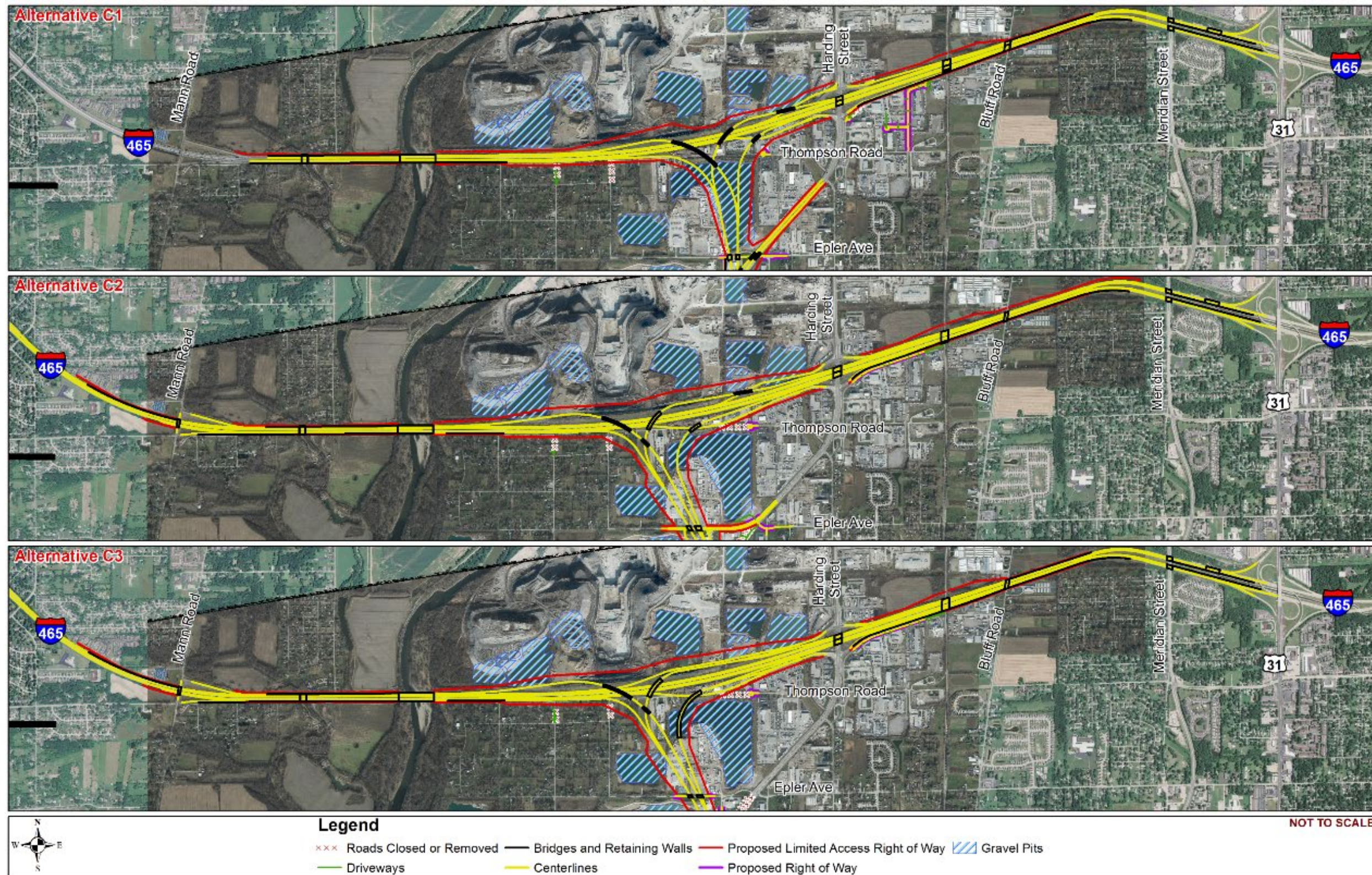
As an “interstate to interstate” connection, the system interchange between I-69 and I-465 would be designed to standards associated with a 55-mph design speed. Three optional configurations of the I-69/I-465 interchange have been defined. With Alternative C1, I-69 would be aligned through the existing gravel pits to avoid the businesses on the west side of SR 37 and to minimize impacts to the Sunshine Gardens neighborhood further west. With Alternatives C2 and C3, I-69 would be shifted west of existing SR 37 to minimize impacts to the gravel pits (see **Figure 3-24**).

With Alternative C1 through the gravel pits, a grade separation at Edgewood Avenue would provide access to businesses along Belmont Avenue. Access between I-69 to the south and the SR 37/Harding Street area would be provided by 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.

With I-69 located further west, Alternatives C2 and C3 would impact businesses west of SR 37 between Edgewood Avenue and Epler Avenue. These alternatives would also impact a portion of the Sunshine Gardens neighborhood. With Alternative C2, access between I-69 and the SR 37/Harding Street local street network would be provided via ramps at two locations. Access to and from I-69 and the south would be via Epler Avenue, which would be realigned to become



Figure 3-24: Alternatives C1, C2, and C3 - I-465 at I-69 and SR 37







Old SR 37 north of the ramp terminal. Access to and from I-465 and I-69 north would be via the existing I-465/Harding Street interchange.<sup>24</sup>

With Alternative C3, all access between I-69 and I-465 and the SR 37/Harding Street local street network would be via slip ramps from the system interchange to the existing I-465/Harding Street interchange.

With all alternatives, 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 exit. Widening of I-465 is also included to provide four continuous through travel lanes in each direction between Mann Road and US 31.

In the *Preliminary Alternatives Screening Report*, Alternatives C1, C2, and C3 are assumed to use retaining walls along widened sections of I-465 to prevent impacts to adjacent buildings or other infrastructure.

Investigation conducted after C1, C2, and C3 had been identified in the *Preliminary Alternatives Screening Report* revealed that one segment of retaining wall on the north side of I-465 and immediately east of Bluff Road would not provide the benefits expected. It was previously assumed that a wall at this location would prevent impacts to the building at 4401 Bluff Road and two adjacent electric transmission towers. The building is a contributing structure to the Southside German Market Gardeners Historic District, and an alternatives analysis was therefore conducted in accordance with Section 4(f) of the Department of Transportation Act of 1966, 49 U.S.C. §303(c). A complete discussion of this alternatives analysis is provided in **Chapter 8, Section 4(f)**.

The analysis indicated that the proposed retaining wall cannot be constructed without impacting the building due to the proximity of the building to the existing I-465 right of way. No prudent and feasible alternatives would avoid impacting this building. This wall segment has therefore been eliminated from Alternative C2, and widening of I-465 at this location would instead be accomplished using less expensive earth embankment slopes. This widening would impact the building, resulting in a Section 4(f) use of the Southside German Market Gardeners Historic District. The adjacent electric transmission towers would also be impacted, although further engineering may show that smaller wall segments could be used to avoid the electric transmission towers.

Use of a retaining wall at this location continues to be shown in Alternatives C1 and C3, but these alternatives would still result in a Section 4(f) use of the Southside German Market Gardeners Historic District.

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<sup>24</sup> Alternative C2 access to Harding Street and existing SR 37 was modified after publication of the *Preliminary Alternatives Screening Report* based on public and stakeholder input favoring the more direct access to Harding Street for trips to downtown Indianapolis.





### 3.7 Alternative C4 (by Subsection)

As described in **Section 3.5**, Alternatives C1, C2, and C3 were structured to display a range of options for the I-69 mainline, interchanges, and local service road configurations. These alternatives were described in the *Preliminary Alternatives Screening Report*, dated March 29, 2016 (**Appendix EE**), and they were presented at public meetings in Martinsville and Indianapolis in April 2015. Alternatives C1, C2, and C3 were presented to city and county engineers and planners, emergency service providers, government officials, resource agencies, project advisory committees, utility providers, and various stakeholder groups at the local level. See **Figure 3-25**. They were also displayed at the I-69 Section 6 project office. Input was encouraged from all groups and individuals.

Based on the extensive reviews and input related to Alternatives C1, C2, and C3, a hybrid alternative was created and identified as Alternative C4. Alternative C4 is composed of selected components of Alternatives C1, C2, and C3.

This section describes Alternative C4 and identifies the components drawn from the other alternatives. Alternative C4 is illustrated at a scale of 1 inch = 500 feet in a series of maps located at the end of this chapter. Alternative C4 was identified as the preferred alternative for evaluation (along with Alternatives C1, C2, and C3) in the DEIS.

As with the review of Alternatives C1, C2, and C3 in **Section 3.6**, the definition of Alternative C4 begins with the mainline. Mainline options are applied over long segments of interstate highways and they are generally independent of interchange and local service road options.

Alternative C4 uses Mainline Option M2 (narrow median, standard shoulders and side slopes) as described in **Section 3.5.1**, and illustrated in **Figure 3-8** through **Figure 3-10**. This is the mainline option assumed in the development of Alternative C2. It allows maximum reuse of existing infrastructure while meeting all design standards. Lane variations and other notes related to the definition of the mainline element of Alternative C4 are shown in **Table 3-7**.

**Figure 3-25: Alternatives Review with a Local Homeowners Association**





**Table 3-7: Alternative C4 Mainline Elements**

| Location                           | Option             | Description  | Notes  |
|------------------------------------|--------------------|--|--|
| Indian Creek to SR 144             | Mainline Option M2 | 4 lanes, generally at existing SR 37 grade. Existing 45 ft-60 ft median. 12 ft outside shoulders             | Lower cost than M1 but still meets Interstate design standards     |
| SR 144 to County Line Road         | Mainline Option M2 | 6 lanes, generally at existing SR 37 grade. Existing 48 ft-60 ft median. 12 ft outside shoulders             | Lower cost than M1 but still meets Interstate design standards     |
| County Line Road to Southport Road | Mainline Option M2 | 6 lanes, generally elevated above existing SR 37 grade. Existing 48 ft-60 ft median. 12 ft outside shoulders | Lower cost than M1 but still meets Interstate design standards     |
| Southport Road to I-465            | Mainline Option M2 | 8 lanes, generally elevated above existing SR 37 grade. 54.5 ft median. 12 ft outside shoulders              | 54.5 ft (minimum) median width rather than 60 ft (desirable) of M1 |

The remaining elements to be identified in defining Alternative C4 are interchanges and local service road configurations. These components and the rationale for their selection are described in the following subsection by subsection review. **Table 3-8** summarizes these interchanges and local service road configurations, and identifies the source from Alternatives C1, C2, and C3 at each previously identified decision area.

**3.7.1 Subsection 1: Indian Creek to SR 39**

Alternative C4 would retain the existing trumpet style interchange as shown in Alternative C3. This would require less construction and have the lowest cost compared with other alternatives. With this configuration, a 25-mph loop ramp would serve northbound I-69 traffic exiting at SR 39. No new local service road would be constructed on the east side of the SR 39 interchange. Rather, local connectivity between Martinsville and this area would be maintained using the existing Burton Lane connection with Jordan Road. As with Alternative C3, Alternative C4 would utilize a five-legged roundabout on the west side of I-69 to connect SR 39 with the I-69 southbound ramp terminals and Rogers Road, as shown in **Figure 3-14**. Like all other alternatives, C4 would replace and elevate the existing bridge over Indian Creek.

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

With Alternative C4, I-69 would remain at the existing elevation of SR 37 as it passes through Martinsville, except at SR 252 where the mainline would be elevated on an overpass as shown for Alternative C1. The City of Martinsville and most other public comments preferred that I-69 not be elevated through all of Martinsville as shown in Alternative C1. However, the City of Martinsville requested the overpass over SR 252, and this configuration can be provided without





**Table 3-8: Summary of Alternative C4 Design Elements and Source (C1, C2, C3)**

| Location   | Alt       | Description   | Rationale / Notes  |
|--|-----------|---|--|
| <b>Subsection 1: Indian Creek to SR 39</b>                   |           |   |  |
| SR 39 Interchange  | C3        | Existing trumpet configuration.   | Lowest cost. Local service road not required south of interchange due to grade separation at Burton Lane.  |
| Local access south of SR 39                                  | C3        | No local access road. Acquire property.   | Local connection from Martinsville across Indian Creek maintained by keeping Burton Lane open. Avoids cost & impacts of constructing local road in flood plain.  |
| Rogers Road connection                                       | C3        | 5-legged roundabout.  | Does not require relocation of Rogers road behind Martinsville Schools bus facility and adjacent storage facility, which would impact both facilities and increase cost. Roundabout is acceptable to Martinsville Schools.   |
| <b>Subsection 2: SR 39 to Morgan Street/Twin Branch Road</b> |           |   |  |
| Mainline alignment   | C2/<br>C1 | At existing SR 37 grade through most of Martinsville (C2), but elevate mainline over SR 252 (C1).   | Lower cost than C1. City of Martinsville and most other commenters prefer I-69 at existing grade. City prefers I-69 over SR 252.   |
| Burton Lane  | C2        | Overpass with Southview Drive connected to Burton Lane.   | Maintains existing local connectivity across Indian Creek to Jordan Road. Preference of City of Martinsville and multiple businesses.  |
| Ohio Street  | C3        | Diamond interchange with Ohio Street overpass.  | Stakeholder and public comments request interchange. A folded loop option investigated at request of the City of Martinsville would have similar commercial property impacts but would impact more residential property.   |
| Grand Valley Boulevard                                       | C2        | Overpass. Connect to South Street east of I-69 and extend west to Cramertown Loop.  | Stakeholder and public comments prefer I-69 at grade. Extension to Cramertown Loop maintains access to retail developments via SR 252. Pedestrian access to Grand Valley from the high school is desirable, but the school would also like to minimize impacts on its band practice lot. |
| Martinsville east side local roads                           | C2        | Connections for I-69 at-grade. Extend relocated Commercial Boulevard to connect directly to Flag Stone Drive behind Ray Skillman Ford.                        | At-grade I-69 preferred by City and most stakeholders. Extension of Commercial Boulevard allows better truck access to Walmart and other businesses than previously proposed reuse of James Baldwin Drive and James Curry Drive.   |
| SR 252/SR 44 Interchange                                     | C1/<br>C2 | I-69 over SR 252 and under SR 44 (C1). Provide for northbound left turn from C/D road to Reuben Drive. Provide right-in, right-out at SR 44/Kristi Road (C2). | C1 vertical alignment preferred by City of Martinsville. Modified Split Diamond (C1) reduces delay for traffic accessing SR 252 and reduces traffic volumes at SR 44. Kristi Road access requested by fire department. Path for northbound access to Reuben Drive clearer for motorists. |



# I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

## Section 6—Final Environmental Impact Statement

| Location  | Alt       | Description  | Rationale / Notes   |
|---|-----------|--|---|
| Twin Branch Rd  | C1/<br>C2 | Extend adjacent to I-69.   | Preferred by public/stakeholders. Safety of SR 44/Twin Branch connector intersection in C3 questioned by commenters due to location on a curve with sight distance issues. C3 alignment would also cross West Fork of Clear Creek twice.  |
| <b>Subsection 3: Morgan Street to Henderson Ford Road</b>               |           |  |   |
| Morgan Street   | C2        | Connect to Old SR 37. Realigned near Prince of Peace church.   | Realignment near Prince of Peace church reduces impacts to church parking and septic field. Possibly extend utilities to church in lieu of replacing septic field.  |
| Myra Lane   | C1        | Underpass.   | Underpass can better serve large trucks and church patrons and requires less right of way. Church, Ozark Fisheries, and Morgan County expressed no preference for overpass or underpass.  |
| Egbert Road   | C1        | Angled overpass of I-69 connecting Egbert directly to Old SR 37.   | Lower overall cost and wetland impact. Direct connection to Old SR 37. Uses property previously acquired by INDOT.  |
| <b>Subsection 4: Henderson Ford Road to Banta Road in Morgan County</b> |           |  |   |
| Henderson Ford Road   | C2        | Regular diamond interchange configuration.   | No operational or significant cost advantage to narrow diamond, and regular diamond offers future flexibility if traffic volumes increase.  |
| Henderson Ford Service Road   | C2        | Extend to New Harmony Road with bridge over Stott's Creek.   | Public, EMS, and Martinsville schools request connection to New Harmony. Bridge realigned to provide better crossing of Stott's Creek as requested by resource agencies.  |
| Perry Road  | C2        | Overpass.  | Public and EMS comments cite longer travel times and poor road conditions on alternate routes without overpass. Local service road added for farm field and former Mt. Zion Church cemetery access on north side.   |
| Big Bend Road   | C2        | Overpass.  | Morgan County commented that improvements may need to extend to Old SR 37.  |
| Waverly Road/<br>Whiteland Road   | C2        | Overpass at Waverly with connection to Whiteland.  | Per comments, Waverly Road connection is more important for schools, EMS, and most residents. Local service road east of I-69 realigned to avoid utilities and reduce property impacts.   |
| <b>Subsection 5: Banta Road to Fairview Road</b>                        |           |  |   |
| SR 144  | C2        | Diamond interchange.   | Includes slope changes to reduce impact to library.   |
| SR 144 to County Line west side service roads                           | C2        | Continuous service road west of I-69 from SR 144 to County Line Road. Alignment passes under Stones Crossing Road. | Multiple comments support a continuous service road from SR 144 to County Line. Johnson County prefers this alternative. Provides more efficient movement of farm equipment than other alternatives. C2 alignment near Stones Crossing Road has fewer impacts on Greenwood Mobile Home Community than C1. |





| Location  | Alt | Description  | Rationale / Notes   |
|---|-----|--|---|
| Olive Branch Road   | C2  | Cul-de-sac east of I-69  | Multiple comments support a continuous service road from SR 144 to County Line. Johnson County prefers this alternative. Provides more efficient movement of farm equipment than other alternatives.  |
| Smith Valley Road   | C1  | Diamond interchange. Shift mainline west between Bluff Acres Drive and Bluffdale Road.   | Avoids impacts to Wakefield Drive and the Wakefield neighborhood. Per discussion with White River Township Fire Department, access via Mullinix Drive is problematic. Fire station would be relocated, and retaining wall is unnecessary.   |
| Fairview Road   | C2  | Cul-de-sac east of I-69  | Many comments support a continuous service road from SR 144 to County Line, preference of Johnson County. More efficient movement of farm equipment than other alternatives. Avoids hazmat site impacted by overpass in C1 or C3.   |
| <b>Subsection 6: Fairview Road to Wicker Road</b>               |     |  |   |
| County Line Road  | C1  | I-69 over County Line. Folded diamond with roundabouts.  | Preferred by public and stakeholders. Allows Bluff Road connection with no residential impacts. Saves construction of two bridges on the west side.   |
| County Line to Stop 11  | C1  | Shift mainline west.   | Shift west to avoid constructing wall on east side. Also allows for easier maintenance of traffic during construction.  |
| <b>Subsection 7: Wicker Road to Banta Road in Marion County</b> |     |  |   |
| Southport Road  | C2  | Option A: Diamond interchange shifted east. Acquire Aspen Lakes Apartments. Connect Belmont Ave to Wellingshire Dr.<br>Option B: Diamond interchange shifted north. Acquire Southport Landing Shopping Center. Connect Belmont Ave to Wellingshire Dr. | Diamond interchange provides good traffic operation and accommodation of bicycles and pedestrians. Acquisition of entire Aspen Lakes complex necessary in Option A to avoid a condition where the only option for access is through Perry Commons. Option B may allow mainline pavement reuse and have lower cost. Acquisition of Southport Landing Shopping Center required. |
| <b>Subsection 8: Banta Road to and including I-465</b>          |     |  |   |
| Edgewood Avenue   | C1  | Connect Edgewood under I-69.   | Input from Indianapolis Fire Department and Perry Township Schools citing better connectivity and quicker response times with Edgewood connection.  |
| I-465 interchange   | C2  | Shift interchange west. Provide Ramps to Epler Avenue from the south.  | Shifting west lowers cost. Epler Avenue connection further reduces cost and provides better connectivity to Harding Street to/from the south.   |



exceeding maximum grades for I-69. Sidewalks would be provided at all I-69 crossings through this subsection. This includes a pedestrian connection between Martinsville High School on the west side of I-69 and the Grand Valley Center on the east side of I-69.

Burton Lane and Grand Valley Boulevard would pass over I-69 with Alternative C4, and a diamond interchange would be provided at Ohio Street. As in Alternative C3, Commercial Drive would be relocated and extended to connect the Ohio Street interchange to Flag Stone Drive and Grand Valley Boulevard east of I-69.

An alternate configuration for the Ohio Street interchange, using a loop ramp for the entrance from Ohio Street to southbound I-69, was considered at this location at the suggestion of the City of Martinsville. While this folded loop configuration would reduce impacts to commercial properties along Bills Boulevard, it would increase impacts to residential properties east of Ohio Street. The diamond interchange as included in Alternative C3 is included in C4 as the preferred configuration.

The modified split diamond interchange included in Alternative C1 is used in Alternative C4 to serve SR 252 and SR 44. Like alternative C1, I-69 would pass over SR 252 and under SR 44 instead of passing under both roads as in Alternatives C2 and C3. This configuration was requested by the City of Martinsville. Two adjustments are included in Alternative C4 that were not included in Alternative C1. First, a northbound left turn movement would be allowed from the collector-distributor road to access Reuben Drive, which should be less confusing for drivers trying to navigate to Reuben Drive. Second, right turn-in/right turn-out access would be provided at the intersection of SR 44 and Kristi Road, immediately west of I-69. This access was requested by the Martinsville Fire Department to minimize emergency response times to the Foxcliff neighborhoods and other adjacent areas.

Alternative C4 would provide access to the portion of the Cikana State Fish Hatchery located immediately adjacent to SR 37 via Twin Branch Road to the south, as in Alternatives C1 and C2. Twin Branch Road would be extended south to Old SR 44 along the east side of I-69. This option is preferred by stakeholders and the public, and it would provide the most effective and safest path for truck traffic accessing the fish hatchery.

### **3.7.3 Subsection 3: Morgan Street to Henderson Ford Road**

Alternative C4 would generally be made up of elements from Alternative C1 in this subsection. A continuous local service road would be provided on the west side of I-69 from Reuben Drive to Egbert Road by connecting Morgan Street to Old SR 37. As in Alternative C2 rather than Alternative C1, however, Morgan Street would be realigned near Prince of Peace Church to reduce the impacts to the church's parking area and septic field. Extension of city sewer and water lines to the church may be necessary due to utility impacts.

Just north of the Prince of Peace Church, Teeters Road would be extended over I-69 to connect to Old SR 37. Alternative C4 would also provide a connection from Old SR 37 to the Ozark





Fisheries on the east side of I-69 via a grade separation of Myra Lane under I-69. The underpass would accommodate large trucks and would require less right of way than overpass alternatives.

An angled overpass of I-69 would connect Egbert Road to Old SR 37. This configuration would provide the most direct connection, have lower cost, and impact a smaller area of wetlands than other alternatives.

### **3.7.4 Subsection 4: Henderson Ford Road to Banta Road (Morgan County Road 800W)**

Alternative C4 in this subsection would be composed of elements from Alternative C2. Henderson Ford Road would be realigned through the interchange area to connect to Centennial Road on the east side of I-69. A diamond interchange configuration is included in Alternative C4 although it would require the acquisition of slightly more farmland. There would be no operational or significant cost advantage in using a narrow diamond configuration, and the standard diamond interchange would provide greater flexibility for future improvements.

As with Alternative C2, a local service road would be extended in Alternative C4 from Henderson Ford Road to New Harmony Road, including a New Harmony Road Bridge replacement over Stotts Creek to provide access to properties east of Stotts Creek. This is in response to comments from the public, Morgan County EMS, and Martinsville Public Schools. As with Alternative C2, the bridge would be realigned to provide a better crossing of Stott's Creek as requested by resource agencies.

Alternative C4 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. This linkage was requested by the public and Morgan County EMS, citing poor travel times and road conditions on alternate routes without a connection. A local service road on the west side of I-69 would provide access from Old SR 37 and Perry Road to the cemetery associated with the former Mount Zion Church.

An overpass would be provided for Big Bend Road over I-69 with Alternative C4. Per Morgan County Commissioners, roadway improvements may need to extend to Old SR 37. An overpass would be provided for Waverly Road with Alternative C4, with a local service road connection to Whiteland Road, as shown in Alternative C2. Local input indicates that the Waverly connection is more important for schools, EMS providers, and most residents. The local service road that connects Waverly Road and Whiteland Road is realigned in Alternative C4 to avoid utilities (power, gas) and reduce property impacts.

### **3.7.5 Subsection 5: Banta Road (Morgan County Road 800W) to Fairview Road**

Consistent with all alternatives, Alternative C4 would provide a diamond interchange at SR 144 and a grade crossing at Stones Crossing Road. As with Alternative C2, the SR 144 interchange



would be designed to avoid impacts to the Waverly Branch of the Morgan County Public Library. Similar to Alternative C2, Alternative C4 would also provide a local service road west of I-69 that is continuous between SR 144 and County Line Road. This continuous local service road was preferred by many commenters and stakeholders, including Johnson County. The local service road would follow the same alignment as in Alternative C2 through the Greenwood Mobile Home Community.

Alternative C4 would provide a diamond interchange at Smith Valley Road. Similar to Alternative C1, the I-69 mainline would be shifted slightly west of existing SR 37 near Smith Valley Road in Alternative C4. This shift would avoid impacts to Wakefield Drive and the Wakefield neighborhood. Per discussion with the White River Township Fire Department, the proximity of the fire station drive to the interchange would not be desirable, particularly with the emergency egress located on Mullinix Drive after reconfiguration of the fire station site. It is therefore assumed that the fire station would be relocated with Alternative C4, and a retaining wall would not be needed to protect the facility.

As with Alternative C2, a grade separation would not be provided at Fairview Road with Alternative C4. Instead, a continuous local service road would be provided along the west side of I-69, extending from SR 144 to County Line Road.

#### **3.7.6 Subsection 6: Fairview Road to Wicker Road**

Just north of Fairview Road, Alternative C4 would be raised above the existing SR 37 grade and I-69 would remain elevated north to I-465, consistent with Alternative C1. Alternative C4 would use a folded loop interchange at County Line Road, as proposed in Alternative C1. This configuration is preferred by stakeholders. Use of the loop ramp would avoid impacts to businesses in the southeast quadrant of the County Line Road interchange and would allow Bluff Road to connect to County Line Road without impact to homes in the Mount Pleasant neighborhood. Roundabouts would be used at the ramp terminal intersections, which would allow the connection from County Line Road to Wicker Road to be aligned close to I-69 and eliminate construction of two bridges on the west side of I-69.

#### **3.7.7 Subsection 7: Wicker Road to Banta Road (Marion County)**

Just north of County Line Road, the Alternative C4 I-69 mainline would shift to the west of the existing SR 37 alignment to avoid the need for a wall to protect residences along the east side of I-69 near Wicker Road. As I-69 nears Southport Road, the alignment would be shifted back, either onto or east of the existing SR 37 alignment. Two options were developed for the Southport Road interchange configuration with Alternative C4.

Option A (Alternative C4A) would provide a tight diamond interchange at Southport Road, located east of the existing intersection of SR 37 with Southport Road. The location of the Southport Road interchange east of existing SR 37 would be similar to Alternative C2. As in





Alternative C2, acquisition of the Aspen Lakes apartments east of I-69 and relocation of all residents would be required. Although elimination of Aspen Lakes access to Southport Road would allow better traffic operation in the vicinity of the I-69 interchange, a need for additional access restrictions along Southport Road could be identified based on more detailed traffic analysis.

West of I-69, Alternative C4A would allow the existing Southport Landing shopping center and future retail on the south side of Southport Road to remain. However, drives along Southport Road between the interchange ramp terminal and Wellingshire Boulevard would be closed or restricted to right turn egress only. Similar to Alternative C1, a new public road would be constructed north of the Southport Landing shopping center to connect Belmont Avenue with Southport Road at Wellingshire Boulevard. This intersection would be shifted slightly east of the existing Wellingshire Boulevard intersection, which would impact the commercial building at the west end of the Southport Landing shopping center, but would eliminate impacts to the adjacent Governor's Point residential neighborhood.

Option B (Alternative C4B) would provide a tight diamond interchange at Southport Road, located approximately 280 feet north of the existing intersection of SR 37 with Southport Road. Southport Road would be relocated between Harding Street and Wellingshire Boulevard, and it would pass over the I-69 mainline. The Southport Road overpass is unlike all other alternatives.

The relocation of Southport Road would allow Aspen Lakes apartments to remain in place with one building impacted. The existing alignment of Southport Road in front of Aspen Lakes and the Perry Commons neighborhood would be retained to serve as a local service road for access to these two neighborhoods from relocated Southport Road. The intersection of this local service road with the relocated Southport Road would be approximately 1,050 feet from the I-69 interchange and could warrant a traffic signal.

West of I-69, Alternative C4B would impact all businesses in the existing Southport Landing shopping center. Relocated Southport Road would directly impact several buildings, and adjacent areas would be required for storm water detention. Belmont Avenue would be relocated further west to connect with Southport Road opposite Wellingshire Boulevard. This intersection would be shifted slightly east of the existing Wellingshire Boulevard intersection, which would avoid the adjacent Governor's Point residential neighborhood. Drives along Southport Road between the interchange ramp terminal and Wellingshire Boulevard would be closed or restricted to right-turn egress only.

The planned Little Buck Creek Trail is located along Little Buck Creek just north of Southport Road<sup>25</sup> and U.S. Bicycle Route 50 is designated to follow Southport Road through the proposed I-69 interchange. These trails would be accommodated across I-69 with either interchange option.

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<sup>25</sup> *Indy Greenways Full Circle Plan, 2013-2023 Master Plan, May 2014*, <https://indygreenwaysmasterplan.wordpress.com/full-circle-master-plan-2/>



#### 3.7.8 Subsection 8: Banta Road to I-465

Alternative C4 would shift the I-465 interchange west, as shown in Alternative C2. This would result in lower cost and, with the Epler Avenue connection, would provide better continuity to Harding Street to and from the south. Unlike Alternative C2, an Edgewood Avenue underpass of I-69 is included based on input from Perry Township Schools and the Indianapolis Fire Department, citing better connectivity and quicker response times.

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 exit. Widening of I-465 is also included to provide four continuous through travel lanes in each direction between Mann Road and US 31.

Retaining walls are assumed for Alternative C4 in the same locations as Alternative C2. As with Alternative C2, no retaining wall would be used on the north side of I-465 immediately east of Bluff Road. Fill slopes would be used along this widened section of I-465, impacting the building at 4401 Bluff Road. Smaller wall sections would be used to avoid the two adjacent electric transmission towers.

### 3.8 Refined Preferred Alternative

Alternative C4, as described in **Section 3.7**, was identified as the preferred alternative in the DEIS. The Refined Preferred Alternative (RPA) retains most of the features of Alternative C4, with refinements based on public and agency input, more detailed technical evaluation, and value engineering studies. This section identifies the refinements made to Alternative C4 to define the RPA and explains the reasons for each refinement. The RPA, as defined in this section, is the basis of the final impact measures presented in subsequent chapters of this FEIS and is the alternative included in the Record of Decision.

Alternative C4 was presented as the preferred alternative of the DEIS in formal public hearings held on April 6, 2017, at Perry Meridian High School, and on April 10, 2017, at Martinsville High School. Comments on the DEIS and the preferred alternative were requested during the period March 17, 2017, to May 8, 2017. Additional comments from key stakeholders and local government officials received soon after as part of ongoing coordination were also accepted. **Volume III, Comments and Responses**, of this FEIS presents all substantive comments, categorized by sender as federal agency (AF); state agency (AS); local government (LG); public input - organization (PO); and public input - individual (PI). Responses to each comment are also provided in **Volume III, Comments and Responses**.

To define the RPA, technical adjustments were made to design details of Alternative C4 to better define anticipated project elements and construction limits. In some cases, these technical adjustments were made in response to comments. In other cases, they were based on more detailed information developed after the DEIS preferred alternative had been identified.





After the design elements of Alternative C4 were adjusted based on public and agency comments, and initial technical refinements were complete, a value engineering study was conducted in accordance with FHWA and INDOT policy. The purpose of the review was to identify adjustments that might reduce construction cost or construction time without compromising the function of the design in meeting the project purpose and need. The review team was comprised of qualified and experienced professionals that had no previous direct involvement in project development. Based on value engineering recommendations, further refinements were made to the RPA.

Details of the RPA are illustrated in a series of maps at a scale of 1 inch = 500 feet at the end of this chapter. As the RPA is described in this section, it is noted whether refinements have been made to Alternative C4 based on public and agency comments, technical refinement of engineering elements, or the recommendations of the value engineering study. As indicated above, all public and agency comments provided during the comment period after the DEIS was published are provided in **Volume III, Comments and Responses** of this FEIS.

With respect to the mainline, the lane and shoulder widths of the RPA are the same as Alternative C4, as shown in **Table 3-7**. As with Alternative C4, the RPA uses Mainline Option M2 (narrow median, standard shoulders and side slopes) as described in **Section 3.5.1** and illustrated in **Figure 3-8** through **Figure 3-10**. These dimensions may be revised at some locations during design, as described below.

Subsequent to publishing the DEIS, engineering analysis was completed to evaluate whether existing 10-foot paved outside shoulders should be retained (Mainline Option M-2) at some locations to minimize costs and impacts when SR 37 is upgraded to I-69 Section 6. This review considers the recommendation of AASHTO for consideration of 12-foot wide paved shoulders on freeways with more than 250 heavy vehicles per direction in the design hour. The analysis considered the potential cost, environmental impacts, and safety impacts of this design decision.

The evaluation approach assumed that 12-foot paved outside shoulders would be used for I-69 Section 6 unless specific conditions are met and the cost of widening the shoulders exceeds the benefits. Three segments were identified where existing outside shoulder conditions make it potentially feasible to retain existing 10-foot paved shoulders. However, in two of these segments, work adjacent to the shoulders is either proposed or likely as part of the I-69 construction, and it would be reasonable to widen the shoulders in conjunction with this work.

Thus, the evaluation identified one 5,100-foot segment of northbound SR 37 between Cragen Road and Perry Road where existing and proposed conditions may warrant retention of the existing 10-foot paved outside shoulder. A benefit-cost evaluation conducted for this segment showed that the cost of widening the shoulder would exceed the benefit.

Based on the engineering analysis, the following conditions were identified for reuse of existing outside shoulders when SR 37 is upgraded to construct I-69 Section 6:



1. Existing outside shoulders with at least 10 feet of paved shoulder width may remain in place without widening in locations where no guardrail is required and no work outside of the existing shoulders is required. One location was identified that fits these criteria.
2. Where work is required outside of the existing shoulders, outside shoulders would also be reconstructed to provide 12 feet of paved width.
3. If guardrail is used along existing shoulder, paved shoulder width to the face of the guardrail must be at least 12 feet.

The conditions above are consistent with INDOT Design Memorandum 17-02, which defines INDOT policy regarding rural interstate shoulder widths. Although the policy applies to three travel lanes, the memorandum is pertinent since it specifically addresses the use of 10-foot and 12-foot shoulders, as follows: “Where the current year average annual daily traffic (AADT) is 20,000 or greater or the number of trucks exceeds 250 directional daily hourly volume (DDHV), the minimum right paved shoulder is 12 feet. A design exception is required where the conditions are met and a lesser shoulder width is provided.” The southern portion of I-69 Section 6 where reuse of 10-foot lanes may be feasible is forecasted to have 44,000 to 53,000 AADT and 431 to 451 DDHV, indicating that 12-foot shoulders would be the preferred design.

INDOT Design Memorandum 17-02 also addresses minimum guardrail offset: “Where a 12-foot shoulder is provided, the minimum guardrail offset is 1 foot. Where a shoulder less than 12 feet is provided, the minimum guardrail offset is 2 feet.” The 2-foot guardrail offset with a 10-foot shoulder is consistent with the dimension noted in item 3 above.

While one segment of SR 37 has been identified that meets the criteria for retaining the existing 10-foot paved outside shoulder, more detailed engineering conducted during the design phase may determine that the shoulder must be widened because additional construction outside of the shoulder is necessary. Until design engineering is complete, sufficient right of way is defined in the RPA to accommodate 12-foot outside shoulders with new ditches and side slopes. Thus, for the purposes of this FEIS, Mainline Option M-2 is assumed for the RPA, consistent with Alternative C4.

Based on refined traffic analysis and recommendations of the value engineering study, the number of mainline lanes is reduced in the RPA between SR 144 and Smith Valley Road, as shown in **Table 3-9**. The median widths from Indian Creek to Southport Road remain the same as described in Alternative C4. As recommended in the value engineering study, a closed median with concrete barrier is proposed from Southport Road to I-465. The alignment of the mainline in the RPA is essentially the same as Alternative C4, with slight variations at selected interchange or crossroad locations. These are identified in the description of these components in the subsection review below.

Most of the differences between Alternative C4 and the RPA are associated with interchanges and local service roads. These components of the RPA and the reasons for making changes to Alternative C4 are described in the following subsection by subsection review.





**Table 3-9: Number of Lanes - Alternative C4 and RPA**

| Location                            | Area  | Number of Lanes |     |
|-------------------------------------|-------|-----------------|-----|
|                                     |       | Alt C4          | RPA |
| Indian Creek to SR 39               | Rural | 4               | 4   |
| SR 39 to SR 44                      | Urban | 4               | 4   |
| SR 44 to SR 144                     | Rural | 4               | 4   |
| SR 144 to Smith Valley Road         | Urban | 6               | 4   |
| Smith Valley Road to Southport Road | Urban | 6               | 6   |
| Southport Road to I-465             | Urban | 8               | 8   |

**3.8.1 Subsection 1: Indian Creek to SR 39**

The interchange at SR 39 retains the layout of Alternative C4, but mainline bridges will be at a higher elevation than originally planned due to existing substandard vertical clearance. Because of this elevation change, the existing ramps will not be reused as expected with Alternative C4. The new ramps in the RPA will also be realigned horizontally to provide for more desirable design speed for the northbound exit ramp.

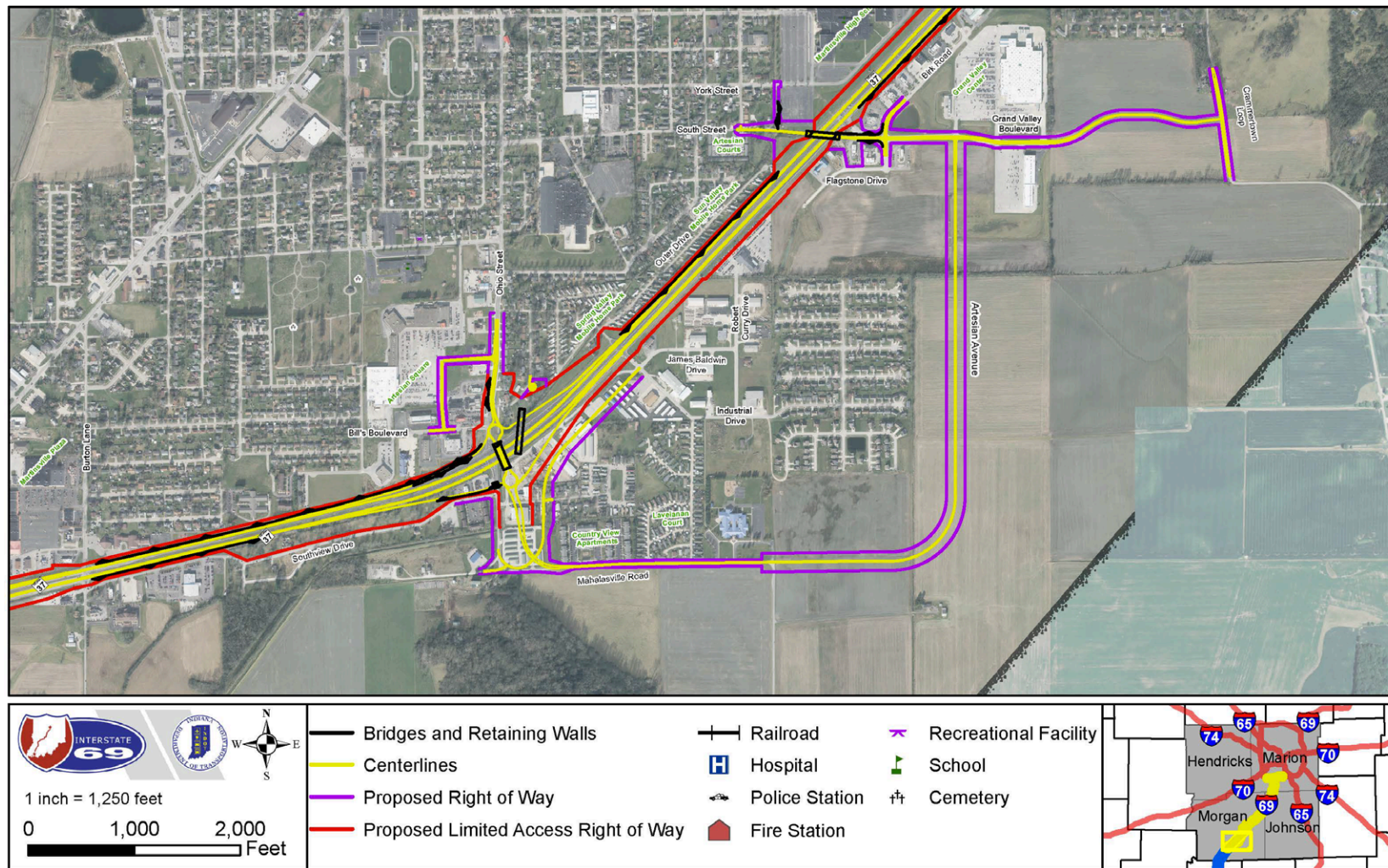
**3.8.2 Subsection 2: SR 39 to Morgan Street/Twin Branch Road (Martinsville)**

The layout of the RPA in Subsection 2 is illustrated in **Figure 3-26**. Changes are included in the RPA at Burton Lane, at the Ohio Street interchange, and at Grand Valley Boulevard. These changes are described below.

One change to Alternative C4 in the RPA is the elimination of the Burton Lane overpass. Burton Lane ends in the RPA as a local road intersection near I-69, as proposed in Alternative C3. Access to Burton Lane on the north side of I-69 will be available from the SR 39 interchange and on the south side by the Ohio Street interchange. Eliminating the overpass results in six fewer commercial relocations and five fewer residential relocations compared with Alternative C4. It also avoids the relocation of the Martinsville Baptist Tabernacle Church and Tabernacle Christian School. A retaining wall will be placed along I-69 to minimize impacts to the parking and recreation areas of that site. This change addresses concerns expressed in numerous public comments and is consistent with recommendations of the value engineering study.

The layout of the Ohio Street interchange was changed in the RPA in response to requests from the City of Martinsville, Morgan County, and many citizens to minimize commercial relocations in the vicinity, particularly in the northwest and southeast quadrants of the interchange. The RPA

Figure 3-26: Refined Preferred Alternative, Burton Lane to Grand Valley Boulevard







includes an elevated roundabout interchange, and the alignment of mainline I-69 is shifted to the southwest. Realignment of the southbound entrance ramp allows impacts to the parking lot at Walgreens to be avoided. The shift in mainline alignment in the RPA, coupled with retaining walls, reduces the number of relocations in Spring Valley and Sun Valley Mobile Home Parks west of SR 37 by 29 units, from 30 relocations to one.

The new connecting road shown in Alternative C4 between Mahalasville Road and Southview Drive is eliminated in the RPA. This avoids the need to acquire several residential parcels, including some that were purchased with federal Hazard Mitigation Grant Program funds. The RPA provides access to the south via existing Southview Drive and existing Mahalasville Road.

Commercial Boulevard is realigned in the RPA to provide access north from the interchange, but unlike Alternative C4, new construction will stop at Industrial Drive. James Baldwin Drive and Robert Curry Drive will continue to provide access to nearby businesses. An alternate route is provided to access Grand Valley Boulevard, as described in the next paragraph. This adjustment responds to comments provided by the City of Martinsville and several of the local businesses.

Access from the Ohio Street interchange to Grand Valley Boulevard is provided in the RPA via a new roadway identified as Artesian Avenue that extends east from Mahalasville Road, then curves north to align with the existing Walmart entrance at Grand Valley Boulevard. Although this roadway is longer than the Commercial Drive connection of Alternative C4, it avoids existing development and eliminates 11 commercial and five residential relocations. It also provides a more direct connection to Grand Valley Boulevard. A variation of this alignment was suggested in comments provided by Morgan County.

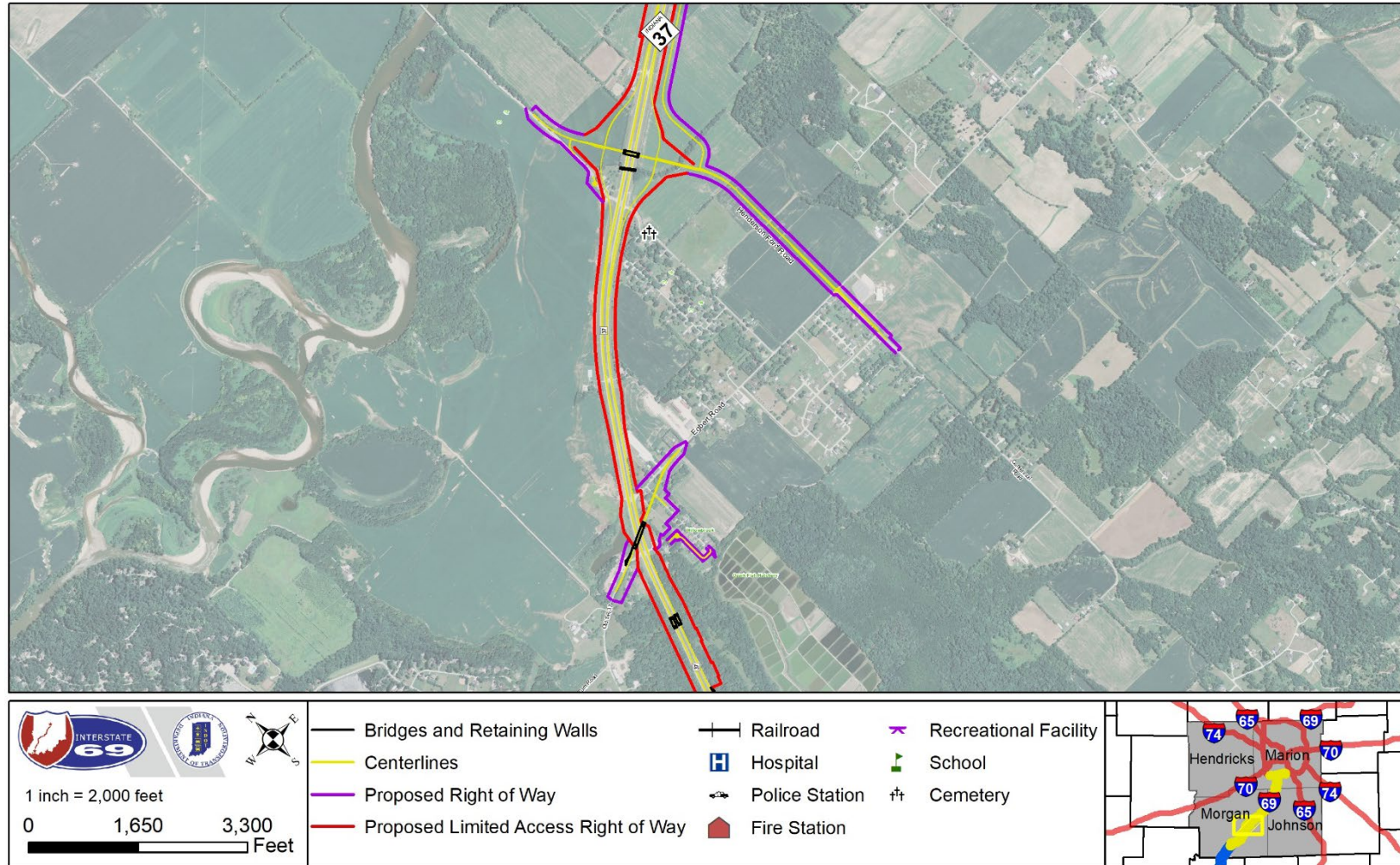
Refinements to the Grand Valley Boulevard overpass design in the RPA allow Birk Road and Flag Stone Drive to be used as north/south connections, eliminating the need for a new intersection further east as in Alternative C4. The alignment of Grand Valley Boulevard between Walmart and Cramertown Loop is also adjusted in the RPA to align with a proposed development that has been platted in that area. These changes eliminate several relocations and reduce project cost.

The modified split diamond interchange at SR 252/Hospital Road and SR 44/Reuben Drive as described in Alternative C4 is retained in the RPA with no adjustments.

### **3.8.3 Subsection 3: Morgan Street to Henderson Ford Road**

As shown in **Figure 3-27**, the RPA includes a slight realignment of Egbert Road east of I-69 and modification of access to Willowbrook Drive south of Egbert Road to provide options regarding properties acquired through the federal Hazard Mitigation Grant Program (see **Section 5.2.8.3**). The elevation of the mainline is raised in two areas from that assumed in Alternative C4 due to floodway elevations, which reduces the amount of pavement to be reused in the RPA. No other refinements are included in the RPA in this subsection.

Figure 3-27: Refined Preferred Alternative, Egbert Road to Big Bend Road







### 3.8.4 Subsection 4: Henderson Ford Road to Banta Road (Morgan County)

The diamond interchange configuration at Henderson Ford Road in the RPA is the same as Alternative C4, but it is shifted slightly to the south to minimize impacts to an existing wetland. Other impacts of the interchange are essentially unchanged.

A difference in the RPA compared to Alternative C4 in this subsection is the elimination of the Big Bend Road overpass. Opposition to the overpass was expressed by nearby property owners in written comments, and the value engineering study recommended its elimination based on construction cost savings and a reduction in necessary relocations. Connectivity across I-69 will be available at nearby overpasses at Perry Road and Waverly Road.

### 3.8.5 Subsection 5: Banta Road to Fairview Road

The SR 144 interchange in the RPA is shown in **Figure 3-28**. A partially folded diamond with a loop ramp to serve southbound exiting traffic is provided in lieu of the diamond interchange of Alternative C4. The value engineering study recommended this change to avoid relocating two service stations in the northwest quadrant of the interchange. It also allows Huggin Hollow Road to intersect SR 144 from the north for access to the service stations and Waverly Branch of the Morgan County Public Library. Huggin Hollow Road ended at a cul-de-sac in Alternative C4.

The RPA includes the extension of Huggin Hollow Road from the south to connect to Old SR 37 west of the SR 144 interchange. This extension includes a new bridge across Bluff Creek. Huggin Hollow Road ended at a cul-de-sac in Alternative C4. This change responds to public comments regarding the loss of connectivity in this region. Huggin Hollow Road currently intersects SR 144 near SR 37 and provides access to Waverly and multiple residential areas. The closure of Huggin Hollow Road as shown in Alternative C4 would create a dead-end road approximately a mile long, affecting more than 50 residences.

In the northeast quadrant of the interchange, the local service road at CR 144 is aligned with the proposed entrance to the anticipated development in the southeast quadrant. The Stones Crossing Road overpass in Alternative C4 is eliminated in the RPA. Instead, the local service road proposed in Alternative C4 from CR 144 to Travis Road is extended north to Stones Crossing Road to provide access to properties east of I-69. Stones Crossing Road does not currently have a median opening at SR 37 for east-west movement, so there is no loss of existing east-west connectivity. Eliminating the overpass allows the west local service road to be realigned to link directly with Old SR 37 at Stones Crossing Road. Eliminating the overpass and realigning the local service road eliminates the need for three relocations in the Greenwood Mobile Home Park.

The RPA provides a different treatment of intersections in the Smith Valley Road interchange area, as shown in **Figure 3-29**. Roundabout intersections are provided at both ramp terminals of the diamond interchange in lieu of the standard intersections shown in Alternative C4.

Figure 3-28: Refined Preferred Alternative, SR 144 to Stones Crossing Road

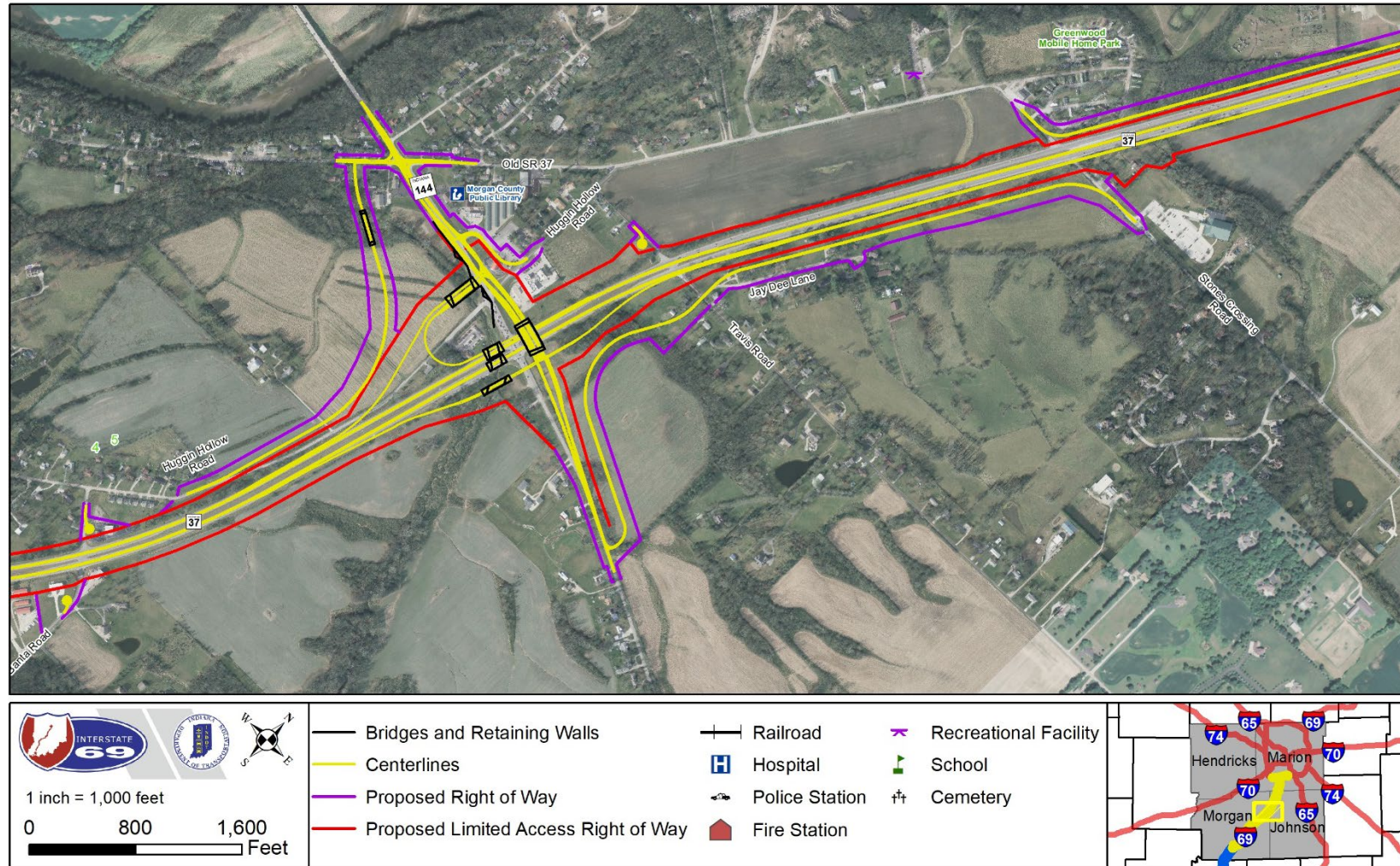
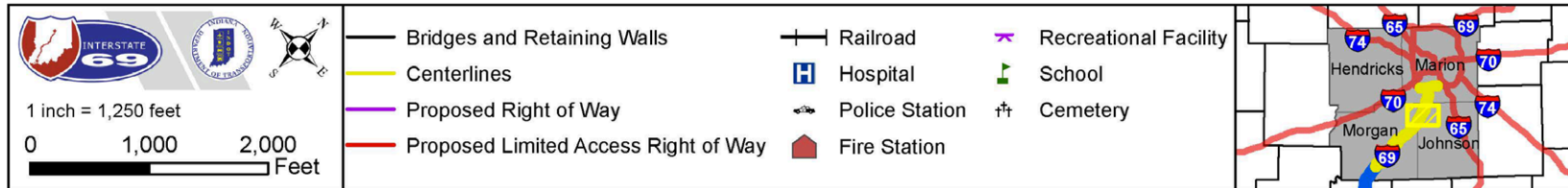
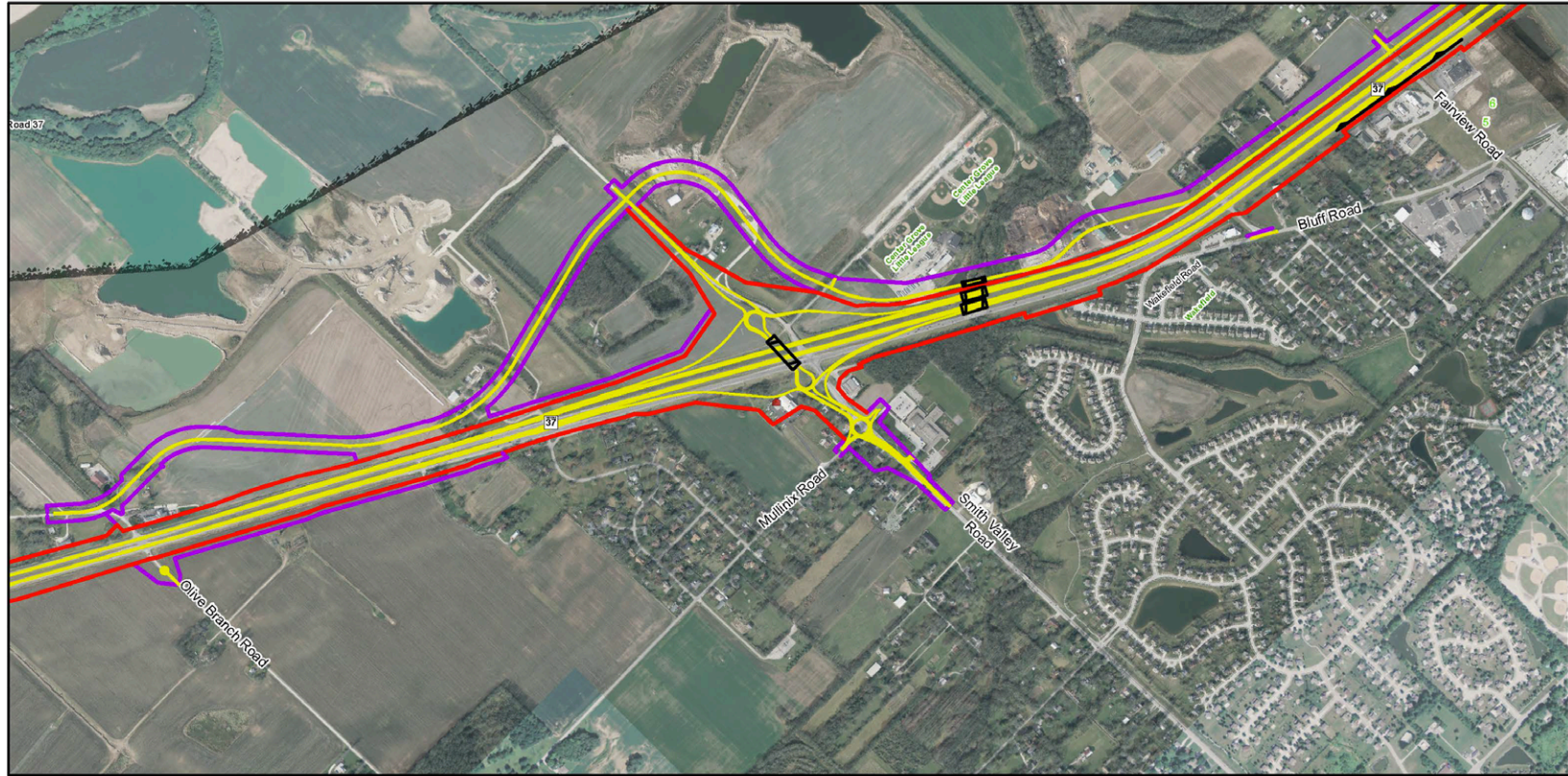






Figure 3-29: Refined Preferred Alternative, Olive Branch Road to Fairview Road





A roundabout intersection is included in the RPA at Mullinix Road, located immediately east of the interchange. Roundabouts are proposed since they work more effectively for closely spaced intersections than traffic signals. Comments from local residents requested a roundabout at the Mullinix Road intersection due to concerns about traffic congestion.

The west local service road is realigned north of Smith Valley Road in the RPA to be adjacent to I-69. This refinement reduces impacts to an existing gas main, reduces the size of the bridge across Honey Creek, and avoids impacts to the Center Grove Little League baseball fields. The alignment of the local service road in Alternative C4 would have eliminated one of the larger playing fields, one of the smaller playing fields, and the entire parking area.

As shown in **Table 3-9**, I-69 has six mainline lanes north of Smith Valley Road in the RPA. The lanes are added approximately 2,000 feet south of Smith Valley Road and extend north through the interchange and continue north to Southport Road.

#### 3.8.6 Subsection 6: Fairview Road to Wicker Road

The RPA is essentially the same as Alternative C4 in this subsection, including the provision of 6 lanes on I-69. Geometric details of ramps are refined at the County Line Road interchange to more closely represent anticipated design features, but the function and layout of the interchange is the same as Alternative C4.

#### 3.8.7 Subsection 7: Wicker Road to Banta Road (Marion County)

As in Alternative C4, I-69 has 6 lanes in this subsection. Subsection 7 includes the Southport Road interchange. Rather than including a preferred layout of this interchange area, two options were identified in the DEIS, referred to as Alternatives C4A and C4B. Selection of a preferred configuration was deferred until after the public hearing and DEIS comment period to allow an opportunity for public and agency input. A description of the Alternatives C4A and C4B is provided in **Section 3.7.7**. Information from the initial alternatives evaluation, including various impact measures for each option, is provided in **Section 6.3.2.7**.

A summary of review factors considered in identifying a preferred option for the Southport Road interchange is presented in **Table 3-10**. Comments from property owners and tenants affected by Options A and B at Southport Road were also considered. Aspen Lakes Apartment owners expressed concerns about construction impacts, decreased property values, and less direct access from Southport Road. From businesses in Southport Landing, one comment asked to retain businesses due to capital investment and tax base, and two comments called for relocation of businesses due to I-69 construction impacts. The City of Indianapolis provided a letter following the comment period expressing a preference for Alternative C4B at Southport Road.

After considering all comments, and recognizing that there are many trade-offs represented in the review factors of **Table 3-10**, Alternative C4B is selected for the Southport Road interchange.



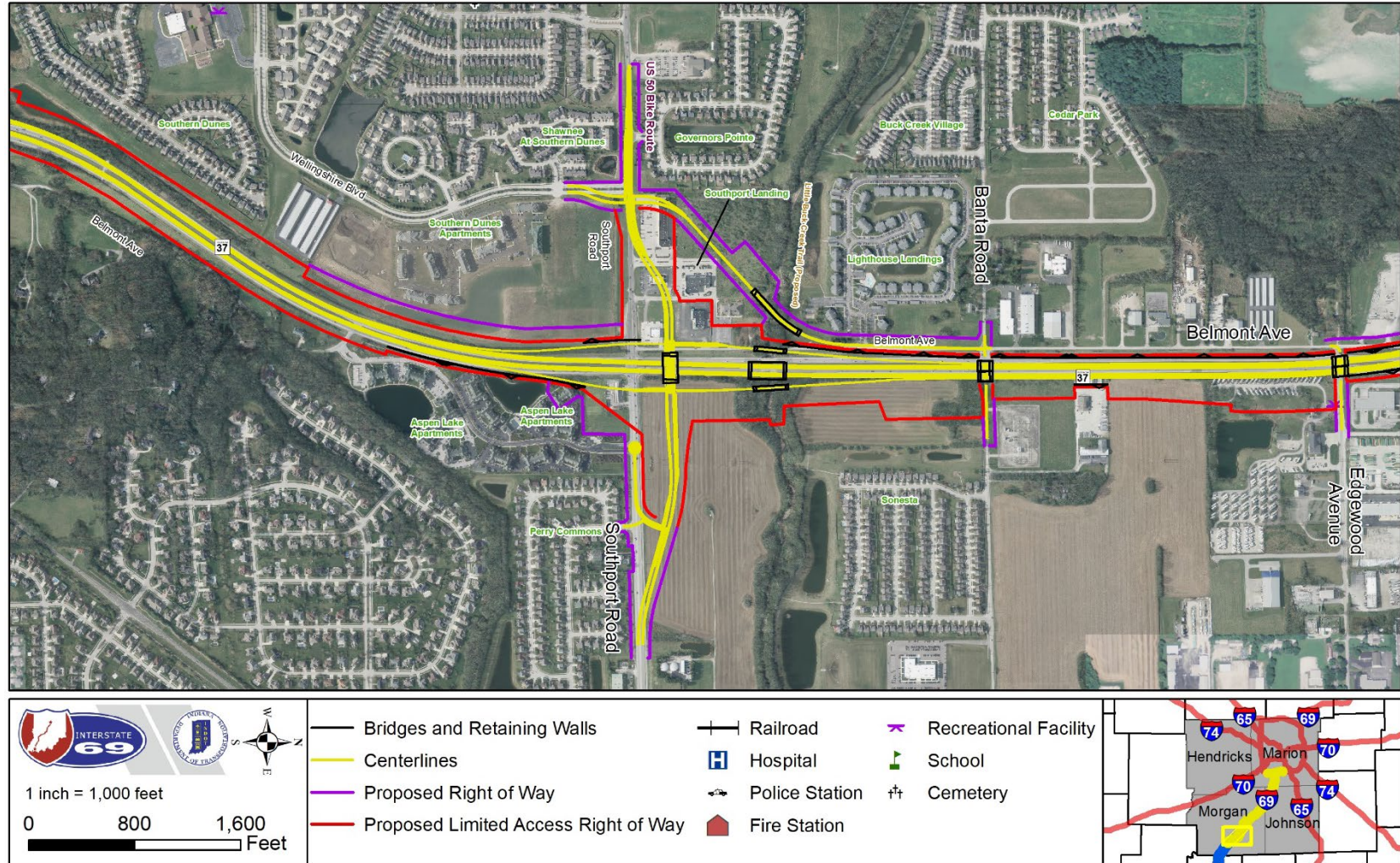


Major considerations in this decision are the substantial differences in the number of relocations and the lower total cost of construction. The interchange layout is shown in **Figure 3-30**.

**Table 3-10: Review Factors for Southport Road Options**

| Review Factor                   | Alternative C4A  | Alternative C4B  |
|---------------------------------|--|--|
| <b>Traffic Operations</b>       |  |  |
| Ramp Terminals                  | No Significant Difference  | No Significant Difference  |
| Southport Road East             | Less traffic due to fewer apartments                             | Must serve demand from apartments                                    |
| Southport Road West             | Must serve demand from businesses                                | Less traffic due to fewer businesses                                 |
| <b>Maintenance of Traffic</b>   | Facilitates I-69 construction, but Southport Road more difficult | Facilitates Southport Road construction, but I-69 more difficult     |
| <b>Utilities</b>                | Avoids high pressure gas line next to Belmont Avenue             | Requires relocation of high pressure gas line next to Belmont Avenue |
| <b>New Right of Way (acres)</b> | 34 acres   | 58 acres   |
| <b>Relocations</b>              |  |  |
| Residential, single family      | 1 unit   | 1 unit   |
| Residential, apartment          | 332 units  | 24 units   |
| Business                        | 3 businesses   | 17 businesses  |
| <b>Total Relocations</b>        | <b>336</b>   | <b>43</b>  |
| <b>Project Cost</b>             |  |  |
| Preliminary Engineering         | \$5.9 Million  | \$6.0 Million  |
| Right of Way                    | \$39.6 Million   | \$20.7 Million   |
| Environmental Mitigation        | \$4.9 Million  | \$4.9 Million  |
| I-69 Construction               | \$84.0 Million   | \$85.1 Million   |
| Utilities                       | \$11.8 Million   | \$12.7 Million   |
| Construction Administration     | \$7.6 Million  | \$7.7 Million  |
| <b>Total Estimated Cost</b>     | <b>\$153,800,000</b>   | <b>\$137,100,000</b>   |
| <b>Environmental Impact</b>     |  |  |
| Total Streams (lf)              | 265 feet   | 598 feet   |
| Floodplain (ac)                 | 21 acres   | 53 acres   |
| Wellhead Protection Areas (ac)  | 46 acres   | 67 acres   |
| Agricultural Land (ac)          | 3 acres  | 17 acres   |
| Upland Forest (ac)              | 2.7 acres  | 1.8 acres  |

Figure 3-30: Refined Preferred Alternative, Southport Road Interchange







Minor adjustments to the geometric layout of Southport Road interchange Alternative C4B were made in defining the RPA. As a result, the right of way required in the northwest quadrant of the interchange allows one of the commercial buildings to remain for future development. That adjustment is reflected in **Table 3-10**.

### **3.8.8 Subsection 8: Banta Road to and including I-465**

The overall configuration of interchanges and local service roads in the RPA is essentially the same as Alternative C4 in this subsection. Auxiliary lanes are added to the I-69 mainline in each direction north of Southport Road to provide an eight-lane section. The I-69 median north of Southport Road is closed with concrete median barrier north of Southport Road to minimize costs, as recommended in the value engineering study. The alignments of the ramps for the system interchange between I-69 and I-465 were refined to reduce impacts to Hanson Aggregates on the north side of I-465, as well as the impacts to the large quarry pond in the southeast quadrant of the interchange. Impacts to Hanson Aggregates with the RPA are estimated to be approximately 50 acres less than the 66 acres estimated for Alternative C4. The reduced right of way of the RPA can be seen in .

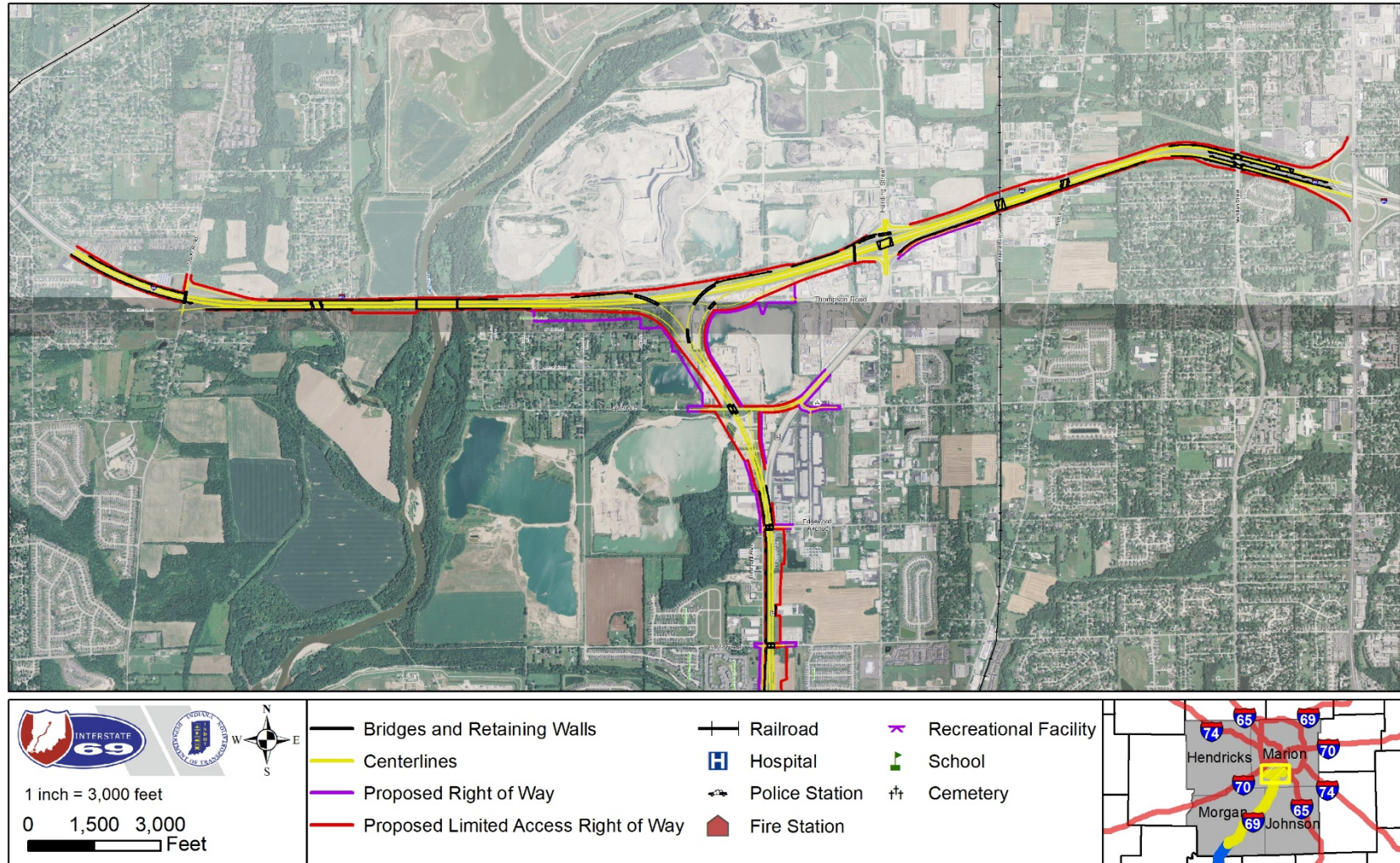
## **3.9 Summary of Alternatives**

This chapter describes the I-69 mainline, interchange types and locations, and local service road configurations for Alternatives C1, C2, C3, C4, and the RPA. Alternatives C1, C2 and C3 are described in **Section 3.6**; Alternative C4 (DEIS preferred alternative) is described in **Section 3.7**; and the RPA is described in terms of adjustments to Alternative C4 in **Section 3.8**. Together, these sections provide a complete description of the RPA.

**Table 3-11** shows the planned configuration of every local roadway that currently intersects with SR 37 within the I-69 Section 6 corridor in Alternatives C1, C2, C3, C4, and the RPA. Interchanges are identified by location and type. Grade crossings are identified with an indication of whether the local service road passes under or over I-69. Local roads to be terminated at cul-de-sacs or realigned to connect with other local roadways are shown as “access closed” to indicate that direct access to or across I-69 will not be provided.



Figure 3-31: Refined Preferred Alternative, I-465 Interchange







**Table 3-11: Summary of I-69 Section 6 Alternatives**

| Location  | Alt C1   | Alt C2   | Alt C3  | Alt C4   | RPA  |
|---|--|--|---|--|--|
| <b>Subsection 1 - Southern limit to north side of SR 39 (1.5 miles)</b>   |  |  |   |  |  |
| I-69 Mainline: 4 lanes  |  |  |   |  |  |
| Old SR 37   | Access Closed  | Access Closed  | Access Closed   | Access Closed  | Access Closed  |
| SR 39   | Diamond interchange. Under I-69.   | Diamond interchange with roundabouts. Under I-69.      | Existing trumpet interchange with added roundabout. Under I-69. | Existing trumpet interchange with added roundabout. Under I-69.            | Existing trumpet interchange with added roundabout. Under I-69.            |
| <b>Subsection 2 - SR 39 to Morgan Street/Twin Branch Road (4.3 miles)</b> |  |  |   |  |  |
| I-69 Mainline: 4 lanes; Alternative C1 elevated, SR 39 to SR 44           |  |  |   |  |  |
| Burton Lane   | Grade separation. Under I-69.  | Grade separation. Over I-69.                           | Access Closed   | Grade separation. Over I-69.   | Access Closed  |
| Ohio Street   | Diamond interchange with roundabouts. Under I-69.                          | Grade separation. Over I-69.                           | Diamond interchange. Over I-69.                                 | Diamond interchange. Over I-69.  | Diamond interchange. Over I-69 with roundabouts.                           |
| Industrial Drive  | Access Closed  | Access Closed  | Access Closed   | Access Closed  | Access Closed  |
| Grand Valley Boulevard  | Grade separation. Under I-69.  | Grade separation. Over I-69.                           | Grade separation. Over I-69.                                    | Grade separation. Over I-69.   | Grade separation. Over I-69.   |
| Glenn Street  | Access Closed  | Access Closed  | Access Closed   | Access Closed  | Access Closed  |
| SR 252/Hospital Drive   | Modified split-diamond interchange. SR 252 under I-69 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.          | Modified split-diamond interchange. SR 252 under I-69 and SR 44 over I-69. | Modified split-diamond interchange. SR 252 under I-69 and SR 44 over I-69. |
| SR 44/Reuben Drive  |  |  |   |  |  |



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

**Section 6—Final Environmental Impact Statement**

| Location  | Alt C1   | Alt C2   | Alt C3   | Alt C4   | RPA  |
|---|--|--|--|--|--|
| East Morgan Street/<br>Twin Branch Road   | Access Closed  | Access Closed  | Access Closed  | Access Closed  | Access Closed  |
| <b>Subsection 3 – Morgan Street/Twin Branch Road to Henderson Ford Road (3.4 miles)</b><br>I-69 Mainline: 4 lanes |  |  |  |  |  |
| Teeters Road  | Grade separation. Over I-69.                           | Grade separation. Over I-69.                           | Grade separation. Over I-69.                           | Grade separation. Over I-69.                           | Grade separation. Over I-69.                           |
| Country Club Road   | Access Closed  | Access Closed  | Access Closed  | Access Closed  | Access Closed  |
| Old SR 37/Myra Lane   | Grade separation. Under I-69.                          | Grade separation. Over I-69.                           | Grade separation. Over I-69.                           | Grade separation. Under I-69.                          | Grade separation. Under I-69.                          |
| Old SR 37/Egbert Road   | 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. | Old SR 37 and Egbert Road grade separation. Over I-69. | Old SR 37 and Egbert Road grade separation. Over I-69. |
| <b>Subsection 4 - Henderson Ford Road to Banta Road in Morgan County (7.6 miles)</b><br>I-69 Mainline: 4 lanes    |  |  |  |  |  |
| Henderson Ford Road   | Diamond interchange. Over I-69.                        | Diamond interchange. Over I-69.                        | Tight diamond interchange. Over I-69.                  | Diamond interchange. Over I-69.                        | Diamond interchange. Over I-69.                        |
| Ennis Road (CR 500 E)   | Access Closed  | Access Closed  | Access Closed  | Access Closed  | Access Closed  |
| New Harmony Road  | Access Closed  | Access Closed  | Access Closed  | Access Closed  | Access Closed  |
| Cragen Road   | Access Closed  | Access Closed  | Access Closed  | Access Closed  | Access Closed  |



# I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

## Section 6—Final Environmental Impact Statement



| Location   | Alt C1  | Alt C2  | Alt C3                          | Alt C4  | RPA   |
|--|---|---|---------------------------------|---|---|
| Perry Road/Old SR 37   | Perry Road and Old SR 37 grade separation. Over I-69. | Perry Road and Old SR 37 grade separation. Over I-69. | Access Closed                   | Perry Road and Old SR 37 grade separation. Over I-69. | Perry Road and Old SR 37 grade separation. Over I-69. |
| Big Bend Road  | Grade separation. Over I-69.                          | Grade separation. Over I-69.                          | Grade separation. Over I-69.    | Grade separation. Over I-69.                          | Access Closed   |
| Waverly Road   | Access Closed   | Grade separation. Over I-69.                          | Access Closed                   | Grade separation. Over I-69.                          | Grade separation. Over I-69.                          |
| Whiteland Road   | Grade separation. Over I-69.                          | Access Closed   | Grade separation. Over I-69.    | Access Closed   | Access Closed   |
| <b>Subsection 5 - Banta Road in Morgan County to Fairview Road (4.9 miles)</b>                       |   |   |                                 |   |   |
| I-69 Mainline: 4 lanes, Banta Road to Smith Valley Road; 6 lanes, Smith Valley Road to Fairview Road |   |   |                                 |   |   |
| Banta Road   | Access Closed   | Access Closed   | Access Closed                   | Access Closed   | Access Closed   |
| SR 144   | Diamond interchange. Over I-69.                       | Diamond interchange. Over I-69.                       | Diamond interchange. Over I-69. | Diamond interchange. Over I-69.                       | Partially folded diamond interchange. Over I-69       |
| Travis Road  | Access Closed   | Access Closed   | Access Closed                   | Access Closed   | Access Closed   |
| Stones Crossing Road   | Grade separation. Over I-69.                          | Grade separation. Over I-69.                          | Grade separation. Over I-69.    | Grade separation. Over I-69.                          | Access Closed   |
| Olive Branch Road  | Access Closed   | Access Closed   | Grade separation. Over I-69.    | Access Closed   | Access Closed   |
| Bluff Acres Drive  | Access Closed   | Access Closed   | Access Closed                   | Access Closed   | Access Closed   |
| Smith Valley Road  | Diamond interchange. Over I-69                        | Diverging diamond interchange. Over I-69              | Diamond interchange. Over I-69  | Diamond interchange. Over I-69                        | Diamond interchange. Over I-69 with roundabouts       |



# I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

## Section 6—Final Environmental Impact Statement

| Location  | Alt C1   | Alt C2                                      | Alt C3                                  | Alt C4  | RPA  |
|---|--|---|---|---|--|
| Bluffdale Road  | Access Closed  | Access Closed                               | Access Closed                           | Access Closed   | Access Closed  |
| Fairview Road   | Grade separation. Over I-69.                                     | Access Closed                               | Grade separation. Over I-69.            | Access Closed   | Access Closed  |
| <b>Subsection 6 - Fairview Road to Wicker Road (1.6 miles)</b>  |  |   |   |   |  |
| I-69 Mainline: 6 lanes, elevated, County Line Road to Wicker Road   |  |   |   |   |  |
| County Line Road  | Partial folded diamond interchange with roundabouts. Under I-69. | Tight diamond interchange. Under I-69.      | Tight diamond interchange. Over I-69.   | Partial folded diamond interchange with roundabouts. Under I-69.                                  | Partial folded diamond interchange with roundabouts. Under I-69. |
| Glenns Valley Lane  | Access Closed  | Access Closed                               | Access Closed                           | Access Closed   | Access Closed  |
| Wicker Road   | Grade separation. Under I-69.                                    | Grade separation. Under I-69.               | Grade separation. Under I-69.           | Grade separation. Under I-69.   | Grade separation. Under I-69.                                    |
| <b>Subsection 7 - Wicker Road to Banta Road in Marion County (2.2 miles)</b>  |  |   |   |   |  |
| I-69 Mainline: 6 lanes, elevated, Wicker Road to Southport Road: 8 lanes, elevated, Southport Road to Banta Road with closed median |  |   |   |   |  |
| Belmont Avenue  | Access Closed  | Access Closed                               | Access Closed                           | Access Closed   | Access Closed  |
| Southport Road  | Diverging diamond interchange. Under I-69.                       | Single-point urban interchange. Under I-69. | Folded diamond interchange. Under I-69. | Option A: Tight diamond interchange. Under I-69.<br>Option B: Tight diamond interchange over I-69 | Tight diamond interchange over I-69                              |
| <b>Subsection 8 - Banta Road in Marion County to I-465 (1.5 miles)</b>  |  |   |   |   |  |
| I-69 Mainline: 8 lanes, elevated with closed median   |  |   |   |   |  |
| Banta Road  | Grade separation. Under I-69.                                    | Grade separation. Under I-69.               | Grade separation. Under I-69.           | Grade separation. Under I-69.   | Grade separation. Under I-69.                                    |
| Edgewood Avenue   | Grade separation. Under I-69.                                    | Access Closed                               | Access Closed                           | Grade separation. Under I-69.   | Grade separation. Under I-69.                                    |



# I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

## Section 6—Final Environmental Impact Statement



| Location             | Alt C1   | Alt C2   | Alt C3  | Alt C4   | RPA  |
|----------------------|--|--|---|--|--|
| Epler Avenue         | Grade separation. Under I-69.  | Grade Separation. Under I-69. Ramp connections from I-69 to the south. | Grade separation. Under I-69.                                       | Grade Separation. Under I-69. Ramp connections from I-69 to the south. | Grade Separation. Under I-69. Ramp connections from I-69 to the south. |
| Thompson Road        | Access Closed  | Access Closed  | Access Closed   | Access Closed  | Access Closed  |
| I-465/I-69           | Directional interchange  | Directional interchange  | 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 | Access to SR 37/Harding Street provided via Epler Avenue connections.  | Access to SR 37/Harding Street provided via Epler Avenue connections.  |