



**APPENDIX CC: I-69 Tier 2, Section 6 Conceptual
Alternatives Evaluation Report, May 18, 2015**

Tier 2 Environmental Impact Statement

I-69 Section 6

Martinsville to Indianapolis



Contents

1	Introduction.....	1
1.1	Project Overview	1
1.2	Purpose & Need	2
2	Conceptual Alternatives Development	3
3	Conceptual Alternatives Evaluation Method	4
3.1	Step 1 – Discussion of General Advantages and Disadvantages	4
3.2	Step 2 – Purpose & Need Evaluation.....	4
3.3	Step 3 – Relative Cost Evaluation	5
3.4	Step 4 – Environmental Impacts Assessment Based on GIS data	6
3.5	Step 5 – Public and Resource Agency Input.....	8
4	Conceptual Alternatives Evaluation Results.....	8
5	Next Steps.....	8

Appendices

A. Figures and Tables

Figure A-1 Alternative Screening and Evaluation Process

Figure A-2 Initial Conceptual Alternatives

Figure A-3 Conceptual Alternatives

Figure A-4 Low-Income, Census Tract Level

Figure A-5 Minority Status, Census Block Level

Table A-1 Summary of I-69 Section 6 Conceptual Alternatives

Table A-2 I-69 Section 6 Conceptual Alternatives Evaluation

B. Conceptual Alternatives Maps

C. I-69 Section 6 Travel Demand Model Use for Conceptual Alternatives Evaluation

D. Conceptual Alternatives Cost Estimation Methodology

E. Conceptual Alternatives General Advantages and Disadvantages



1 Introduction

This technical memorandum describes the process of developing and screening Conceptual Alternatives for Section 6 of the Tier 2 I-69 Environmental Impact Statement (EIS). The I-69 Tier 1 Record of Decision (ROD) selected a corridor that follows SR 37 through nearly the entirety of Section 6, from SR 39 to just south of I-465. At least one alternative in this corridor will be carried forward throughout the Section 6 EIS process.

The Conceptual Alternatives are general I-69 alternatives that include a right-of-way footprint based on the typical impact area for a new freeway facility. Their evaluation provides a general comparison of the potential benefits and impacts of various Section 6 alternatives using existing data. This allows for a more efficient use of resources by reserving detailed data collection, engineering and evaluation efforts for the most promising alternatives. This is the first step in identifying, evaluating and refining project alternatives that will ultimately result in the selection of a preferred alternative for design and construction. The Tier 1 SR 37 alternative (Alternative C) and the Conceptual Alternatives that are selected for further analysis as Preliminary Alternatives will be developed in more detail.

An overview of the screening and evaluation process for the EIS is shown in **Figure A-1**. Twenty-six initial Conceptual Alternatives were developed and considered, 13 of which were screened out qualitatively due to environmental or engineering flaws. The remaining 13 alternatives¹ were advanced to a quantitative comparison of transportation benefits, environmental impacts and potential cost. **Figure A-2** shows the 26 initial Conceptual Alternatives. **Figure A-3** shows the remaining 13 Conceptual Alternatives, plus Alternative C, that were advanced to quantitative comparison. The best performing of these 13 Conceptual Alternatives will later be identified as Preliminary Alternatives and will undergo more detailed development and screening to ultimately determine the alternatives that will be considered in detail in the EIS along with a SR 37 alternative. Costs, impacts, and the ability to meet the project Purpose & Need are evaluated at a broad level for the Conceptual Alternatives described in this memorandum. Accordingly, these factors are considered in combination to identify Conceptual Alternatives which should be retained for further analysis.

1.1 Project Overview

The analysis described in this memorandum is being conducted as part of Section 6 of the I-69 Evansville to Indianapolis Tier 2 EIS. Section 6 begins just south of the SR 39 / SR 37 interchange in Martinsville and continues northward to I-465 in Indianapolis. This section is approximately 26 miles long. The corridor selected for Section 6 in the I-69 Tier 1 EIS is located along existing SR 37 in Morgan, Johnson, and Marion counties.

¹ There are a total of 14 alternatives at this stage, 13 Conceptual Alternatives plus the SR 37 alternative (Alternative C). A SR 37 alternative or alternatives will be carried forward for detailed study in the EIS.



1.2 Purpose & Need

The Purpose & Need of a project establishes the basis for developing a range of reasonable alternatives in a National Environmental Policy Act (NEPA) evaluation and assists with the selection of a preferred alternative. It describes the transportation and transportation-related needs which a project should address. It also provides performance measures which assess the relative ability of alternatives to address the project needs. A preferred alternative is determined by assessing the relative costs and impacts of alternatives, as well as their relative ability to satisfy the Purpose & Need.

The Draft Purpose & Need Statement for I-69 Section 6 establishes goals and performance measures to be used in evaluating alternatives for this section of I-69.² These Section 6 goals and their performance measures are summarized below in Table 1. Some or all of the alternatives may be similar in their ability to meet some of these goals.

Table 1. I-69 Section 6 Draft Tier 2 Goals and Performance Measures	
Project Goal	Performance Measures
Goal 1: Improve the transportation linkage between Martinsville and Indianapolis	<i>Complete Section 6 of I-69.</i>
	<i>Travel time between northern limits of I-69 Section 5 and I-465 in Indianapolis.</i>
Goal 2: Improve personal accessibility in the Section 6 Study Area	<i>Travel time between major travel destinations in the Section 6 Study Area.</i>
Goal 3: Reduce future traffic congestion on the highway network in the Section 6 Study Area (Morgan, Johnson, Hendricks and Marion counties)	<i>Reduction of traffic congestion on area roadways</i>
Goal 4: Improve traffic safety in the Section 6 Study Area (Morgan, Johnson, Hendricks and Marion counties)	<i>Reduction of crashes in the Section 6 Study Area.</i>
Goal 5: Support growth in economic activity in the Section 6 Study Area (Morgan, Johnson, Hendricks and Marion counties)	<i>Increases in personal income, total employment, and employment in key employment categories in the Section 6 Study Area.*</i>
Goal 6: Facilitate freight movements in the Section 6 Study Area	<i>Reductions in daily truck vehicle hours of travel (VHT) in the Section 6 Study Area.</i>

² Draft Purpose & Need Statement for Tier 2, Section 6 (Martinsville to Indianapolis) of the I-69 Evansville to Indianapolis Project, April 16, 2015



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

Project Goal	Performance Measures
Goal 7: Support intermodal connectivity to locations in the Section 6 Study Area	<i>Travel time between key entry points into the Study Area and major intermodal centers.*</i>

*Performance measure was not assessed during Conceptual Alternatives evaluation

2 Conceptual Alternatives Development

The I-69 Section 6 Conceptual Alternatives were developed to connect the northern terminus of I-69 Section 5 near Martinsville to I-465 in Indianapolis. Each Conceptual Alternative was drawn on a background of digital aerial photography and digital mapping of key environmental constraints that are discussed in Section 3.4 of the evaluation methodology. Twenty-six Conceptual Alternatives (shown in **Figure A-2**) were initially developed, which included 19 alternatives identified by the public and project team and seven unique alternatives developed in response to suggestions by the public at two public information meetings held in February 2015³. Based on public input and changed conditions in the corridor, alternatives located in part or entirely outside the SR 37 corridor are being considered as Conceptual Alternatives. In addition to the 26 Conceptual Alternatives that deviate from the SR 37 corridor, Alternative C is identified and corresponds to the SR 37 corridor selected in Tier 1. One or more versions of Alternative C will be carried forward throughout the DEIS and FEIS.

Each Conceptual Alternative was drawn with a 400-foot wide footprint to represent the potential impacts of both the I-69 mainline and local service roads. Footprints were widened where potential interchanges could be located.⁴ Each Conceptual Alternative was reviewed by engineers and environmental scientists to identify appropriate interchange locations and spacing, consider freeway design and local access requirements, and minimize impacts to environmental resources that are known or could be identified from available Geographic Information Systems (GIS) data and aerial photography. The environmental resources that were considered include wetlands, floodplains, forest, residential, and businesses properties, and managed lands. At this early stage of alternative development, no field investigations of resources were performed.

³ Public Information Meetings were held on February 23, 2015 at Center Grove High School and February 25, 2015 at Martinsville High School.

⁴ During subsequent alternative refinements, potential right-of-way widths will vary based on different typical sections representing the number of lanes and local topography, and specific local access road locations. At this stage of the NEPA process, there is not sufficient information to recommend the number of roadway lanes, interchange locations beyond intersections with other state roads, interchange configurations, or the location of local access roads and overpasses.



3 Conceptual Alternatives Evaluation Method

3.1 Step 1 – Discussion of General Advantages and Disadvantages

A list of qualitative advantages and disadvantages and maps showing environmental resources were developed for each Conceptual Alternative. A list of general advantages and disadvantages is included in **Appendix E**. Examples of potential advantages for an alternative include re-use of existing state owned right-of-way or infrastructure, lower impacts than the Tier 1 selected alternative or other Conceptual Alternatives, or better service to regional destinations, such as the Indianapolis International Airport. The study team⁵ conducted preliminary reviews of each of the 26 Conceptual Alternatives to determine if an alternative should be eliminated based on engineering or environmental flaws that cannot be avoided or because it has no advantage over other alternatives. At this stage, an alternative could be eliminated by consensus of the study team due to a single major flaw or due to an accumulation of flaws, especially if the alternative has no advantages over a similar alternative. Examples of major flaws that contributed to elimination of alternatives included direct impacts to numerous residential or commercial properties, direct impacts to protected Indiana bat habitat mitigation areas, and freeway system interchange configurations that would be cost prohibitive and/or highly impactful to construct. A list of the alternatives that were eliminated qualitatively and the major flaws associated with each is shown in **Table A-1**. Based on this qualitative screening, the number of Conceptual Alternatives was reduced to 13⁶ plus the SR 37 alternative (Alternative C).

The 13 Conceptual Alternatives were advanced for further quantitative evaluation as described in the following sections. These alternatives are indicated with a green “check mark” in **Table A-1** and are shown in **Figure A-3**. Maps of the Conceptual Alternatives, grouped by geographic location, are provided in **Appendix B**.

3.2 Step 2 – Purpose & Need Evaluation

Of the remaining 13 Conceptual Alternatives, any which do not satisfy the Purpose & Need of the I-69 Section 6 project will be eliminated from consideration. The 13 Conceptual Alternatives plus the SR 37 alternative (Alternative C) were divided into four groups based on major geographic elements they have in common. These groups include alternatives which travel west to I-70, travel west to Mann Road to I-465, remain on existing SR 37 to I-465, or travel east to I-65. Computerized travel demand modeling provided preliminary horizon year (2045) travel forecasts for each of the four alternative groups. The travel model analysis generated estimates

⁵ The study team consists of INDOT project management and engineering/environmental professionals from INDOT, FHWA, HNTB Corporation and Lochmueller Group.

⁶ Conceptual Alternatives retained for further study were A1, A2, B, D, F1, F2, G1, G2, K1, K3, K4, N and P. Alternative C uses the entire length of the Tier 1 Section 6 corridor and will be carried forward throughout the EIS process.



I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

Section 6 – Conceptual Alternatives Evaluation Report

for four measures of traffic-related benefits for each group when compared to the No Build condition: reductions in annual crashes, travel time savings between key travel pairs, reduction in traffic congestion, and improvements in regional truck travel. The No Build forecasts assume completion of I-69 between Evansville and Martinsville, as well as other transportation improvements included in fiscally-constrained INDOT and Indianapolis Metropolitan Planning Organization (MPO) transportation improvement programs. Construction of I-69 Section 6 was not included in the No Build forecast.

Purpose & Need evaluation criteria measure how well alternatives address the needs identified for the I-69 Section 6 project. Where any of the four alternative groups shows disproportionately less benefit across the four measures than the other groups, the alternatives within that group will be discarded. At least one alternative in the SR 37 corridor selected in Tier 1 will be considered among the reasonable alternatives evaluated in detail in the Section 6 DEIS and FEIS. Key quantitative results from the Purpose & Need evaluation of the alternatives are shown in **Table A-2**. Additional detail on the travel demand modeling process, along with a summary of travel demand forecasts, is provided in **Appendix C**.

3.3 Step 3 – Relative Cost Evaluation

Preliminary project partial cost estimates for major construction items were developed for each alternative⁷. These estimates do not represent the total expected cost for the project alternatives, since too little is known at this time to develop accurate estimates. Comparison of the major cost items, however, allows the identification of alternatives that are significantly more or less expensive than others. Based on the development of partial construction and right-of-way costs, the Conceptual Alternatives were rated on a scale from 1 to 5 to compare their relative project costs. The highest cost alternative was assigned a rating of 5(\$\$\$\$\$) and the lowest cost alternative was assigned a rating of 1(\$). The cost ratings for each Conceptual Alternative are shown in **Table A-2**, and additional detail on the cost estimation methodology is provided in **Appendix D**. The Conceptual Alternatives with the highest relative cost will be eliminated unless they show other benefits such as high performance on the Purpose & Need measures or low environmental impacts.

Lane-miles added to the National Highway System beyond the existing condition were also computed for each Conceptual Alternative as a rough indication of additional future maintenance costs. This accounts for new freeway capacity and the removal of existing arterial capacity on SR 37 or SR 67 that is replaced with freeway. Capital and maintenance costs will be evaluated in more detail for alternatives carried forward.

⁷ The following items were excluded from the Conceptual Alternative costs: local access, widening of existing interstates, adjacent interchange modifications, environmental mitigation, relocation/damages to property owners, selected utility costs, and cost savings from re-use of existing infrastructure on SR 37 or SR 67.



3.4 Step 4 – Environmental Impacts Assessment Based on GIS data

Environmental impacts were assessed using existing GIS data from the IndianaMap website⁸, and GIS data provided by counties and resource agencies⁹. The following resources were considered during the evaluation process. These were selected to represent impacts that require avoidance or minimization during the Tier 2 NEPA process and / or permitting.

1. Potential Section 4(f) Resources

These resources will require analysis of avoidance alternatives. If an alternative appears completely unable to avoid a Section 4(f) resource, but other feasible alternatives do avoid the resource, this will be a strong reason for eliminating that Conceptual Alternative. If an alternative which impacts a Section 4(f) resource could be shifted to avoid the resource, this was not considered a reason for elimination. Resources regarded as Section 4(f) resources include:

- Publically-owned Managed Lands (number and approximate acreage)
- Publically-owned Recreational Facilities (number and approximate acreage)
- Trails (number and length)
- Historic and Cultural Sites & Districts Listed on the National Register¹⁰ (number)

2. Wetlands (size in acres)

The project must minimize impacts to water resources to be permitted. Within each grouping of alternatives, if a Conceptual Alternative has disproportionately higher wetland impacts than other alternatives and these impacts cannot be avoided, it has a higher likelihood of being discarded.

3. Streams (length in feet)

The project must minimize impacts that require permitting. Within a group of Conceptual Alternatives, any alternative with stream impacts much higher than other alternatives has a higher likelihood of being discarded.

⁸ <http://www.indianamap.org/>

⁹ Some GIS data provided by resource agencies, such as recorded threatened or endangered species areas and wellhead protection areas are considered “Confidential” and are not publically available.

¹⁰ Only sites and districts listed on the National Register of Historic Places were considered, based on data available from the National Register website: http://www.nps.gov/nr/research/data_downloads.htm. Sites potentially eligible for the National Register will be identified during the preliminary alternatives evaluation stage using data from the Indiana State Historic Architectural and Archaeological Research Database (SHAARD) and windshield field surveys of the alternative.



4. Forest (size in acres)

In part, this serves as a surrogate for impacts to Indiana bats and northern long-eared bats. Alternatives that would have directly used Indiana bat mitigation areas were discarded in Step 1.

5. Floodplains (size in acres)

Floodplain impacts result in additional permitting as well as construction and maintenance costs. Within a group of alternatives, substantively higher floodplain impacts compared to others in its group provides a higher likelihood for elimination.

6. Farmland (size in acres)

Within Conceptual Alternative groupings, an alternative impacting significantly greater amounts of farmland than others in the same group will have a higher likelihood of being discarded.

7. Potential Environmental Justice (EJ) populations (number of tracts with low-income status and number of blocks with minority status)

Census data have been used to identify potential populations of EJ Concern. **Figures A-4 and A-5** show the location of these populations relative to the Conceptual Alternatives. This information was not used for evaluation of Conceptual Alternatives. As the alternatives progress into the Reasonable Alternatives stage, potential EJ communities will be consulted and more detailed EJ evaluations will be completed.

8. Property acquisition by zoned land use (number of parcels and acres)

At this level of screening, individual residential, commercial or industrial structures which may be either acquired or impacted by the proposed project were not enumerated. Rather, the total number of parcels within each of these zoned land uses was quantified as a surrogate for number of structural relocations. Acreage of land by zoned land use was also utilized to determine preliminary land acquisition estimates.

9. Impacts to Wellhead Protection areas, cemeteries, and utility corridors were also assessed based on existing GIS data.

Alternatives with relatively high impacts across many of the above resources compared to other alternatives in their geographic group, especially impacts to potential Section 4(f) resources and impacts requiring permitting, will be considered for elimination. If a geographic group of Conceptual Alternatives performs worse than the other Conceptual Alternatives for one or more of the following factors: cost, environmental impacts, or the ability to satisfy the Purpose & Need, that group of alternatives will be considered for elimination.



3.5 Step 5 – Public and Resource Agency Input

The Conceptual Alternatives and evaluation results were presented to environmental resource agencies on April 30, 2015, to the Community Advisory Committee (CAC) and the Stakeholder Working Groups (SWG) on May 11 and 12, 2015, and at two public meetings on May 18 and 19, 2015 to gather input regarding which Conceptual Alternatives should be considered further. Comments will be solicited until June 2, 2015.

4 Conceptual Alternatives Evaluation Results

Results of all quantitative evaluation steps are presented in **Table A-2**. None of the 13 Conceptual Alternatives shown in the table will be eliminated from consideration until comments from agency and public meetings are reviewed in conjunction with these results.

5 Next Steps

The I-69 Section 6 study team will review comments received from the CAC, SWG, public and resource agency meetings in conjunction with the quantitative evaluation results shown in **Table A-2**. Based on this information, the 13 Conceptual Alternatives will be screened to determine which Conceptual Alternatives do not warrant being carried forward into the smaller group of Preliminary Alternatives. The remaining Preliminary Alternatives will then undergo another round of refinement and analysis, leading to a decision about which Reasonable Alternatives to carry forward for detailed study within the Section 6 Tier 2 DEIS.



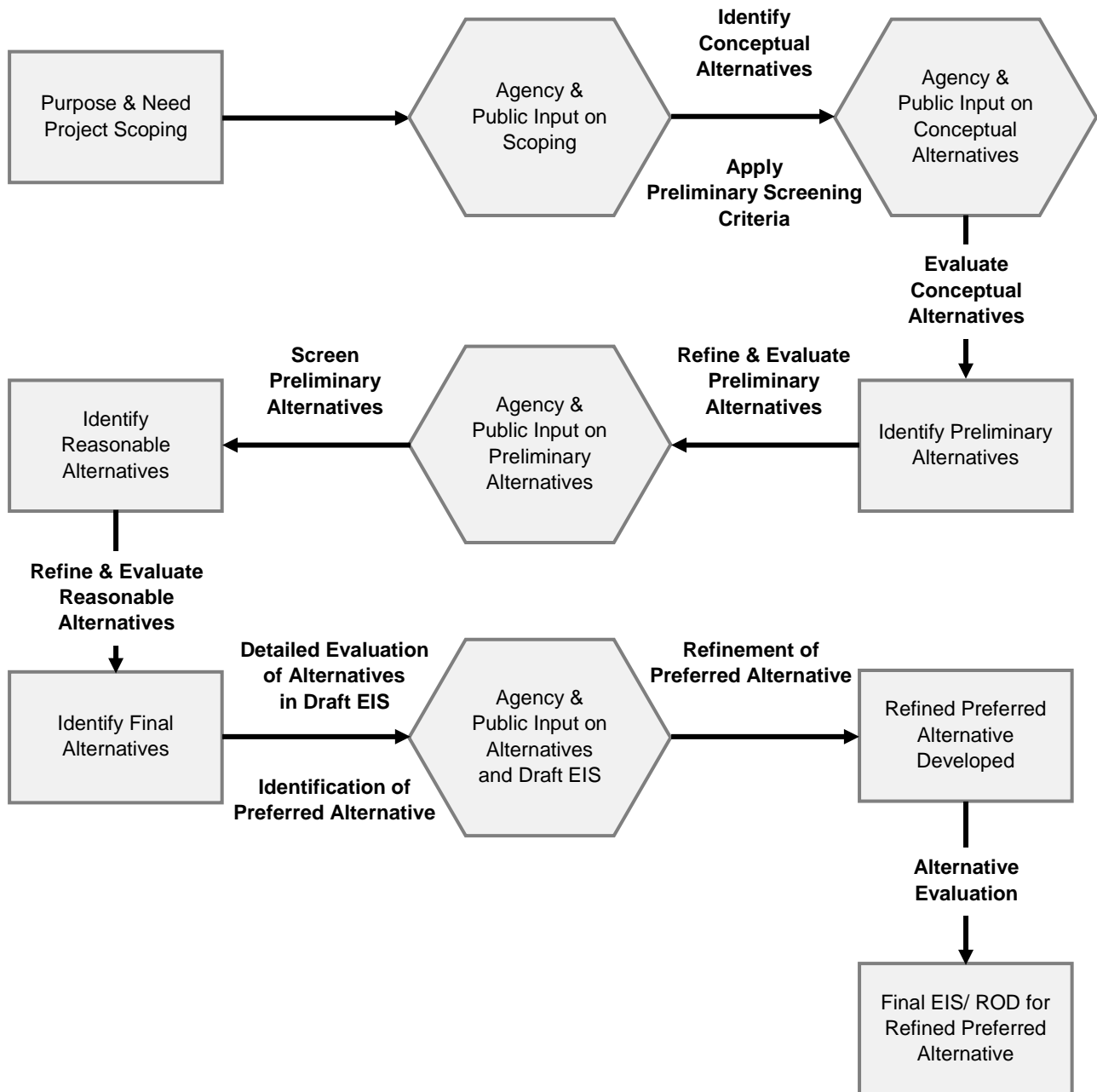
I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

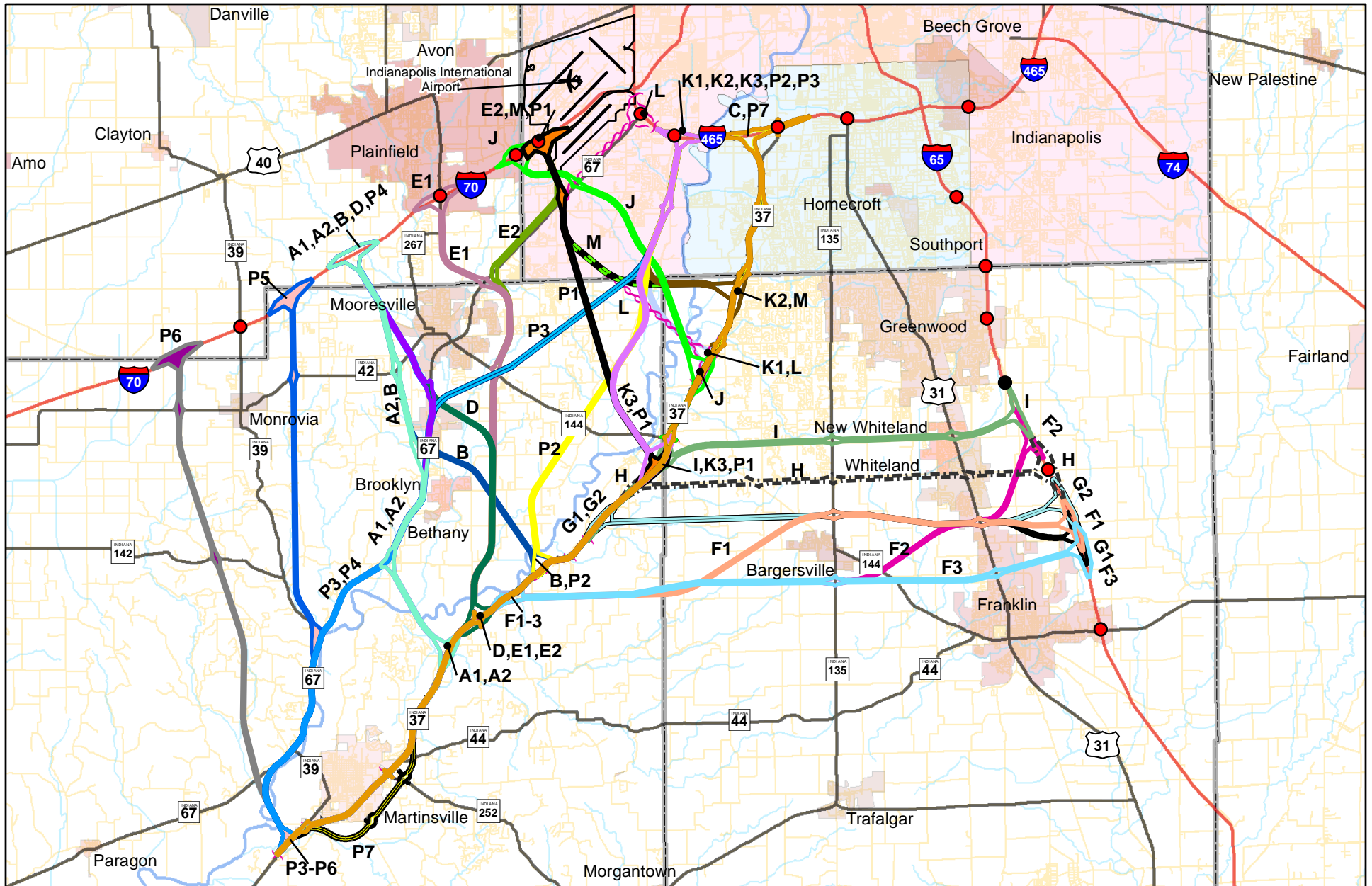
Section 6 – Conceptual Alternatives Evaluation Report

APPENDIX A
Figures and Tables



FIGURE A-1 ALTERNATIVE SCREENING AND EVALUATION PROCESS



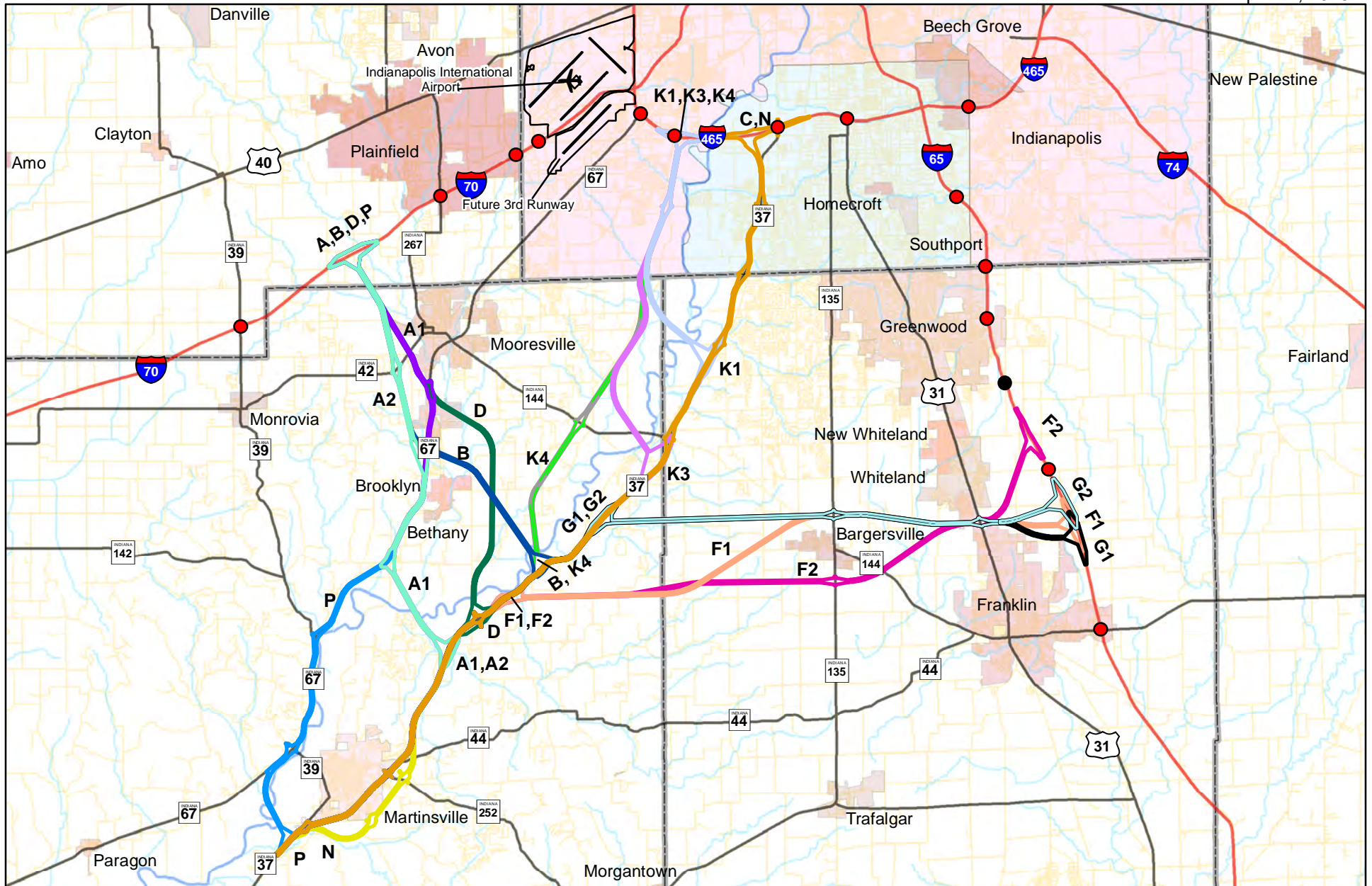


Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap



Legend					
	Interstate Highways		Existing Interchanges		Streams
	US and State Highways		Interchange Under Construction		White River
	Local Roads		County Line		Perry Township

Figure A-2
I-69 Section 6
 Initial Conceptual Alternatives



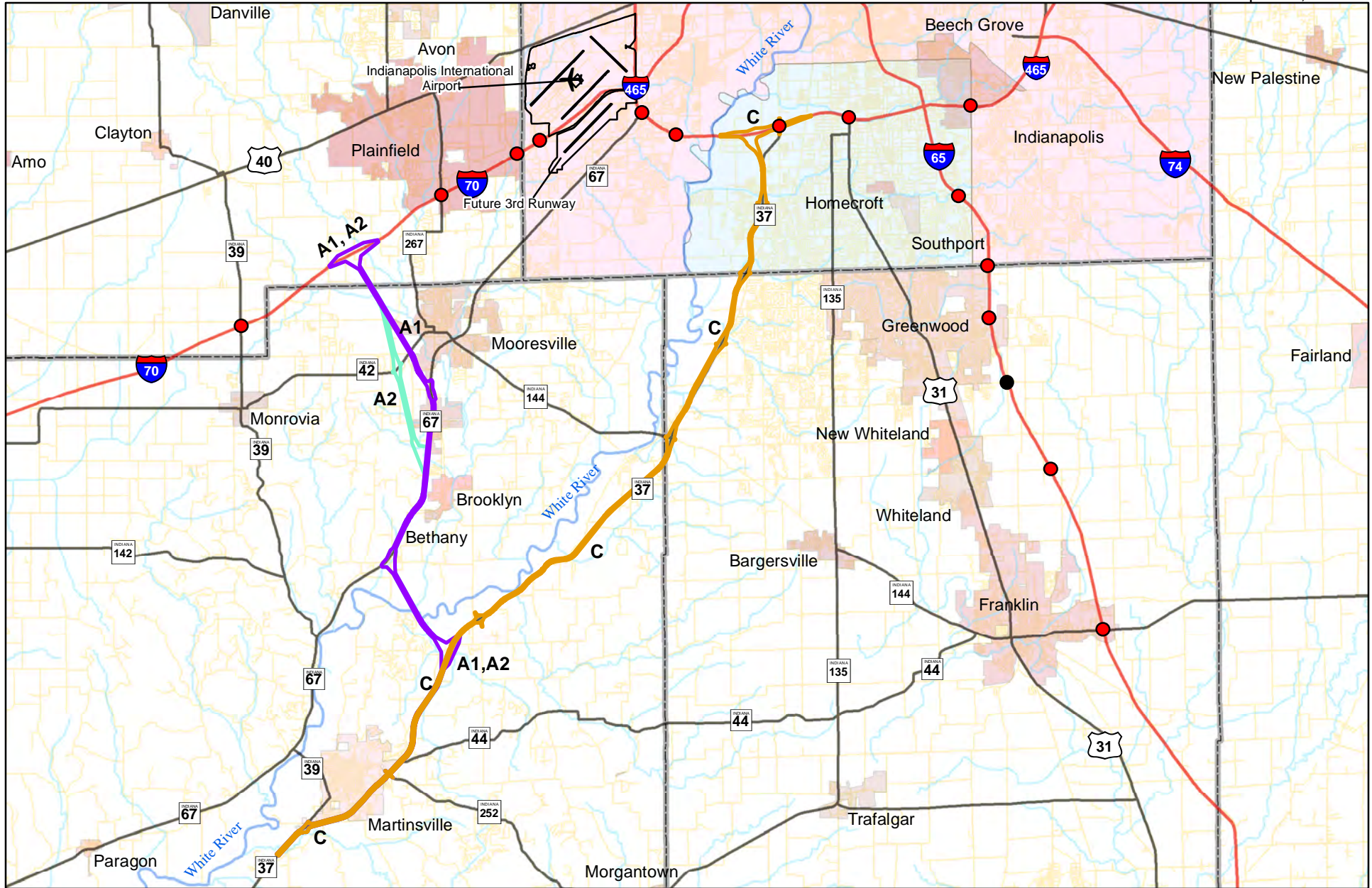
Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap



Legend

- Interstate Highways
- US and State Highways
- Local Roads
- Existing Interchanges
- Interchange Under Construction
- County Line
- Streams
- White River
- Perry Township

Figure A-3(1)
I-69 Section 6
Conceptual Alternatives

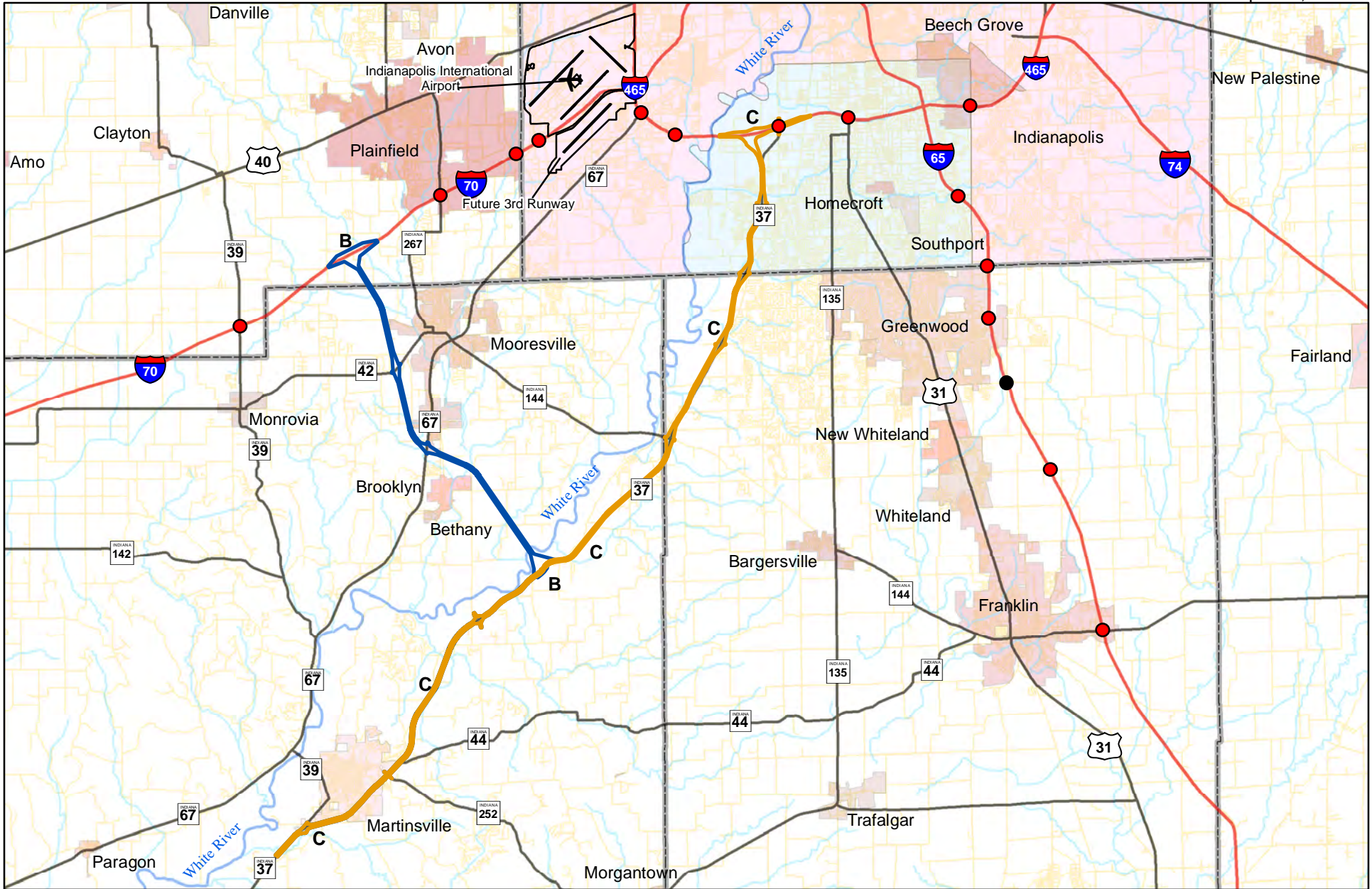


Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap



Legend		
Interstate Highways	Existing Interchanges	Streams
US and State Highways	Interchange Under Construction	White River
Local Roads	County Line	Perry Township
		Alternative Selected in Tier 1 ROD (C)
		A1
		A2

Figure A-3(2)
I-69 Section 6
Conceptual Alternatives-
A1 and A2

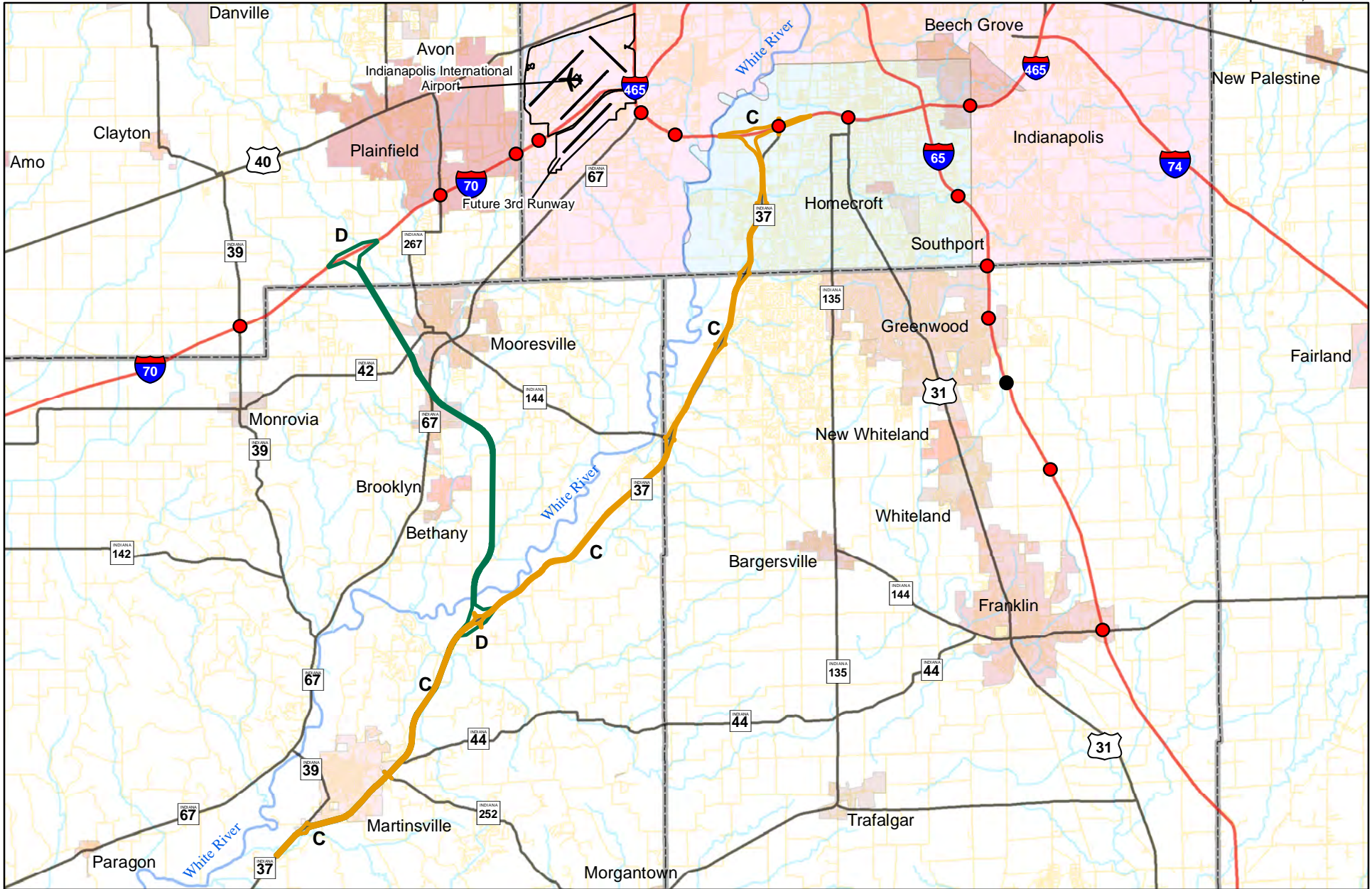


Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap



Legend	
Interstate Highways	Existing Interchanges
US and State Highways	Interchange Under Construction
Local Roads	County Line
Streams	White River
Perry Township	B
Alternative Selected in Tier 1 ROD (C)	C

Figure A-3(3)
I-69 Section 6
Conceptual Alternative- B

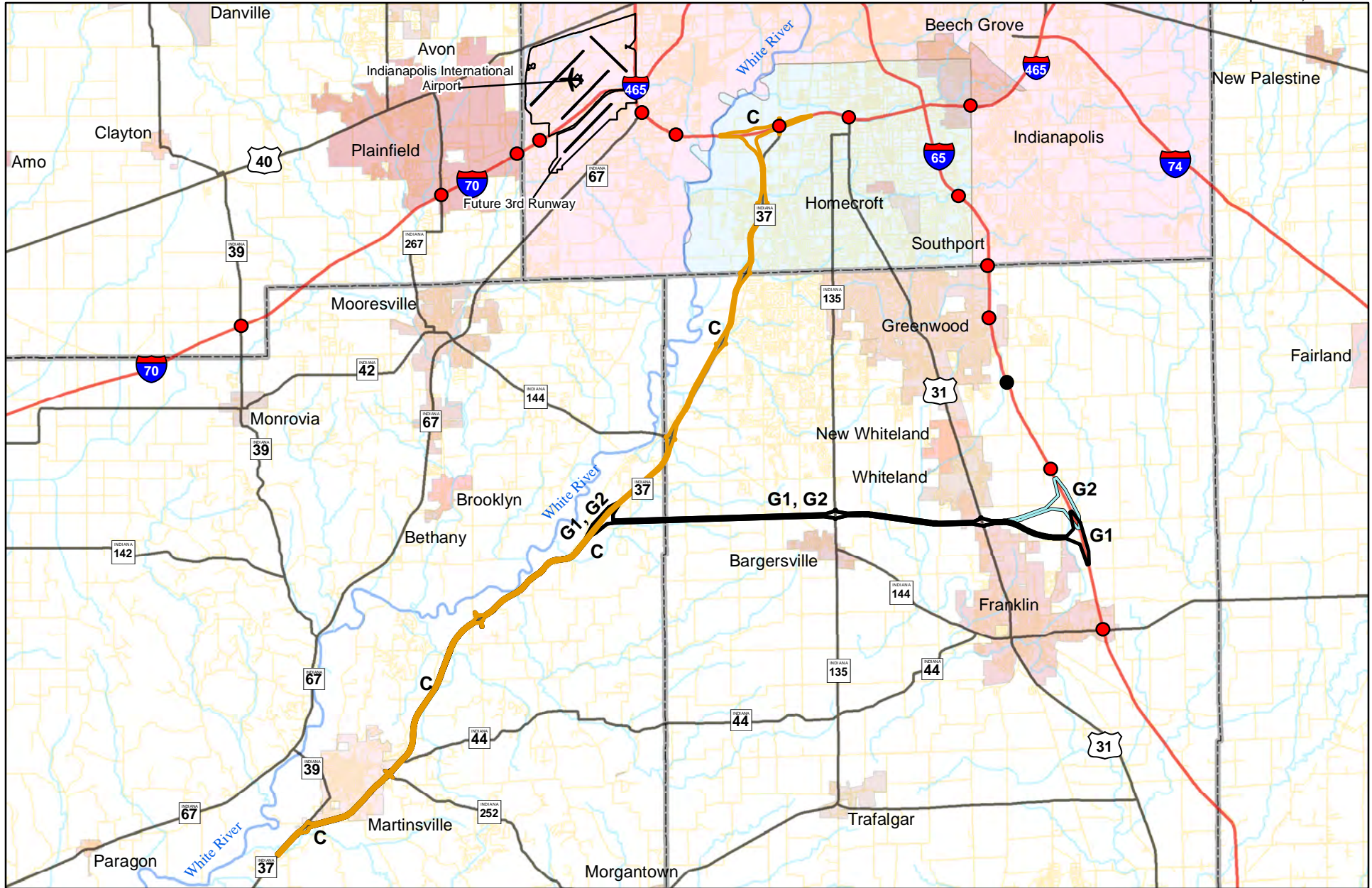


Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap



Legend	
Interstate Highways	Existing Interchanges
US and State Highways	Interchange Under Construction
Local Roads	County Line
Streams	Alternative Selected in Tier 1 ROD (C)
White River	D
Perry Township	

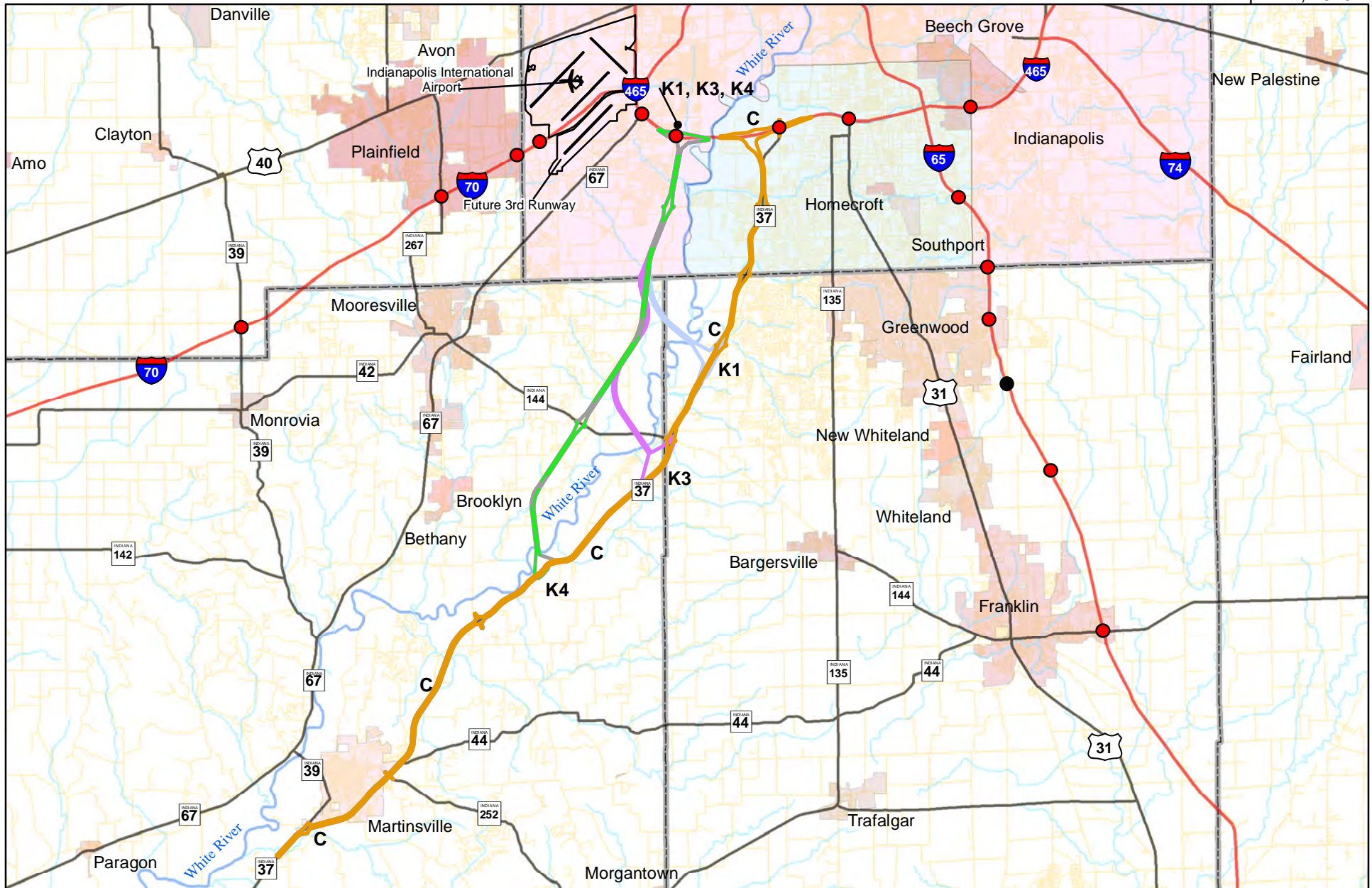
Figure A-3(4)
I-69 Section 6
Conceptual Alternative- D



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

Legend	
Interstate Highways	Existing Interchanges
US and State Highways	Interchange Under Construction
Local Roads	County Line
Streams	White River
Perry Township	Alternative Selected in Tier 1 ROD (C)
G1	G2

Figure A-3(6)
I-69 Section 6
Conceptual Alternatives-
G1 and G2

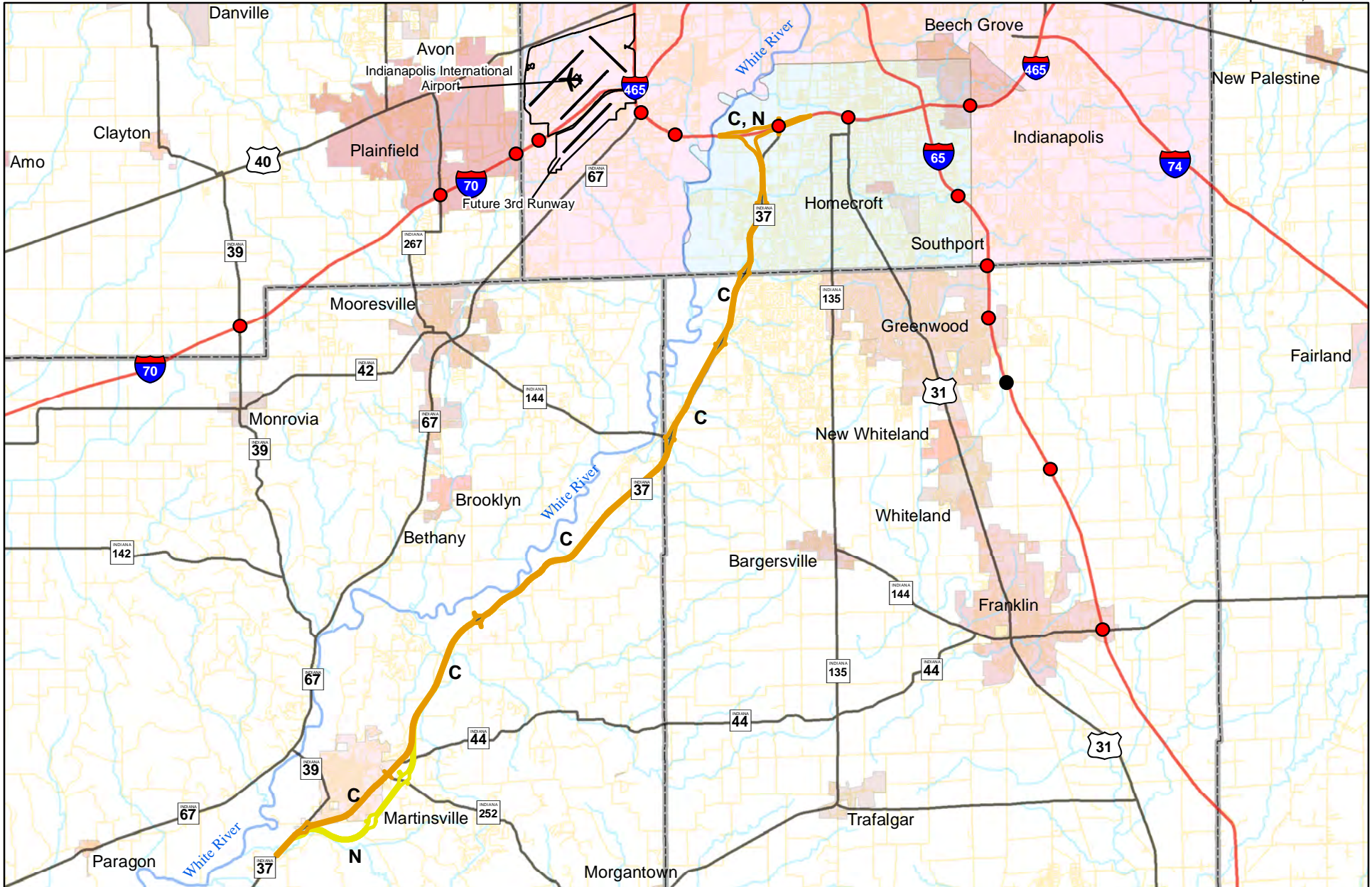


Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap



Legend	
— Interstate Highways	● Existing Interchanges
— US and State Highways	● Interchange Under Construction
— Local Roads	 County Line
— Streams	 K1
— White River	 K3
 Perry Township	 K4
	 Alternative Selected in Tier 1 ROD (C)

Figure A-3(7)
I-69 Section 6
Conceptual Alternatives-
K1, K3, and K4

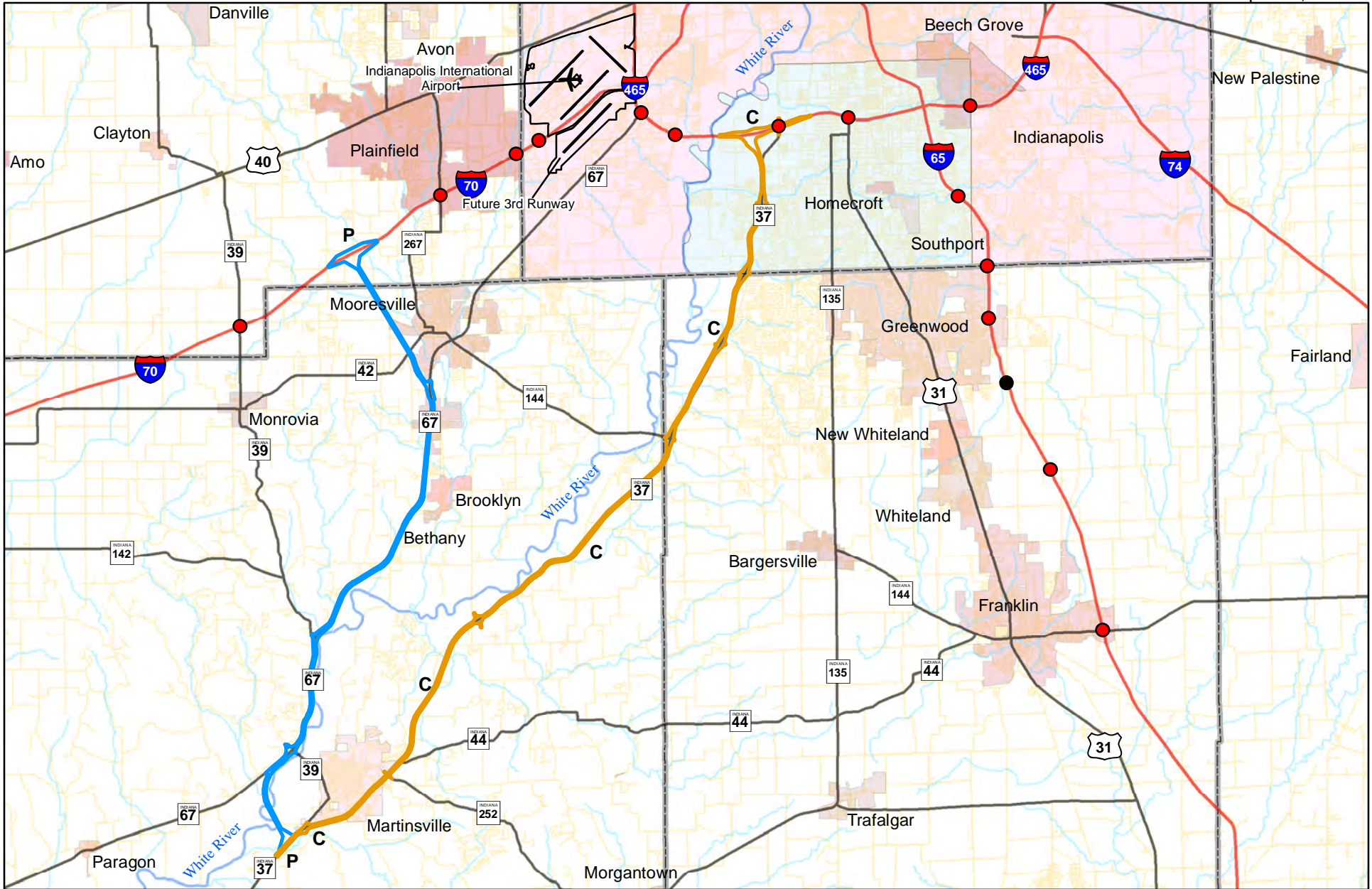


Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap



Legend	
Interstate Highways	Existing Interchanges
US and State Highways	Interchange Under Construction
Local Roads	County Line
Streams	White River
Perry Township	Alternative Selected in Tier 1 ROD (C)
	N

Figure A-3(8)
I-69 Section 6
Conceptual Alternative- N

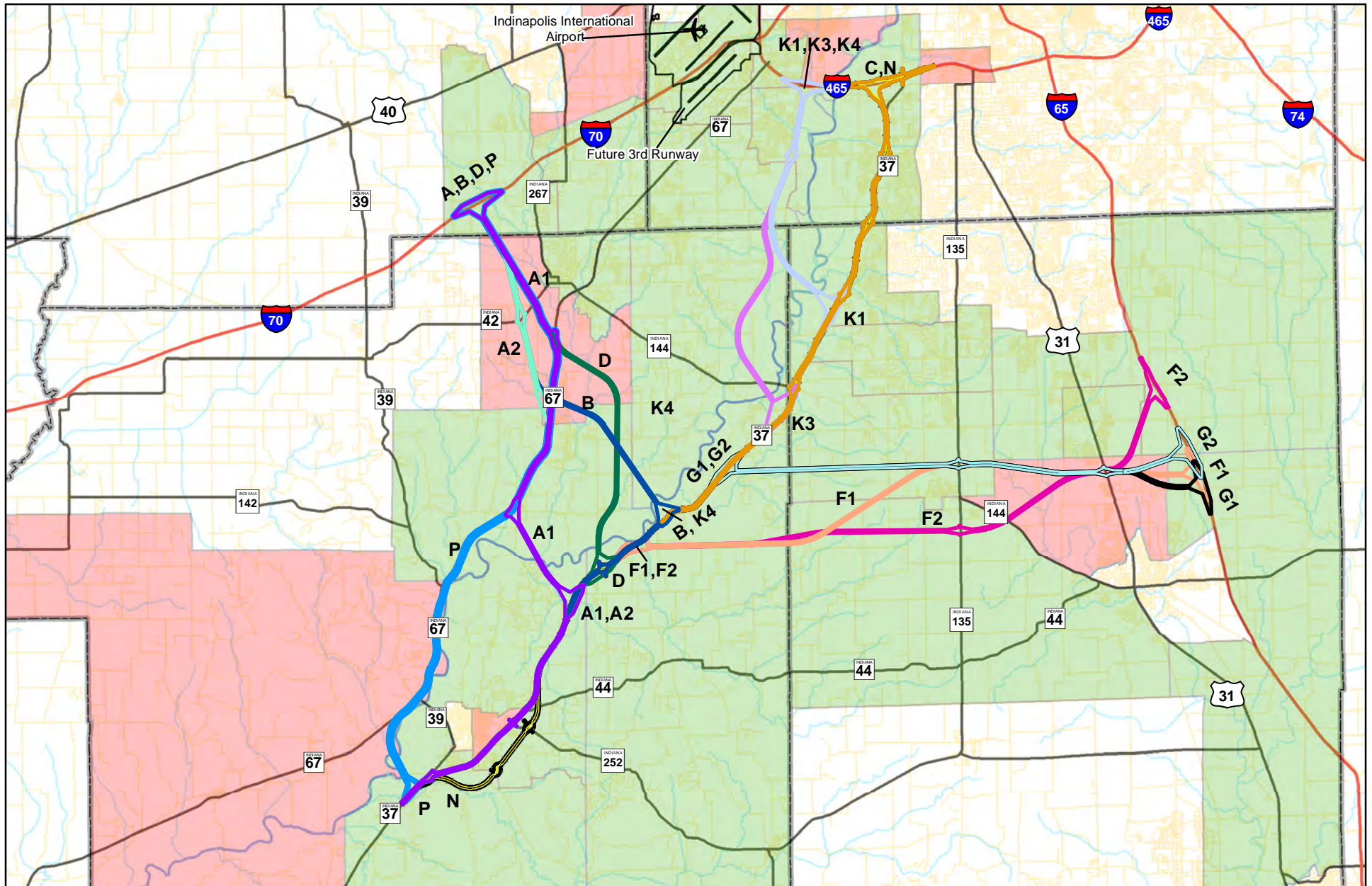


Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap

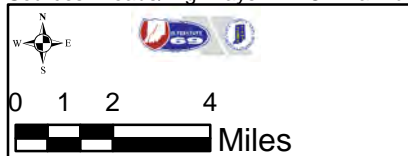


Legend	
Interstate Highways	Existing Interchanges
US and State Highways	Interchange Under Construction
Local Roads	County Line
Streams	White River
White River	Alternative Selected in Tier 1 ROD (C)
Perry Township	P

Figure A-3(9)
I-69 Section 6
Conceptual Alternative- P

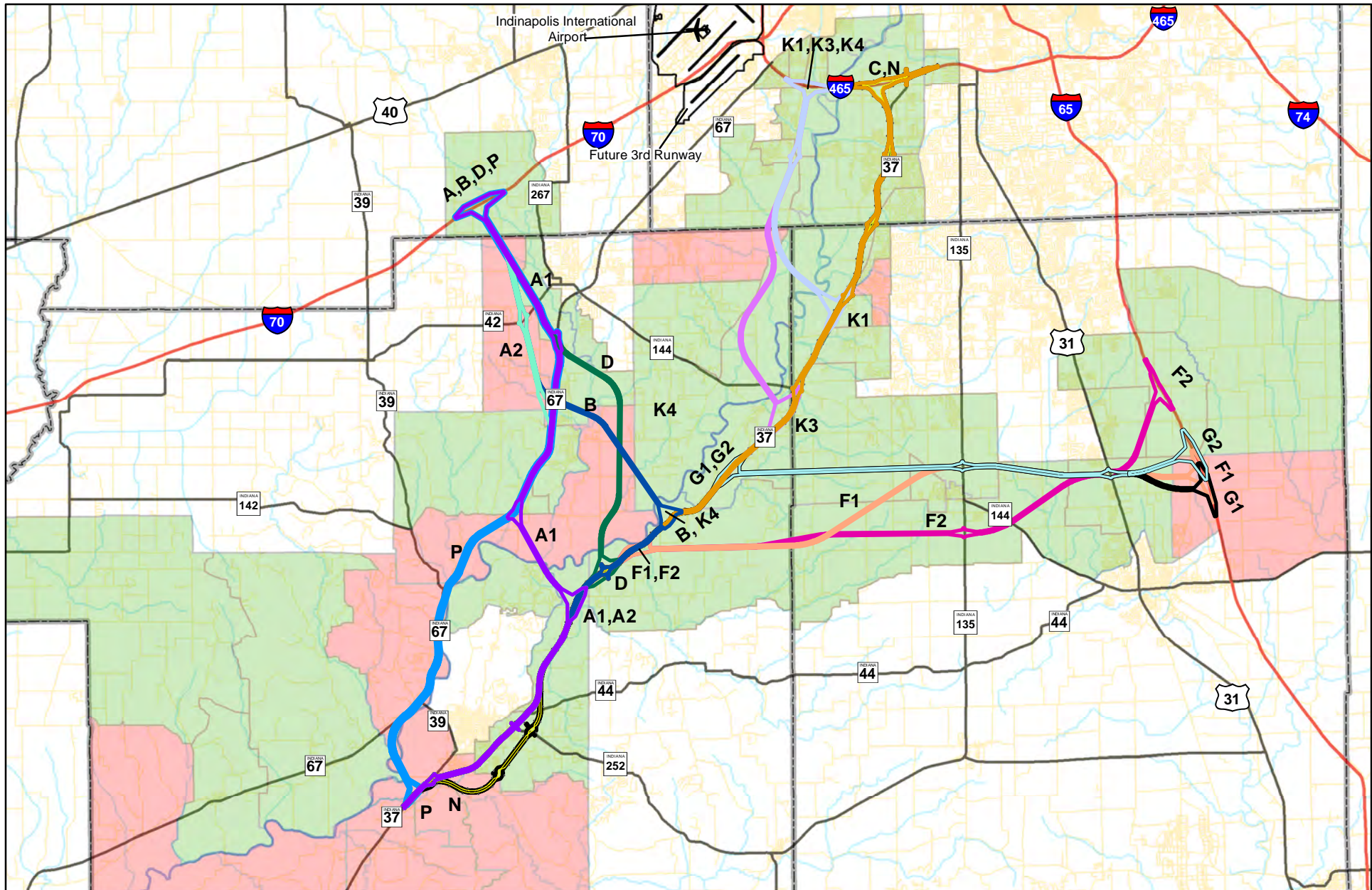


Sources: Roads/Highways- INDOT via IndianaMap; Indianapolis Airport, Streams, Counties, Townships, Inc. Places- IndianaMap



Legend	
Potential EJ Population	
	No
	Yes

Figure A-4
I-69 Section 6
 Low-Income
 Census Tract Level



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



Legend

Potential EJ Population

- No
- Yes

Figure A-5
I-99 Section 6
 Minority Status
 Census Block Level



I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

Section 6 – Conceptual Alternatives Evaluation Report

Table A-1. Summary of I-69 Section 6 Conceptual Alternatives

Initial Alternative Designation	Passed Qualitative Review	Revised Alternative Designation	Reasons for Elimination
A	✓	A1	
A2	✓		
B	✓		
C*	✓		
D	✓		
E1	✗		Impacts bat mitigation areas near I-70/SR 267 interchange. Major reconstruction of I-70/SR 267 interchange with significant impact would be needed to accommodate I-69 and maintain safe SR 267 local access.
E2	✗		Major reconstruction of I-70/Airport interchange with significant impact would be needed to accommodate I-69 and maintain airport access. Possible violation of protection zone for future airport runway.
F1	✓		
F2	✓		
F3	✗		Impacts development near US 31 and has multiple creek crossings near Franklin. F1 and F2 are superior.
G1	✓		
G2	✓		
H	✗		High impacts on development and on existing I-65 interchanges.
I	✗		High impacts on development and on existing I-65 interchanges.
J	✗		Major reconstruction of I-70/Ameriplex Parkway interchange with significant impact would be needed to accommodate I-69 and maintain safe local access. Bat mitigation areas and streams near the interchange make this extremely difficult. Long floodway crossing of White River would be expensive.
K1	✓		
K2	✗		Long and expensive floodway crossing of White River. Indirect routing of I-69 would likely result in many continuing to use SR 37. Other K alternatives are superior.
K3	✓		
L	✗		Multiple engineering issues, including impacts to development along SR 67, expense of accommodating railroad along SR 67, and I-69/I-465 interchange that would be too close to existing I-70/I-46 interchange.



Table A-1. Summary of I-69 Section 6 Conceptual Alternatives (continued)

Initial Alternative Designation	Passed Qualitative Review	Revised Alternative Designation	Reasons for Elimination
M	✘		Major reconstruction of I-70/Airport interchange with significant impact would be needed to accommodate I-69 and maintain airport access. Possible violation of protection zone for future airport runway. Long and expensive floodway crossing of White River. Indirect routing of I-69.
P1	✘		Major reconstruction of I-70/Airport interchange with significant impact would be needed to accommodate I-69 and maintain airport access. Possible violation of protection zone for future airport runway.
P2	✔	K4	
P3	✘		High construction and maintenance costs necessary to avoid floodplain impacts at White River crossing. Multiple three-legged interchanges required.
P4	✔	P	
P5	✘		High construction and maintenance costs necessary to avoid floodplain impacts at White River crossing. Alternative traverses steep and forested terrain.
P6	✘		High construction and maintenance costs necessary to avoid floodplain impacts at White River crossing. Alternative traverses steep and forested terrain.
P7	✔	N	

*Alternative C is along SR 37 and is within the corridor selected during Tier 1. An alternative or alternatives along SR 37 will be carried forward into the EIS.

Table A-2

I-69 Section 6 Conceptual Alternatives Evaluation¹



Alternative:	West Alternatives					Central Alternatives					East Alternatives				
	Martinsville to I-465 via I-70					Martinsville to I-465 near Mann Road			Martinsville to I-465 via SR 37		Martinsville to I-465 via I-65				
	P	A1	A2	B	D	K1	K3	K4	C	N	F1	F2	G1	G2	
Purpose and Need Performance Measures															
Regional Traffic Safety															
Reduction in Expected Annual Crashes in the Study Area	280					278			344		280				
Reduction in Peak Hour Travel Time															
<u>Travel Time Savings Beginning and End:</u>	<u>Current Travel Time:</u>		<u>Reduction in Travel Time (See Note for Explanation)²:</u>												
SR 39 to Downtown Indianapolis	51 minutes		10 minutes					12 minutes			11 minutes		7 minutes		
SR 39 to Indianapolis International Airport	40 minutes		14 minutes					8 minutes			6 minutes		4 minutes		
SR 39 to I-69 Northeast	71 minutes		9 minutes					12 minutes			13 minutes		9 minutes		
Regional Traffic Congestion Reduction															
Reduction in Daily Vehicle-Miles Traveled (VMT) under Level of Service (LOS) E or F	No Improvement					Congestion Reduction			Congestion Reduction		No Improvement				
Regional Truck Travel															
Daily Hours of Truck Travel Saved	570 hours					6,659 hours			6,319 hours		213 hours				
I-69 Indianapolis to Evansville Tier 1 EIS															
Relationship to Tier 1 Environmental Impact Statement (EIS)	Similar Alternative Eliminated ³	Not Studied				Similar Alternatives Eliminated ⁴			Preferred Alternative ⁵	Not Studied ⁶	Not Studied ⁷				
Comparative Cost															
Comparative Cost Rating (\$ = lowest cost; \$\$\$\$\$ = highest cost)	\$	\$\$	\$\$\$	\$\$\$\$	\$\$\$\$\$	\$\$\$\$\$	\$\$\$\$	\$\$\$\$	\$\$\$\$	\$\$\$\$	\$\$\$\$	\$	\$	\$\$	\$\$\$
National Highway System Expansion															
Added Highway Lane-Miles ⁸	31 lane-miles	33 lane-miles	41 lane-miles	45 lane-miles	49 lane-miles	31 lane-miles	54 lane-miles	73 lane-miles	8 lane-miles	27 lane-miles	71 lane-miles	72 lane-miles	57 lane-miles	55 lane-miles	
Length of Alternative (Martinsville to I-465)															
New Terrain Freeway	8 miles	8 miles	10 miles	11 miles	12 miles	7 miles	14 miles	18 miles	1 miles	6 miles	18 miles	18 miles	14 miles	14 miles	
Existing State Road Improved to Freeway Standards	12 miles	13 miles	10 miles	11 miles	9 miles	20 miles	13 miles	7 miles	26 miles	22 miles	10 miles	10 miles	14 miles	14 miles	
Utilize Existing Interstate	10 miles	10 miles	10 miles	10 miles	10 miles	0 miles	0 miles	0 miles	0 miles	0 miles	13 miles	11 miles	14 miles	13 miles	
Total	30 miles	31 miles	30 miles	32 miles	31 miles	27 miles	27 miles	25 miles	27 miles	28 miles	41 miles	39 miles	42 miles	41 miles	
Impacts to Natural Resources															
National Wetland Inventory (NWI)															
Open Waters (acres)															
Open Waters (excluding quarry pits and fish hatchery ponds)	20 acres	13 acres	17 acres	13 acres	14 acres	9 acres	11 acres	13 acres	6 acres	11 acres	7 acres	7 acres	15 acres	12 acres	
Quarry Pits and Fish Hatchery Ponds ⁹	0 acres	1 acres	1 acres	1 acres	1 acres	5 acres	4 acres	< 1 acre	31 acres	33 acres	1 acres	1 acres	1 acres	1 acres	
Wetlands (acres)	46 acres	30 acres	30 acres	16 acres	21 acres	23 acres	5 acres	10 acres	5 acres	28 acres	4 acres	4 acres	4 acres	4 acres	
Total Wetlands and Open Waters (acres)	66 acres	44 acres	48 acres	30 acres	36 acres	37 acres	20 acres	23 acres	42 acres	72 acres	12 acres	12 acres	20 acres	17 acres	
Water Resources															
Stream and River Crossings (number of crossings)	156	174	175	176	174	212	221	201	198	217	179	174	203	212	
Stream and River Impacts (linear feet)	116,749 ft	134,136 ft	137,872 ft	129,485 ft	127,332 ft	155,190 ft	145,556 ft	136,322 ft	155,090 ft	156,471 ft	124,468 ft	119,766 ft	137,923 ft	142,974 ft	
Wellhead Protection Area (acres)	8 acres	11 acres	11 acres	0 acres	38 acres	442 acres	282 acres	207 acres	464 acres	505 acres	0 acres	0 acres	0 acres	0 acres	
Floodway (acres)	270 acres	156 acres	156 acres	218 acres	167 acres	152 acres	86 acres	165 acres	65 acres	150 acres	120 acres	80 acres	64 acres	77 acres	
100 Year Floodplain (acres) Excludes Floodway	112 acres	145 acres	166 acres	151 acres	169 acres	260 acres	207 acres	213 acres	341 acres	318 acres	123 acres	101 acres	108 acres	113 acres	
Vegetation/Landcover															
Agricultural (acres)	504 acres	630 acres	747 acres	785 acres	826 acres	641 acres	764 acres	735 acres	317 acres	526 acres	1,018 acres	941 acres	946 acres	983 acres	
Forested (acres)	214 acres	216 acres	286 acres	187 acres	161 acres	169 acres	204 acres	234 acres	106 acres	143 acres	171 acres	195 acres	158 acres	164 acres	
Threatened and Endangered Species															
Recorded Threatened and Endangered Species (number of sites) ¹⁰	3	9	9	3	5	14	7	2	10	10	5	5	8	8	

Table A-2

I-69 Section 6 Conceptual Alternatives Evaluation¹



Alternative:	West Alternatives					Central Alternatives					East Alternatives			
	Martinsville to I-465 via I-70					Martinsville to I-465 near Mann Road			Martinsville to I-465 via SR 37		Martinsville to I-465 via I-65			
	P	A1	A2	B	D	K1	K3	K4	C	N	F1	F2	G1	G2
Impacts to Community Resources														
Recreational Facilities & DNR Managed Lands														
● Likely to be impacted, ○ Impacts may be minimized or avoided if alternative is refined														
Facility Name:														
Amos Butler Heron Sanctuary ¹¹	●					●								
Bradford Woods	●													
Cikana Fish Hatchery		○	○	○	○	○	○	○	○	○	○	○	○	○
Martinsville Golf Course ¹²		○	○	○	○	○	○	○	○	○	○	○	○	○
Meyer Nature Preserve	○	○	○											
Sycamore Creek Fishing Area	○													
Three Rivers Fishing Area	●													
Whispering Meadows Horse Ranch ¹²		○	○	○	○	○	○	○	○	○	○	○	○	○
Total Recreational Facilities & DNR Managed Lands (number)	4	4	4	3	3	4	3	3	3	3	3	3	3	3
Total Recreational Facilities & DNR Managed Lands (acres)	48 acres	10 acres	10 acres	6 acres	6 acres	22 acres	6 acres	2 acres	6 acres	6 acres	6 acres	6 acres	6 acres	6 acres
Total Trails (feet)	0 ft	0 ft	0 ft	0 ft	0 ft	0 ft	0 ft	0 ft	745 ft ¹³	745 ft ¹³	0 ft	0 ft	0 ft	0 ft
Historic Resources - Potential Section 4(f) Resources														
No properties or historic districts listed on National Register of Historic Places were found.														
Facilities¹⁴														
School properties (acres) ¹⁵	0 acres	10 acres	10 acres	10 acres	10 acres	10 acres	10 acres	10 acres	10 acres	0 acres	10 acres	10 acres	10 acres	10 acres
Religious Facilities (number)	0	2	2	3	2	4	4	4	3	2	3	3	3	3
Religious Facility Properties (acres)	2 acres	7 acres	7 acres	6 acres	4 acres	11 acres	7 acres	8 acres	11 acres	9 acres	9 acres	9 acres	9 acres	9 acres
Cemeteries (number)	0	0	0	0	1	0	0	0	0	0	1	1	0	0
Environmental Justice														
Census Tracts with Low Income Status/Total Traversed Census Tracts	2/6	2/6	2/6	2/7	2/7	2/12	2/11	2/9	2/9	1/8	2/9	2/8	2/7	2/8
Census Blocks with Minority Status/Total Traversed Census Blocks	5/12	5/14	5/14	5/13	5/11	5/22	4/20	4/17	4/16	4/16	4/15	3/12	4/13	4/15
Property Acquisition														
Number of Parcels Impacted														
Residential Zoning	208	262	242	171	203	372	414	332	324	329	135	163	216	203
Commercial Zoning	45	129	97	90	99	133	111	93	188	126	79	84	92	95
Industrial Zoning	2	0	0	0	0	0	0	0	36	34	0	0	0	0
Agricultural Zoning	152 ¹⁶	158	158	168	151	258	267	212	169	188 ¹⁶	230	222	191	217
Total	407	549	497	429	453	763	792	637	717	677	444	469	499	515
Acres of Property Impacted														
Residential Zoning	125 acres	164 acres	188 acres	151 acres	131 acres	275 acres	323 acres	293 acres	237 acres	236 acres	134 acres	178 acres	186 acres	204 acres
Commercial Zoning	47 acres	99 acres	94 acres	50 acres	81 acres	76 acres	70 acres	44 acres	143 acres	122 acres	35 acres	37 acres	52 acres	57 acres
Industrial Zoning	21 acres	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	154 acres	154 acres	0 acres	0 acres	0 acres	0 acres
Agricultural Zoning	611 acres	737 acres	873 acres	907 acres	900 acres	866 acres	875 acres	821 acres	434 acres	675 acres	1,156 acres	1,055 acres	1,065 acres	1,086 acres
Total	804 acres	1,000 acres	1,155 acres	1,108 acres	1,112 acres	1,217 acres	1,268 acres	1,158 acres	968 acres	1,187 acres	1,325 acres	1,270 acres	1,303 acres	1,347 acres

Notes

1. Impacts identified based on a 400 ft footprint for all alternatives. Impact assessments will be refined and minimized during future study phases.

2. Travel Times based on shortest path chosen by typical driver, not necessarily using I-69. For example, for the East Alternatives, the travel time savings to the Indianapolis International Airport are due to reduced traffic on SR 67.

3. Alternative 5A was eliminated due to impacts to the Hoosier National Forest and Blue Springs Cavern, outside the Section 6 study area. A later hybrid alternative (4/5a) was eliminated due to impacts to Bradford Woods. Values for resources reflect current conditions, and may differ from Tier 1 values.

4. Alternatives using the Mann Road corridor were studied in Tier 1 EIS and not preferred due to potential impacts to wetlands, existing freeway interchange operation, Southwestway Park, and Indianapolis International Airport access, as well as potential conflicts with the Marion County Comprehensive Plan. Values for resources reflect current conditions, and may differ from Tier 1 values.

5. Tier 1 Preferred Alternative.

6. Similar to Tier 1 Preferred Alternative.

7. Alternatives that connect to I-65 were not studied in Tier 1 EIS.

8. Includes new freeway and removal of existing lane-miles of state roads.

9. Approximately 1 acre of impact to Cikana Fish Hatchery ponds. The remaining is an impact to quarry pits.

10. Recorded threatened and endangered species locations are confidential and cannot be disclosed.

11. Managed lands facility location is confidential and cannot be disclosed.

12. Recreational facilities that are not publicly owned.

13. Little Buck Trail is a planned trail near Southport Road and SR 37.

14. Impacts to school properties and religious facilities may be avoided or minimized if alternatives are refined.

15. For alternatives that impact 10 acres of Martinsville High School property there are no school buildings impacted.

16. Due to incomplete county parcel data, the agricultural count of parcels near SR 37/SR 39 interchange in Martinsville is estimated. However, the acreage is valid.

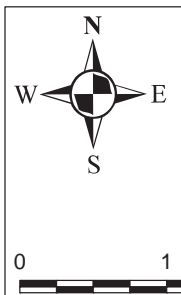
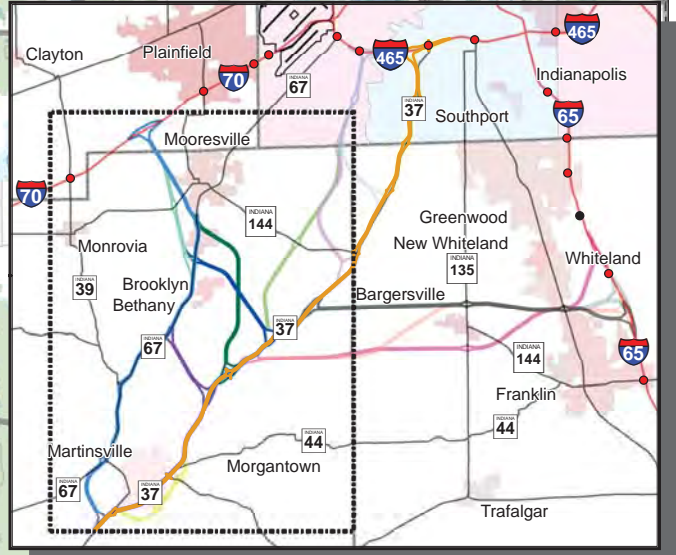
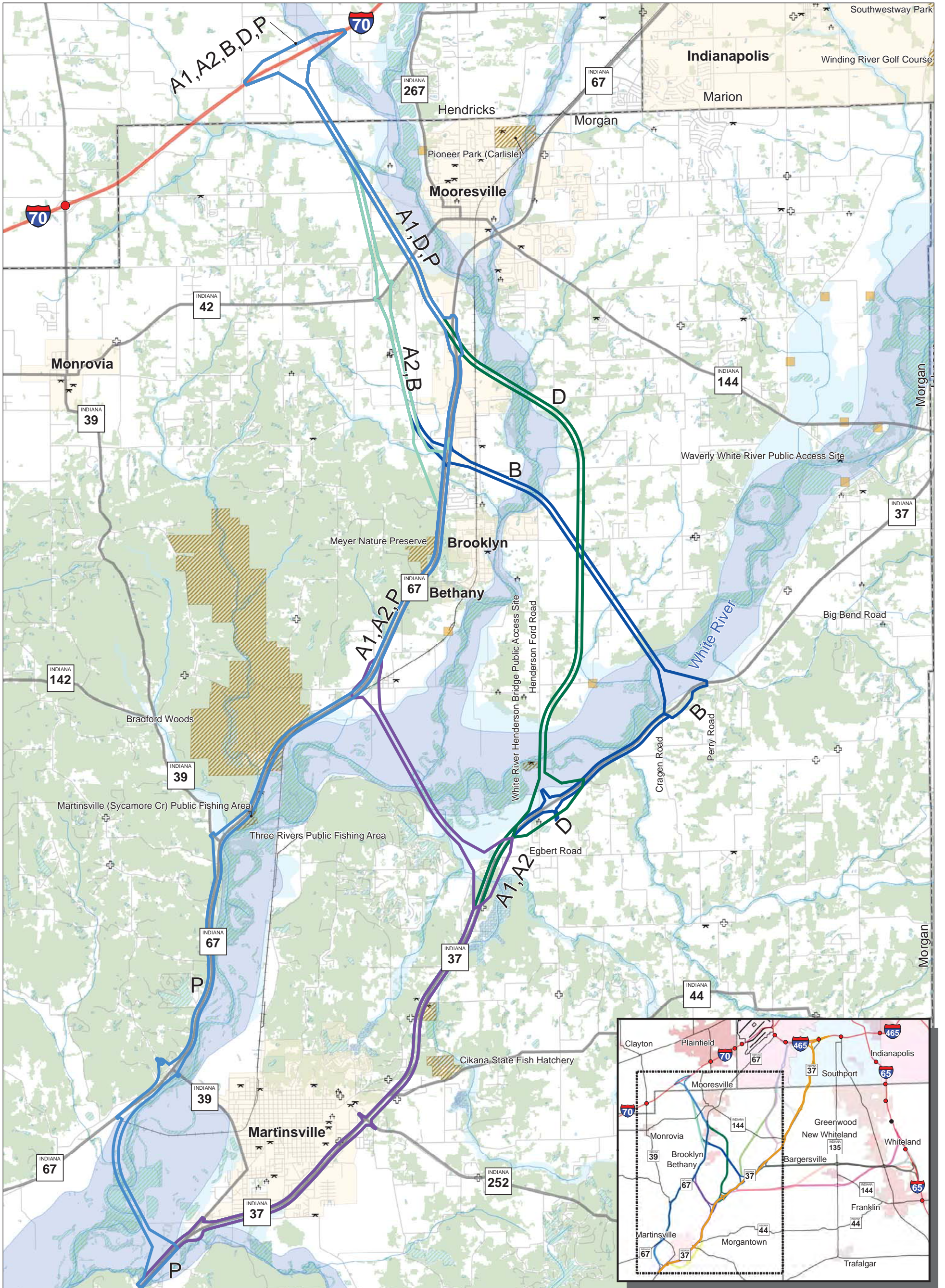


I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES
Section 6 – Conceptual Alternatives Development & Evaluation

APPENDIX B
Conceptual Alternatives Maps

CONCEPTUAL ALTERNATIVES

A1, A2, B, D, P

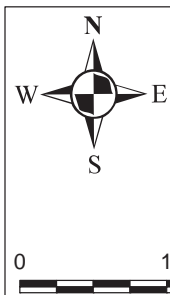
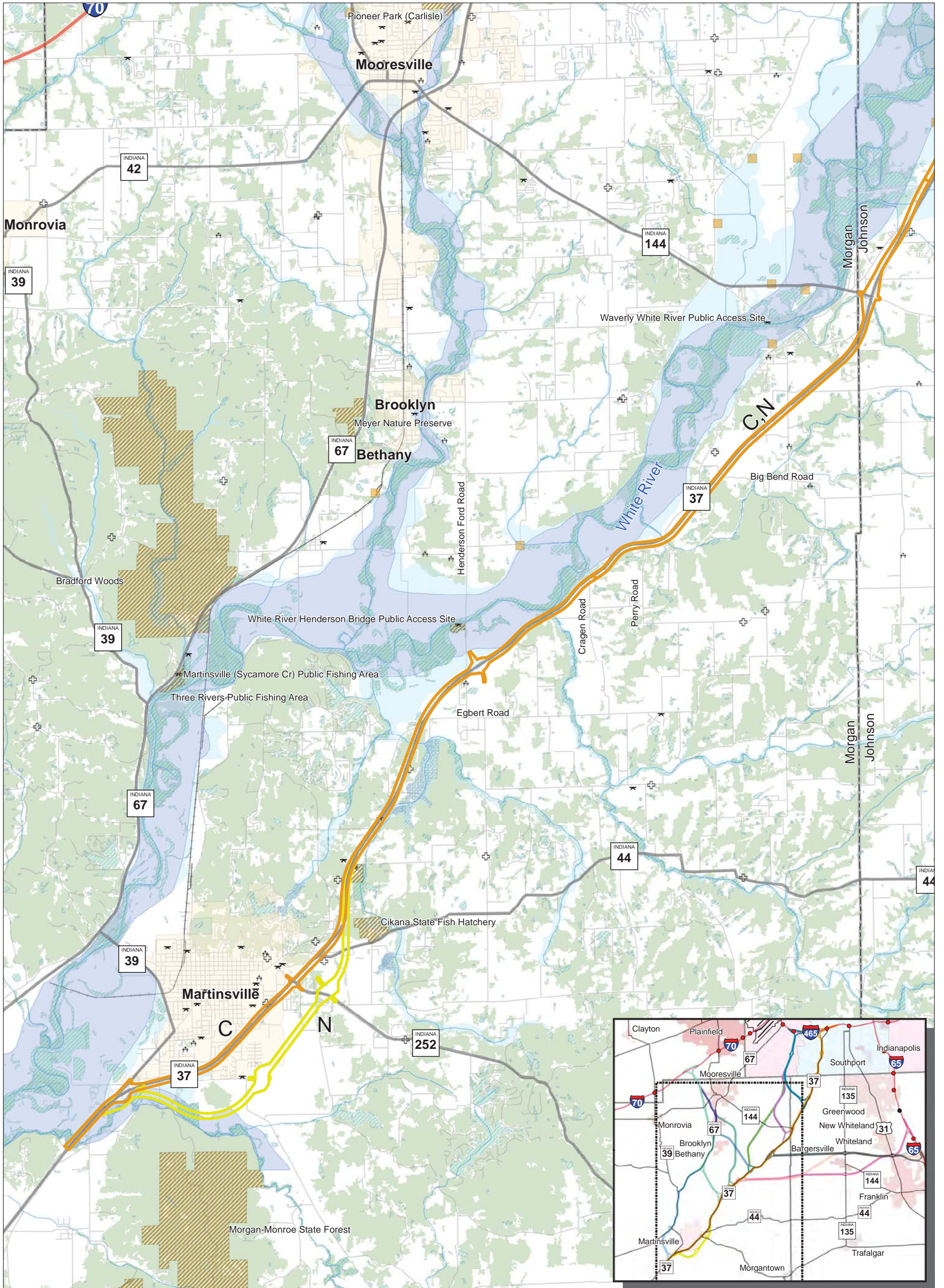


Legend		
	A1	Interstate Highways
	A2	US and State Highways
	B	Existing Interchanges
	D	Interchange Under Construction
	P	Local Roads
	County Line	
	Railroad	
	Incorporated Places	DNR Managed Lands
	Streams	Forested Area
	NWI Wetlands	Churches
	Floodway	Cemeteries
	Floodplain	Recreational Facilities
		Mining

**I-69 Section 6
West Conceptual
Alternatives**

*Environmental
Constraints*

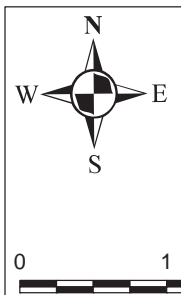
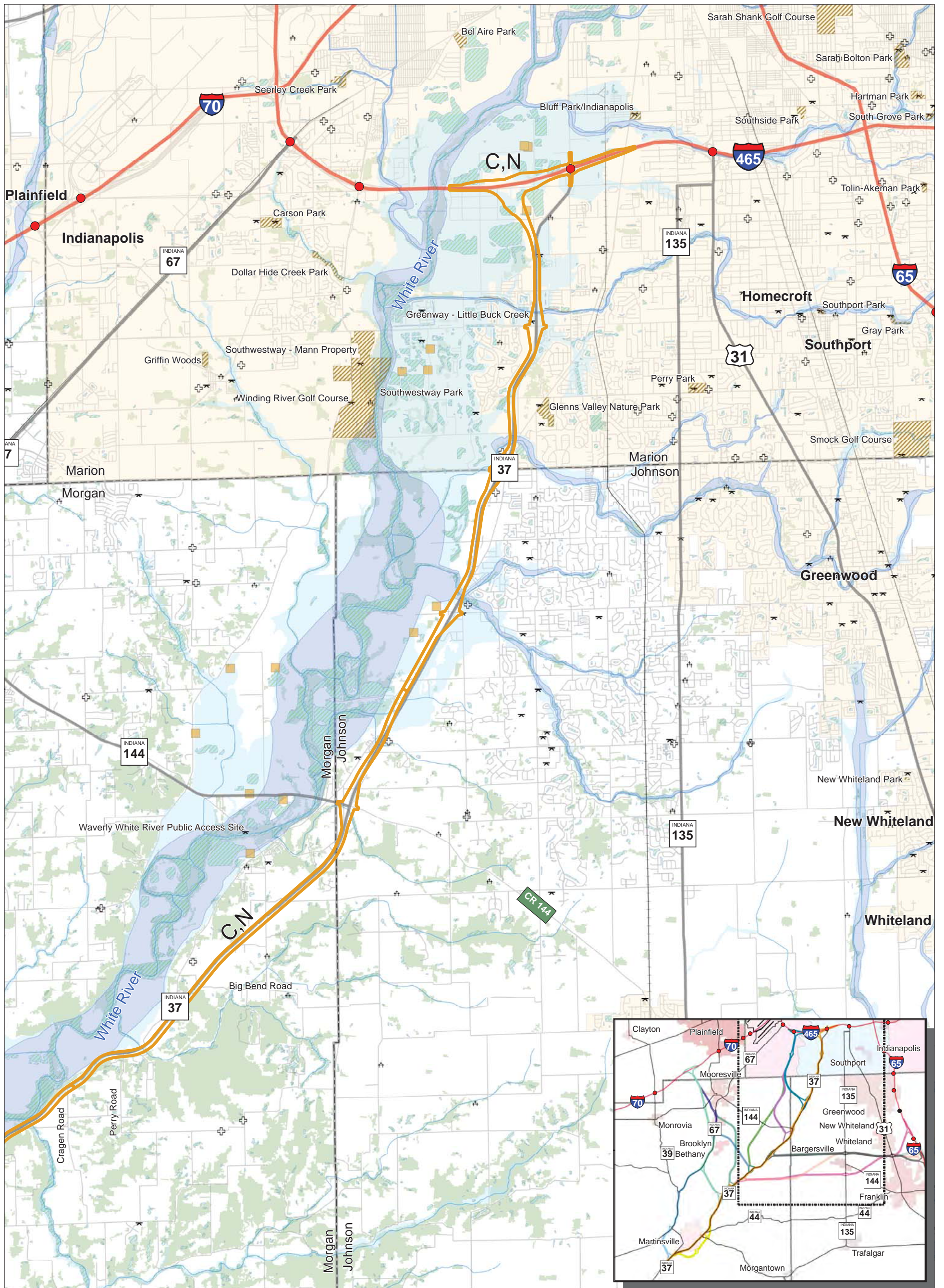
CONCEPTUAL ALTERNATIVE N &
ALTERNATIVE SELECTED IN
TIER 1 ROD (C)



Legend							
	Tier 1 Selected Alternative		Interstate Highways		County Line		DNR Managed Lands
	N		US and State Highways		Railroad		Forested Area
			Existing Interchanges		Incorporated Places		Churches
			Interchange Under Construction		Streams		Cemeteries
			Local Roads		NWI Wetlands		Recreational Facilities
					Floodway		Mining
					Floodplain		

I-69 Section 6
Tier 1 Selected Alternative (C)
and Alternative N

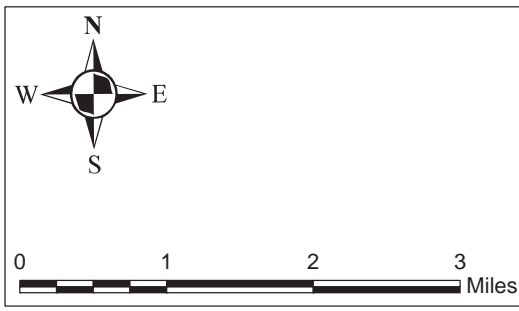
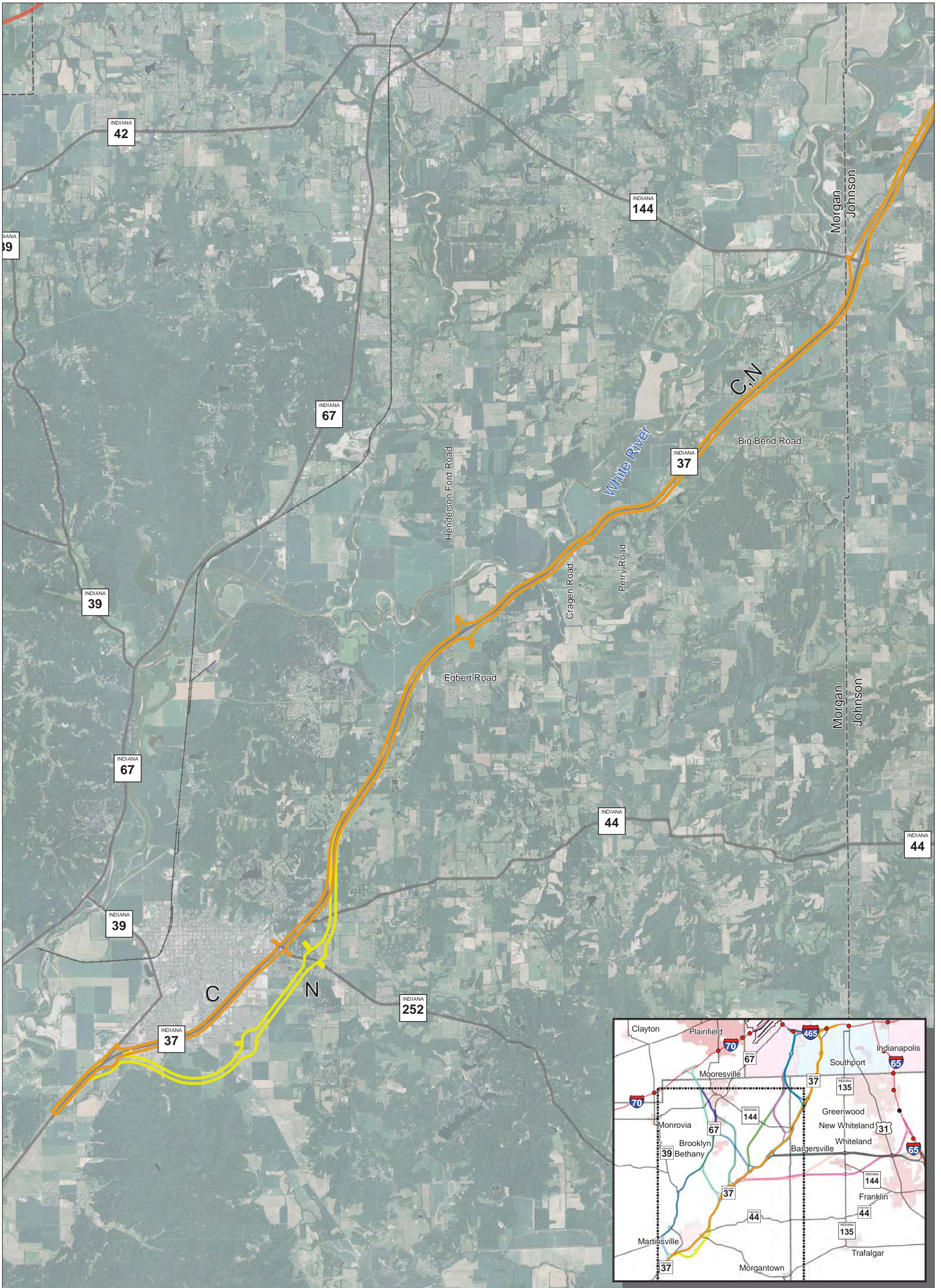
Environmental Constraints



Legend							
	Tier 1 Selected Alternative		Interstate Highways		County Line		DNR Managed Lands
	N		US and State Highways		Railroad		Forested Area
			Existing Interchanges		Incorporated Places		Churches
			Interchange Under Construction		Streams		Cemeteries
			Local Roads		NWI Wetlands		Recreational Facilities
					Floodway		Mining
					Floodplain		

I-69 Section 6
Tier 1 Selected Alternative (C)
and Alternative N

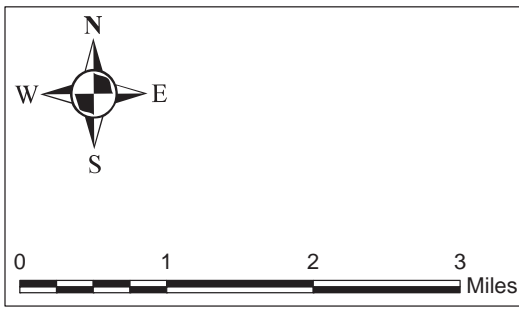
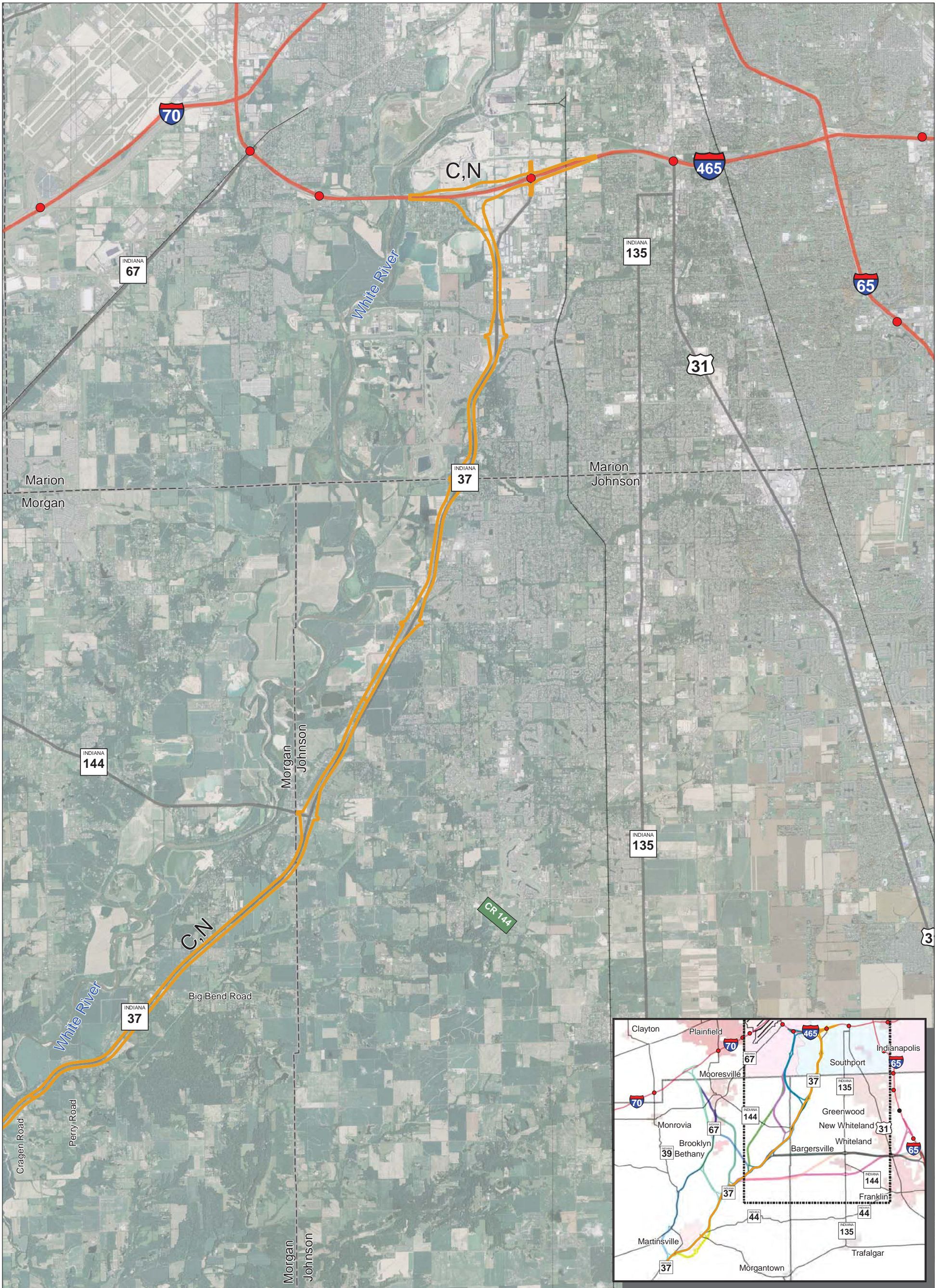
Environmental Constraints



Legend			
	Tier 1 Selected Alternative		Interstate Highways
	N		US and State Highways
			Existing Interchanges
			Interchange Under Construction
			County Line
			Railroad
			Local Roads

I-69 Section 6
Tier 1 Selected Alternative (C)
and Alternative N

2014 Aerial



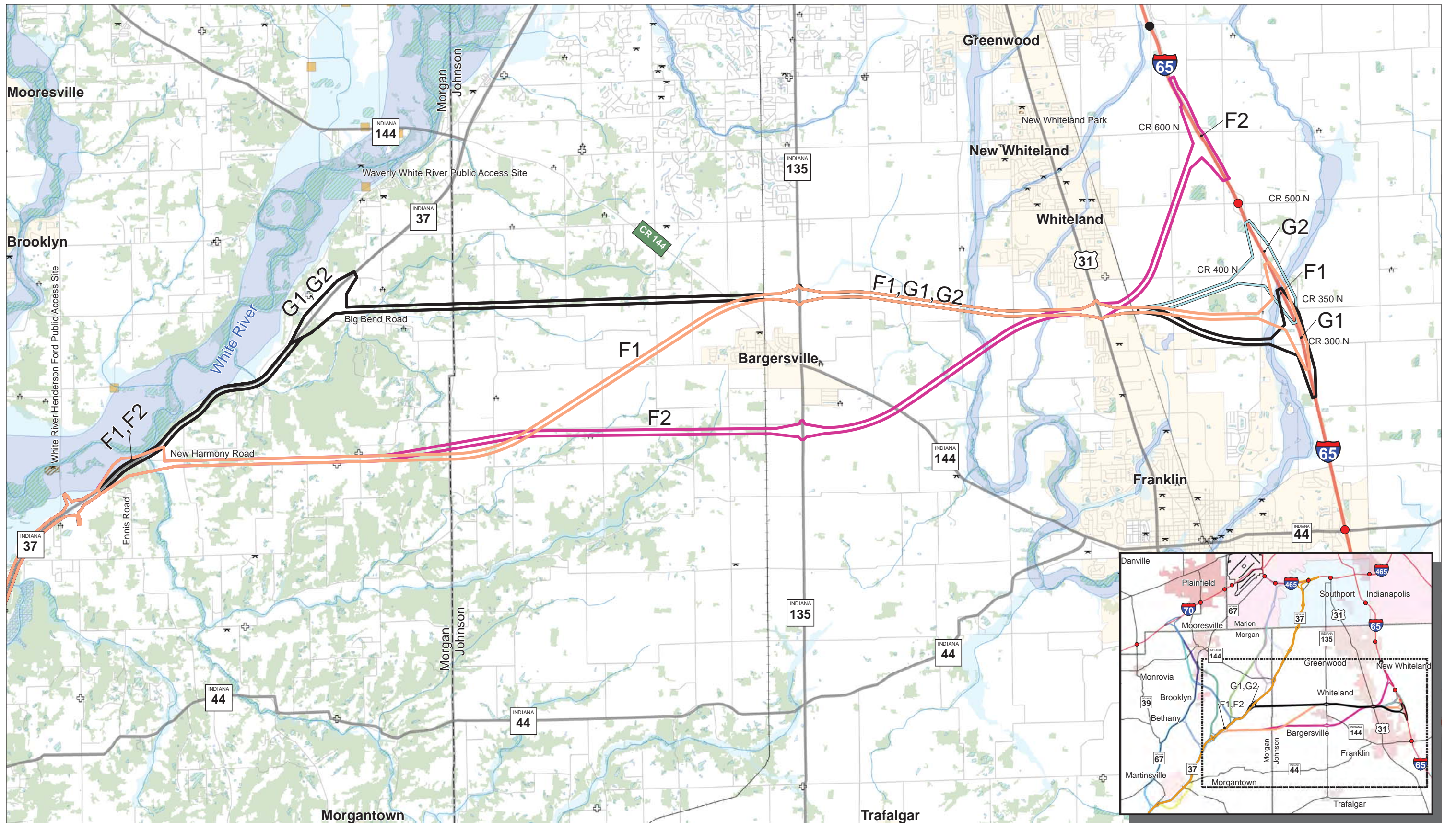
Legend			
	Tier 1 Selected Alternative		Interstate Highways
	N		US and State Highways
			Existing Interchanges
			Interchange Under Construction
			County Line
			Railroad
			Local Roads

I-69 Section 6
Tier 1 Selected Alternative (C)
and Alternative N

2014 Aerial

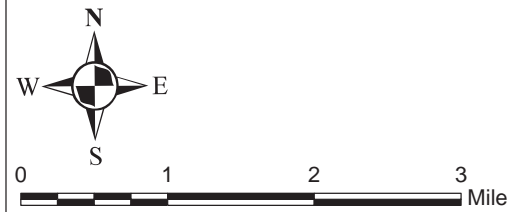
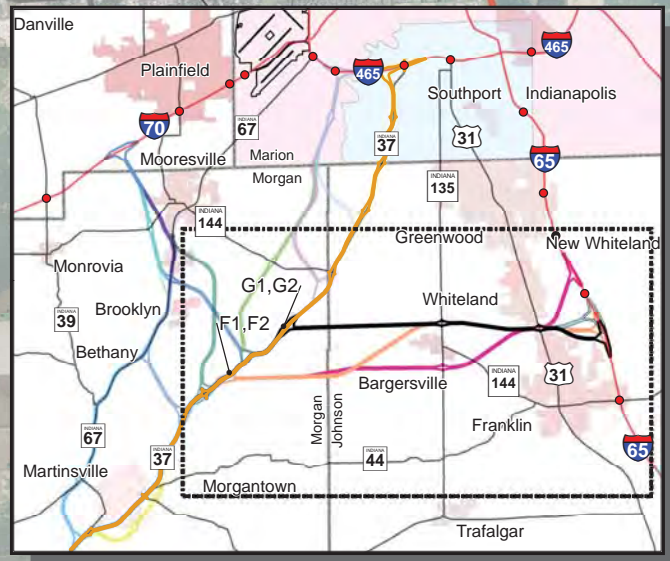
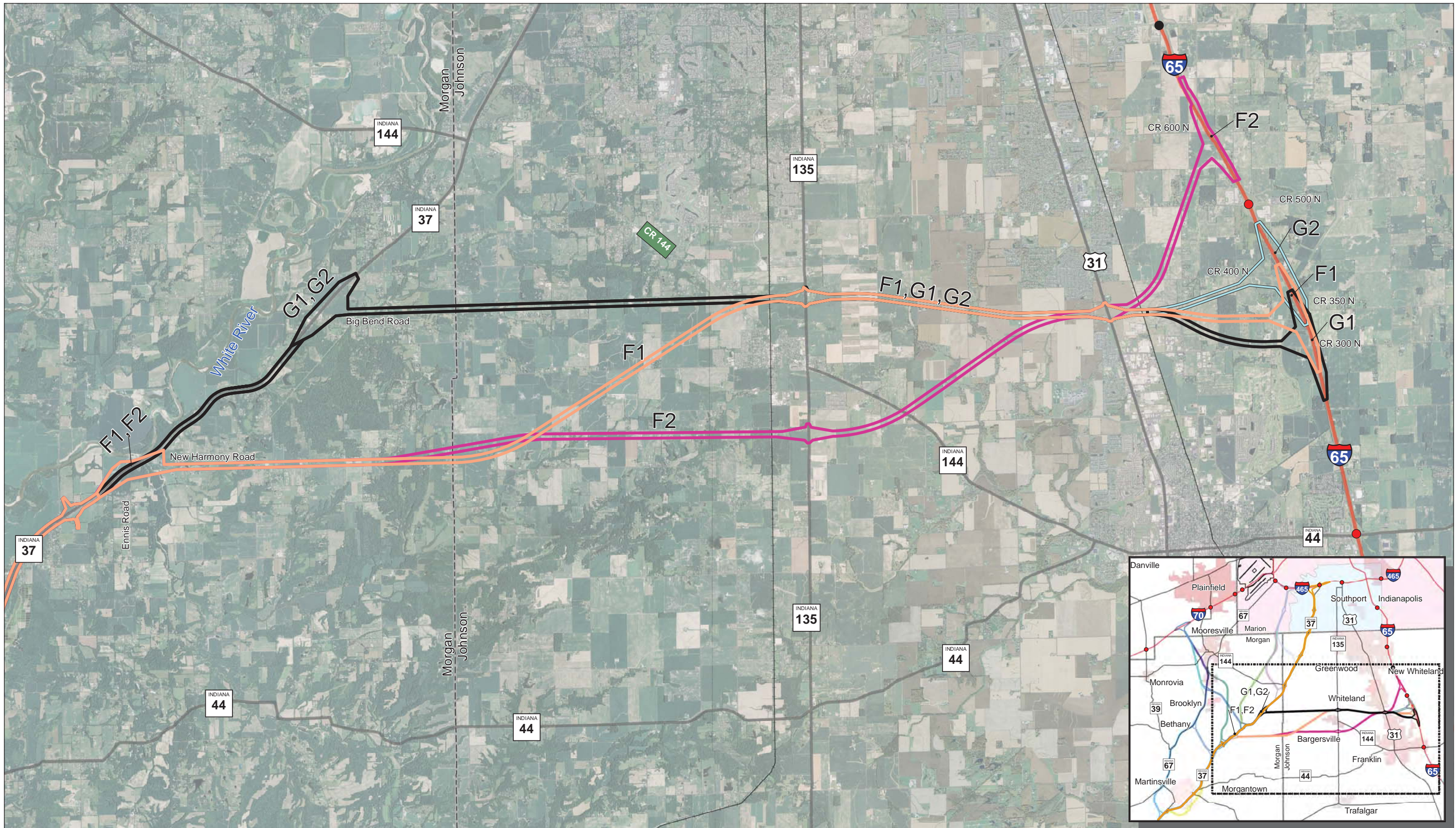
CONCEPTUAL ALTERNATIVES

F1, F2, G1, G2



Legend					
F1	Interstate Highways	Local Roads	Streams	DNR Managed Lands	Churches
F2	US and State Highways	County Line	NWI Wetlands	Forested Area	Cemeteries
G1	Existing Interchanges	Railroad	Floodway	Recreational Facilities	Mining
G2	Interchange Under Construction	Incorporated Places	Floodplain		

I-69 Section 6
East Conceptual Alternatives
Environmental Constraints



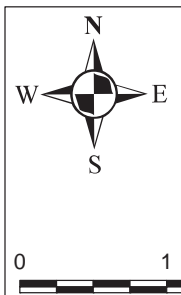
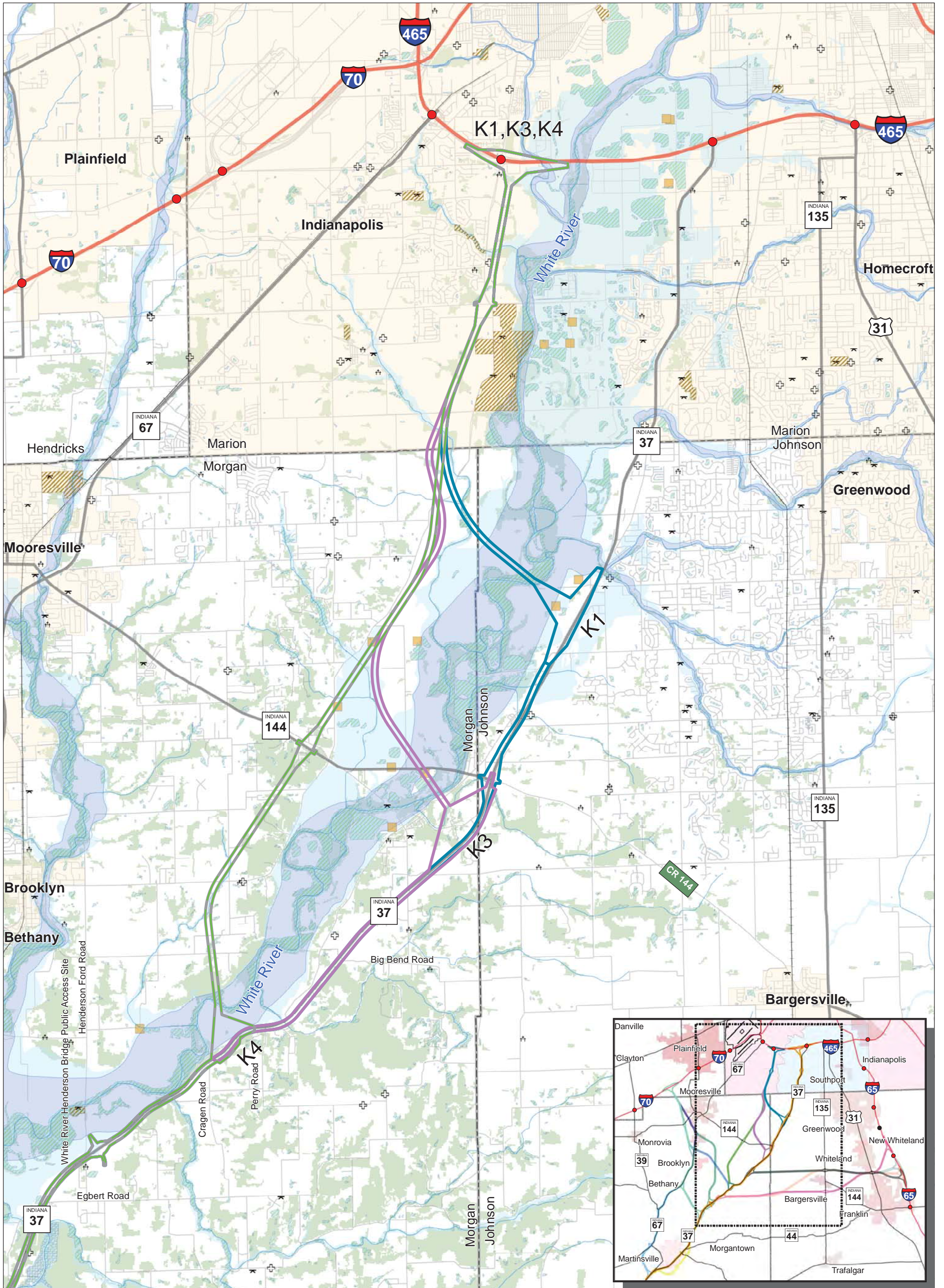
Legend			
	F1		Interstate Highways
	F2		US and State Highways
	G1		Existing Interchanges
	G2		Interchange Under Construction
			County Line
			Railroad
			Local Roads

I-69 Section 6
East Conceptual Alternatives

2014 Aerial

CONCEPTUAL ALTERNATIVES

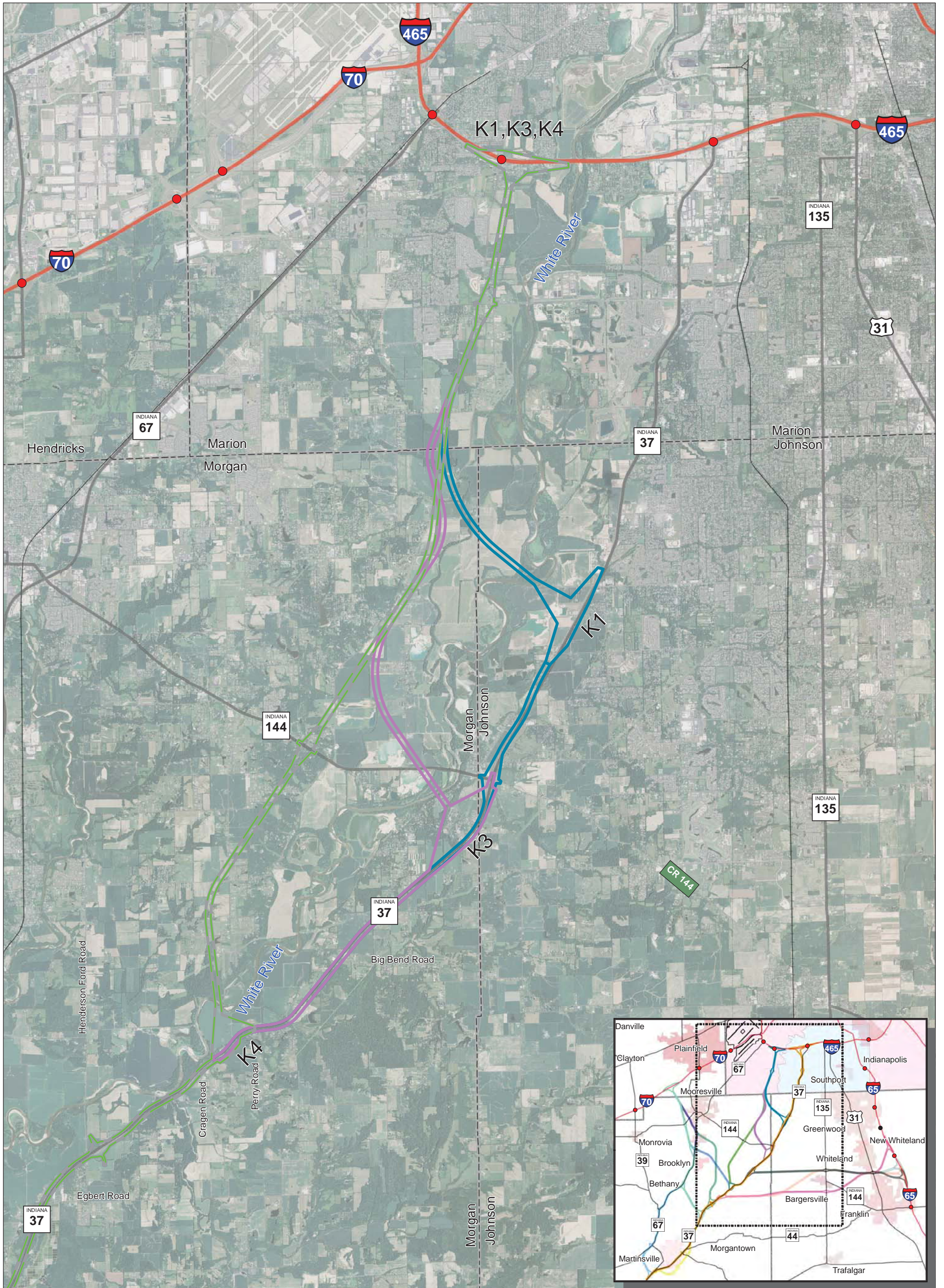
K1, K3, K4



Legend		
 K1	 Interstate Highways	 County Line
 K3	 US and State Highways	 Railroad
 K4	● Existing Interchanges	 Incorporated Places
	● Interchange Under Construction	 Streams
	 Local Roads	 Forested Area
		 NWI Wetlands
		 Floodway
		 Floodplain
		 DNR Managed Lands
		 Churches
		 Cemeteries
		 Recreational Facilities
		 Mining

**I-69 Section 6
Central Conceptual
Alternatives**

*Environmental
Constraints*



Legend

- | | | | |
|--|---|--|---|
|  K1 |  Interstate Highways |  Existing Interchanges |  County Line |
|  K3 |  US and State Highways |  Interchange Under Construction |  Railroad |
|  K4 |  Local Roads | | |

**I-69 Section 6
Central Conceptual
Alternatives**

*Environmental
Constraints*



APPENDIX C
1-69 Section 6 Travel Demand Model Use for
Conceptual Alternatives Evaluation



MEMORANDUM

Date: April 28, 2015

Re: I-69 Section 6 Travel Demand Model Use for Conceptual Alternatives Evaluation

This memorandum describes the development of the I-69 Section 6 Corridor Model and its use in the screening of Conceptual Alternatives for I-69 Section 6. Section 6 is the final of the Tier 2 segment studies of the I-69 interstate corridor from Evansville, IN to Indianapolis, IN. The Section 6 Study evaluates alternatives to extend the interstate from Martinsville to I-465.

Model Development

The I-69 Section 6 Corridor Model (I-69 CM) is an update of the Section 5 model. The I-69 CM coverage area was expanded to include the western half of Hendricks County and provide more fine-grained network and demographic data where needed. The model presently covers 2,525 square miles utilizing a total of 2,189 traffic analysis zones (TAZs). The Section 6 study area incorporates four counties: Hendricks, Johnson, Marion and Morgan Counties. A map showing the entire model area is provided in **Figure 1**. As part of the Section 6 update, the model was re-calibrated to more accurately replicate travel patterns in these four counties using targets derived from a number of sources including American Community Survey (ACS), National Household Travel Survey (NHTS), and the Central Indiana Travel Survey.

The Section 6 Model retained the 2010 base year of the Section 5 Model, however the design year was updated from 2035 to 2045, recognizing that this section of I-69 would not likely be constructed until after 2020. While INDOT and the Indianapolis MPO have not yet developed 2045 demographic projections, interim demographics were developed by the I-69 Section 6 project team for use in forecasting travel demands for the conceptual alternatives using the I-69 CM. The development of interim demographics is described in more detail below. The I-69 CM demographic projections will be updated later in the project, following the release of updated forecasts from the State of Indiana and the Indianapolis MPO.

The I-69 CM utilizes outputs from the Indiana Statewide Travel Demand Model Version 7 (ISTDM v7) to load External to Internal (E-I) trips (trips that originate outside of the corridor model area and end inside), Internal to External (I-E) trips (trips that originate inside the corridor model area and end outside) and External to External (E-E) trips (pass-through trips that originate and terminate outside of the corridor model area). A process was developed to disaggregate the origins and destinations provided by the ISTDM to the I-69 CM TAZs, and the I-69 CM re-assigns those trips to the corridor model network.

The Section 6 Model utilizes a hybrid tour-based approach format which combines aspects of traditional trip-based modeling with the more advanced tour-based methods used in activity-based models. The hybrid process begins by generating a synthetic population of individual households based on the characteristics of the population encoded in the TAZs. Then the number



of tours (round trips beginning and ending at home) for various purposes (work, school, other) and the number of stops on those tours are predicted for each household. The dominant mode of travel (private automobile, school bus, public bus, walking, biking) is chosen.

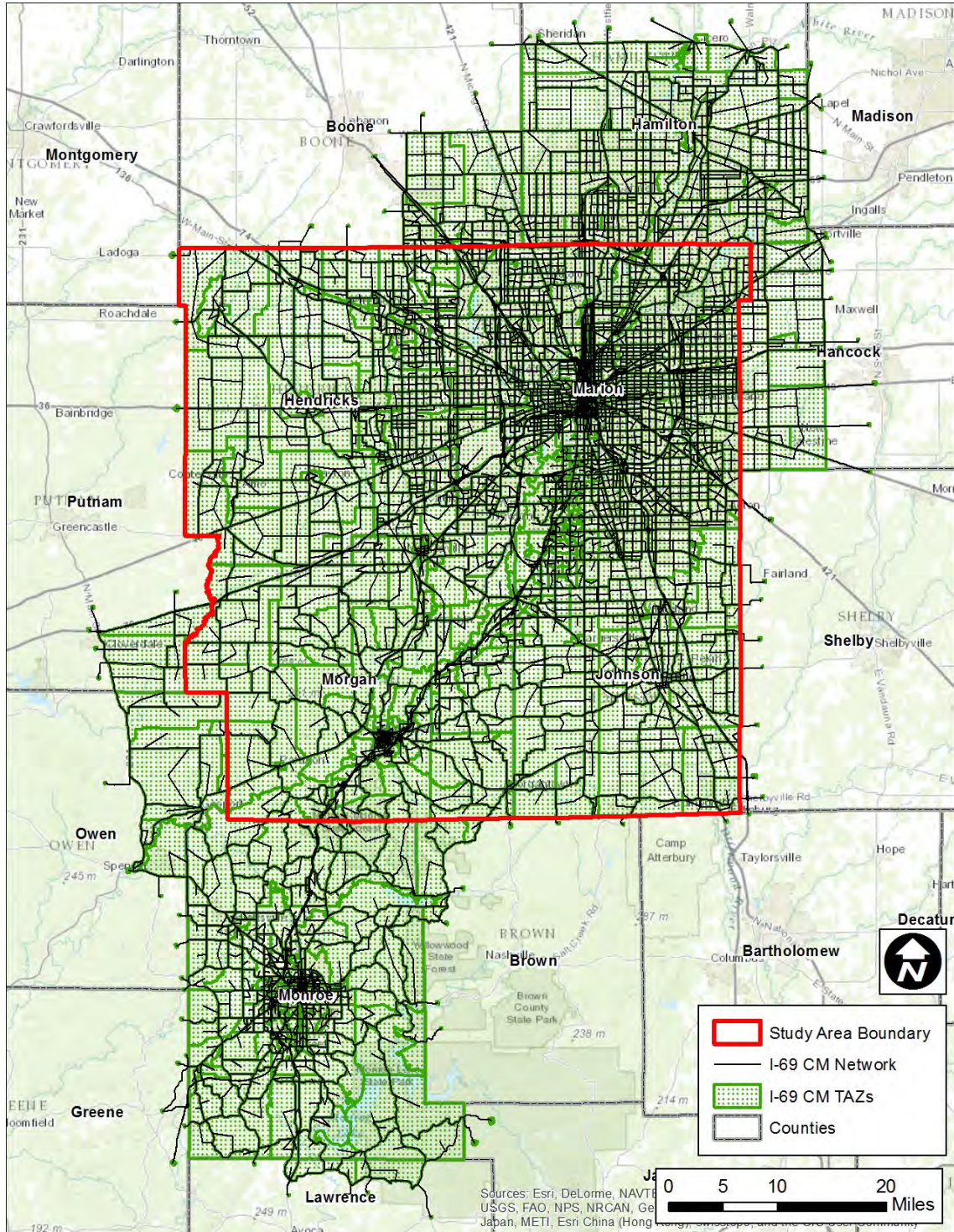


Figure 1: I-69 CM Model Area and Section 6 Study Area



Then, the locations of the stops on the automobile tours are chosen, resulting in a sequence of stops that form a tour beginning at home and proceeding from one stop to the next until returning home. Finally, the trips are assigned to the roadway network and routes are chosen so that travelers minimize their travel time and costs. This process is illustrated in **Figure 2** below:

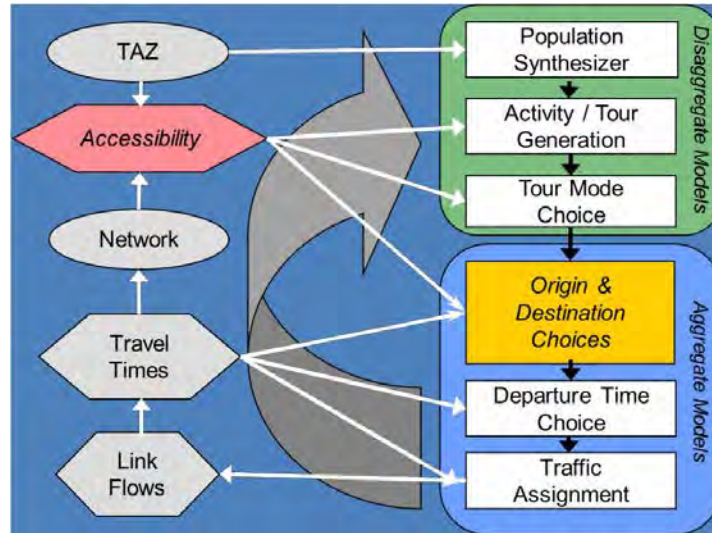


Figure 2: Hybrid Model Process

Model Assumptions

As stated in the previous section, interim 2045 demographics were developed for the I-69 CM for use in screening the conceptual alternatives. These demographics were determined by creating a growth trend line between the 2010 census demographics and the 2035 demographic projections previously developed by INDOT and the Indianapolis MPO. This trend line was assumed to remain constant and was extrapolated from 2035 to 2045 to generate interim demographic forecasts. The resulting population and employment totals are shown in **Figure 3** below.

	2010 Population	2045 Population	2010 Employment	2045 Employment
Hendricks Co.	145,447	266,578	74,959	157,713
Johnson Co.	139,654	227,352	65,149	133,650
Marion Co.	903,393	1,013,391	642,525	737,823
Morgan Co.	68,894	90,442	18,923	29,434
Total	1,257,388	1,597,763	801,556	1,058,620

Figure 3: 2010-2045 Demographic Changes

Committed and program roadway expansion projects were coded into the I-69 CM 2045 road network in accordance with the Indianapolis MPO 2014-2017 Regional Transportation Improvement Program (IRTIP) and Long-Range Transportation Plan (LRTP), the Indiana Statewide Transportation Improvement Program (STIP), and the INDOT 5-Year Construction



Program. These projects predominantly included widening of existing roadways but also some major new roadways, such as extending Ronald Reagan Pkwy in Hendricks County.

Additionally, the ISTDM 2035 model was utilized to create external volumes for the I-69 CM, as 2035 is the furthest horizon year available for the ISTDM. The 2035 ISTDM currently includes the I-69 Ohio River Bridge near Evansville, but this project will be removed from future model runs because it is not included in any cost-constrained transportation plan. For purposes of the alternatives screening, a single ISTDM 2035 scenario reflecting I-69 Section 6 along the SR 37 corridor was used to create a consistent external volume matrix for each of the alternatives. This facilitated an “apples-to-apples” comparison of the conceptual alternatives.

Conceptual Alternatives

A total of 14 corridor alternatives are being considered as Conceptual Alternatives. However, they are grouped into four “representative alternatives” for purposes of Conceptual Alternatives modeling. These alternatives are described below and shown in **Figure 4** on the following page:

- The SR 37 Alternative (Alternatives C, N): follows SR 37 from Martinsville to approximately one mile south of I-465, where it splits to the west and intersects I-465 at a new interchange.
- The West Alternative (Alternatives A1, A2, B, D, P): follows SR 37 from Martinsville to approximately County Road 390 East, then follows a new alignment to the north-northwest, around the southwest side of Mooresville, joins I-70 west of SR 267, and follows I-70 to its interchange with I-465.
- The East Alternative (Alternatives E1, E2, F1, F2): follows SR 37 from Martinsville to approximately one mile north of County Road 390 East, then follows a new alignment to the east to join I-65 approximately one mile north of Whiteland Road, then follows I-65 north to its interchange with I-465.
- The Central Alternative (Alternatives K1, K3, K4): follows SR 37 from Martinsville to just south of Smith Valley Rd, then splits off to the west, across the White River and follows the Mann Road corridor to terminate at I-465.

For the screening process, consistent assumptions were applied to each corridor, as follows:

- Number of Lanes: 3 lanes in each direction the entire length of the corridors to minimize capacity constraints and maximize the potential demand attracted to each alternative.
- Speed Limit: 70 mph in rural areas and 65 mph in urban/suburban areas
- Interchanges: standard diamond interchanges were coded at all surface street access points and fully directional ‘T’ interchanges were coded where I-69 would tie into existing interstates (I-65, I-70 or I-465).
- Added lanes on existing interstates were assumed where the preliminary model results showed that they would be required because of the I-69 project. The West Alternative assumed one added lane in each direction on I-70 between I-69 and SR 267. The SR 37



and Central Alternatives assumed one added lane in each direction on I-465 between SR 67 and US 31. No additional lanes were assumed for the East Alternatives.

- No induced population or employment growth was added to the TAZ layers due to I-69.

The purpose of the I-69 CM alternative runs is to identify the comparative benefits of each of the alternatives to facilitate a quantitative screening evaluation. Benefits are manifested primarily in travel time savings and overall traffic volume capture. The screening analysis generally does not include the more detailed aspects of an alternatives analysis, which evaluates traffic diversion effects, traffic capacity, economic impacts, induced growth potential, interchange configurations, etc.

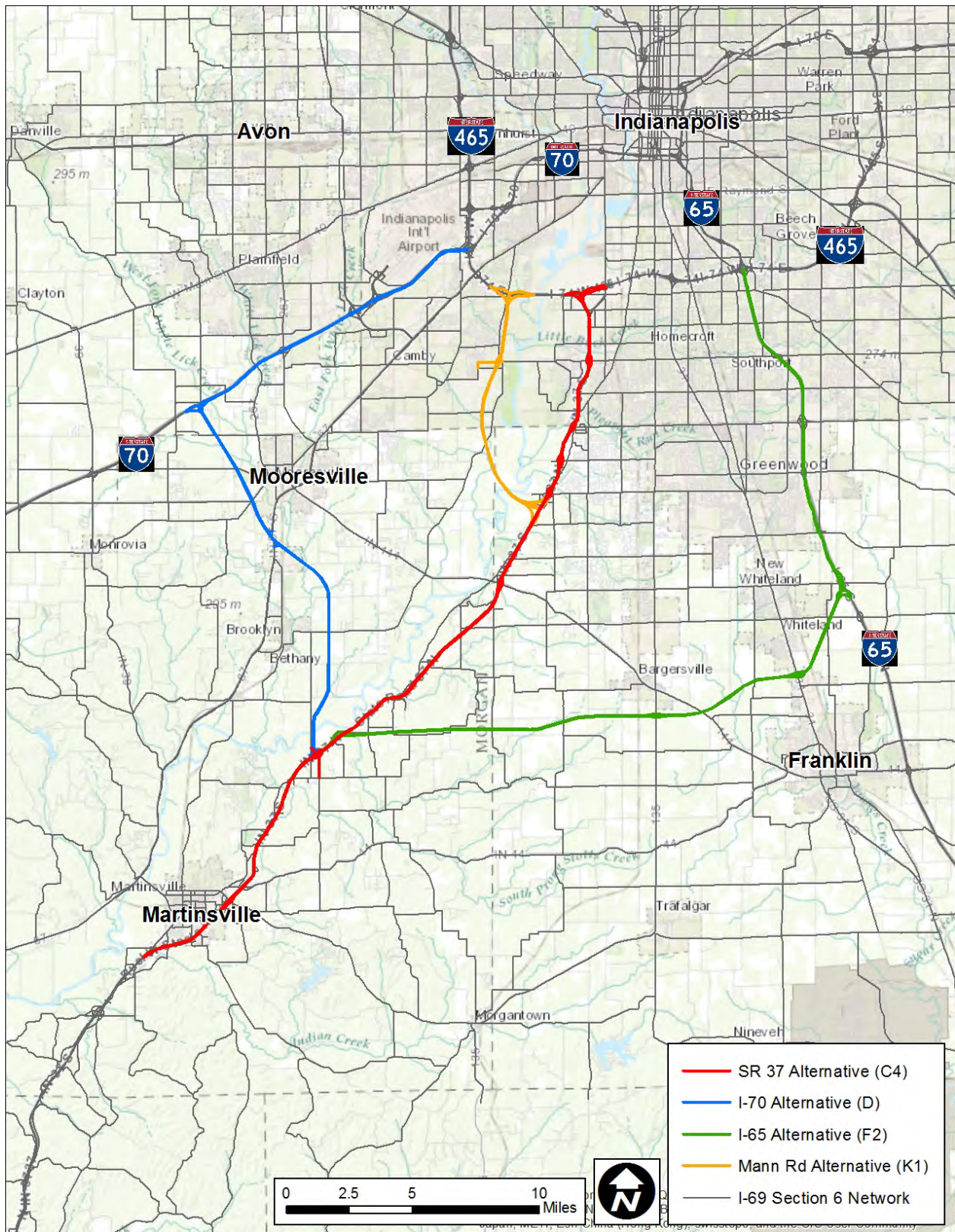


Figure 4: Conceptual Alternatives Map



Results

The 2045 total network travel volumes and the volumes on I-69 for each of the representative alternatives are shown in **Figure 5**. **Figure 6** shows volumes estimated by the model on major north-south roads at a hypothetical “screenline” cut along Southport Road. Screenline comparisons are a tool used by transportation planners to understand how traffic pattern changes affect different facilities within a single corridor.

	Total VMT¹	Congested VMT²	I-69 ADT³	I-69 ADTT⁴
No-Build	73,006,535	8,919,940	45,400	17,600
SR 37 Alt	73,812,173	8,860,741	95,500	21,400
I-70 Alt	73,567,270	9,110,595	41,600	14,900
I-65 Alt	73,640,904	9,015,327	49,600	15,500
Mann Rd Alt	73,737,417	8,862,170	64,500	21,000

Figure 5: Model Results for the Conceptual Corridors vs. the No-Build Scenario

1. Total vehicle miles of travel in the 4-County study area
2. Total vehicle miles of travel with level of service E or F in the 4-County study area
3. Average daily traffic on I-69 just south of its interchange with existing freeways (I-65, I-70 or I-465). No-Build ADT on SR 37 south of I-465
4. Average daily truck traffic just south of the northern terminus of the alternative

	No-Build	SR 37 Alt	West Alt	East Alt	Central Alt
I-65	104,257	103,600	104,600	104,000	104,000
Grey Rd	18,242	18,000	18,100	18,100	18,100
McFarland Rd	11,943	13,500	13,500	15,000	13,600
Madison Ave	26,067	25,700	25,700	28,100	25,700
Shelby St	3,924	3,900	3,800	4,100	3,900
US 31	53,811	45,900	53,300	57,500	50,800
SR 135	27,572	25,900	25,700	26,600	26,000
Bluff Rd	19,327	15,000	17,100	17,600	14,800
Harding St	7,842	7,900	4,100	4,000	5,500
SR 37	33,705	-	32,400	35,200	19,500
I-69	-	95,500	-	-	64,500
Mann Rd	18,779	11,500	16,900	18,400	15,400
Mooresville Rd	6,041	5,500	6,300	5,900	4,700
SR 67	42,217	28,400	42,000	40,000	27,800
I-70	77,058	77,200	91,800	76,500	77,000
Total	450,786	477,500	455,400	451,100	471,300

Figure 6: North of Southport Road - Screenline ADT Volumes

Additionally, a table of congested travel times among the alternatives is provided in **Figure 7**. All travel times are in minutes and the starting point is the SR 37 (I-69)/SR 39 interchange on the south side of Martinsville.



	Indianapolis Airport	Downtown Indianapolis	I-465 @ I-69 (Northeast)
No-Build	40 min	51 min	71 min
SR 37 Alt	34 min	40 min	58 min
I-70 Alt	26 min	41 min	62 min
I-65 Alt	36 min	44 min	62 min
Mann Rd Alt	32 min	39 min	59 min

Figure 7: Congested Travel Time Comparison

The preceding tables highlight the differences between the four conceptual alternatives. Some of the major conclusions that can be drawn from the data are:

- The straightline population and employment growth assumption is a key driver of increased traffic volumes in the 2045 No-Build. The projected traffic growth would oversaturate numerous interstate segments in the study area, including I-465 between I-70 and I-65, I-65 in various locations south of Downtown Indianapolis, and I-70 west of SR 267. This baseline congestion would be independent of the I-69 Alternatives.
- The benefit of the I-69 Section 6 Alternatives is best represented by travel time savings to major destinations, as illustrated in Figure 7. The SR 37 and Central Alternatives would provide the most travel time savings to Downtown Indianapolis and to the I-465/I-69 interchange in northeast Indianapolis. Conversely, the West Alternative would provide the greatest travel time savings to the Airport.
- None of the alternatives is expected to provide a meaningful reduction in systemwide congestion, although each alternative would likely alleviate instances of localized congestion in various areas. All of the alternatives would increase daily VMT in the study area.
- While the SR 37 Alternative would attract the highest ADT, it would effectively replace the existing SR 37 arterial and so the reported volume reflects the combination of I-69 and SR 37 volumes. For each of the other alternatives, the I-69 volumes are lower, as SR 37 would remain an arterial and continue to serve local and even some regional trips.
- The Central Alternative would provide a direct route to I-465 with comparable travel time benefits to the SR 37 Alternative without impacting the most densely developed areas along the SR 37 corridor.
- Traffic volume projections for the West and East Alternatives would be influenced by congestion on the existing interstates, assuming no additional projects to increase capacity on I-70 or I-65. The extension of I-69 to either interstate would amplify the existing congestion, which would restrain traffic growth that would otherwise occur along I-69 in those alternatives.



APPENDIX D

Conceptual Alternatives Cost Estimation Methodology



CONCEPTUAL ALTERNATIVES COST ESTIMATION METHODOLOGY

I. Introduction

Partial capital cost estimates were developed for thirteen I-69 Section 6 Conceptual Alternatives and the Tier 1 selected Alternative C as part of the evaluation and screening process. The cost estimates for the alternatives are intended to capture the cost of major project elements at a planning level of detail and allow for comparison of the alternatives. Too many uncertainties exist at this stage of project development to develop reliable absolute cost estimates. Major cost items accounted for in the estimates include roadway pavement, drainage, earthwork, interchanges, overpasses, land acquisition, major utility relocations and rest areas. Costs of items such as local access changes, environmental mitigation and damages payments to property owners are not included in the estimates at this time.

Because of the very preliminary nature of the cost estimates calculated for the Conceptual Alternatives, absolute cost values are not provided at this time. Instead, a cost rating on a scale of 1 to 5 was assigned to each Conceptual Alternative to indicate how its estimated cost compares to other Conceptual Alternatives. A rating of 1 indicates the lowest cost alternative, and a rating of 5 represents the highest cost alternative. The ratings are represented by dollar symbols in the Conceptual Alternatives evaluation summary table (Appendix A).

II. Methodology and Assumptions

Conceptual Alternative alignments were developed on digital aerial photography using Microstation CAD software. Quantities for roadway items associated with each alternative were estimated on a per-mile basis using the CAD alignments and assumed typical roadway sections. The quantities of other items, such as bridges, interchanges and roadway overpasses were estimated by identifying their potential locations and sizes from the alignment and aerial photography. Land acquisition was estimated based on the footprint of each alternative.

Unit costs for most items were developed from average unit prices for INDOT pay items of projects bid within the last three (3) years. Costs from projects of similar size, such as I-69 Section 4, were used to the extent possible. Unit costs for structures and some additional items were derived from recent INDOT projects and HNTB engineer experience. More detailed information on the methodology and assumptions for the various cost items is provided below.

A. Roadway

Roadway costs were estimated using INDOT average pay items to estimate the per-mile unit cost for a typical 4-lane freeway section. Typical sections developed for I-69 Section 4 were used to estimate the quantities. The freeway unit cost accounted for pavement, underdrain and earthwork quantities. Earthwork quantities account for clear zone width, underdrain freeboard and full median width. The typical section per-mile unit cost was checked against recent construction pricing information from I-69 Section 5. Per-mile costs for 6-lane typical freeway



sections were estimated by factoring up the 4-lane section cost. The lengths of 4 lane and 6 lane freeway segments required for each alternative were estimated based on traffic forecasts developed with the interim I-69 Section 6 travel demand model.

B. Structures

Structures estimated for each alternative included bridges, mechanically stabilized earth (MSE) walls and small structures. Bridges were identified wherever an alternative crosses a body of water, railroad or roadway. Quantities for bridges were estimated using the I-69 roadway typical sections and estimated lengths based on floodways, floodplains and clear zone requirements. MSE wall quantities were only estimated for locations with proposed bridges. Small structures were quantified when an alternative crossed an existing small structure that would require replacement. Unit costs, based on prior design experience, were assigned to each structure type.

C. Interchanges and Overpasses

Potential interchange and local road overpass locations for each alternative were identified during initial layout of alternatives based on roadway functional classifications, network connectivity and interchange spacing principles. The cost of system interchanges and service interchanges were identified on a per-each basis based on recent INDOT projects. Overpass costs were estimated on a per-each basis with the assumption of a 4-lane road passing over I-69.

D. Right-of-Way Acquisition

Average per-acre values for real estate were obtained by an Indiana licensed appraiser from records of recent real estate transactions. Average values for residential and agricultural land were identified by county and township. Average values for commercial and industrial land were identified for the specific areas impacted by alternatives. The per-acre values include the value of both land and improvements. In northwest Johnson County, the average price of agricultural land approaches that of residential land due to the demand for developable land. The unit values for right-of-way acquisition were applied to land within the footprint of each conceptual alternative footprint based on how that land is zoned. Actual existing land use information is not available at this time. Relocation and damages payments to property owners are not included at this time.

E. Professional Services

The cost of professional services for project survey, design, land acquisition and construction management were estimated at 10% of the construction cost.

F. Contingencies

Due to the very early stage of alternative development, a 30% contingency was added to project costs to account for unknown and excluded items. This was not done with the intent of providing an accurate absolute cost estimate for each alternative but rather to provide a more realistic estimate of the cost differences among the alternatives.



G. Cost Escalation

Cost estimates are assumed to be in current year dollars. No cost escalation has been applied.

H. Excluded Costs

The following items are not specifically included in the cost estimates developed for Conceptual Alternatives. They are assumed to be included in contingencies:

- Local access road changes
- Widening of existing freeways to accommodate added traffic
- Rest areas
- Environmental mitigation
- Relocation payments and damage payments to property owners
- Cost escalation to the year of construction
- Costs of project financing

Potential cost savings due to the reuse of pavement or other existing infrastructure along SR 37 or SR 67 were not evaluated either. These costs and costs savings will be considered as remaining alternatives are developed and evaluated in more detail.



APPENDIX E
Conceptual Alternatives General Advantages and
Disadvantages



This document describes 26 initial Conceptual Alternative alignments that were developed for I-69 Section 6 between Martinsville and I-465. A brief description of each alternative, along with a preliminary list of its advantages and disadvantages, is provided on the following pages. This information was developed to support qualitative screening of initial alternatives. Some of the alternatives that were advanced to quantitative analysis were renamed. Where this has occurred, the revised names are shown in parentheses.

Advantages and disadvantages of each alternative identified in this document were based on information that was apparent during initial layout of alternatives. These were identified for the purpose of qualitative comparisons among alternatives and to aid the identification of engineering or environmental flaws. No quantitative analysis of impacts was conducted during initial layout, and the mapping available during initial layout of the alternatives did not contain the detailed information available during subsequent quantitative analysis. Some impacts identified during later evaluation were therefore not known at the time these advantages and disadvantages were developed and are not identified in this document. For example, only some managed lands and recreational facilities were shown on initial mapping, so the potential impact of Alternative K1 to the Amos Butler heron sanctuary was not known.

Each Conceptual Alternative was drawn using MicroStation CAD software on a background of digital aerial photography and digital mapping of key environmental constraints. Each Conceptual Alternative is drawn with a 400-foot wide footprint of potential impact and additional width in possible interchange areas. Conceptual Alternatives were developed with the following general objectives

- Provide a continuous Interstate freeway between the end of I-69 Section 5 at Indian Creek south of Martinsville and I-465 in Indianapolis.
- Minimize impacts to developed areas, especially residential and commercial development
- Avoid steep terrain, forested areas, wetlands and identified bat roost trees
- Avoid churches, cemeteries, schools, parks and managed lands
- Minimize bridges and bridge length
- Minimize impacts to the Habitat Conservation Plan area established for bats in the vicinity of the Indianapolis International Airport
- Consider the need for local access modifications where the alternative follows an existing road or where an interchange is proposed adjacent to an existing interchange
- Provide interchange spacing recommended by AASHTO, where possible (1 mile urban, 3 miles rural)
- Minimize the construction of new terrain freeway



Alternative A (Later renamed A1)

Description:

Alternative A follows SR 37 north through Martinsville to near Egbert Road in Morgan County, where it leaves SR 37 and turns northwest across the White River. The alternative then joins SR 67 near Centerton Road and follows the existing SR 67 alignment for five miles. South of Mooresville the alternative diverges from SR 67 and generally follows along the western edge of White Lick Creek to meet I-70 at a new interchange location. Alternative A then follows I-70 northeast to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion Counties
- Alignment is adjacent to the Indianapolis International Airport
- Follows existing SR 67 for over 5 miles, which reduces right of way acquisition and pavement costs over alternatives on new alignment
- Follows I-70 for almost 10 miles, which reduces right of way acquisition and pavement cost compared to alternatives on new alignment
- I-70 connection point provides appropriate spacing from adjacent interchanges
- SR 67 interchange provides access to Mooresville
- Improves regional connectivity across the White River southwest of Indianapolis
- Appears to have fewer bat habitat impacts than alternatives E, J and M, which connect to I-70 near the airport

Disadvantages:

- Long crossing of White River floodway increases bridge costs
- Requires local access changes along SR 67
- Possible impacts to forested areas along SR 67
- I-70 interchange could require structures at White Lick Creek
- Crosses approximately 5 tributaries of White Lick Creek west of Mooresville



Alternative A2

Description:

Alternative A2 follows SR 37 north through Martinsville to near Egbert Road in Morgan County, where it leaves SR 37 and turns northwest across the White River. The alternative then joins SR 67 near Centerton Road and follows the existing SR 67 alignment for five miles. South of Mooresville the alternative diverges from SR 67 and follows along the west side of White Lick Creek to meet I-70 at a new interchange location. Alternative A2 then follows I-70 northeast to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion Counties
- Alignment is adjacent to the Indianapolis International Airport
- Follows existing SR 67 for over 5 miles, which reduces right of way acquisition and pavement costs over alternatives on new alignment
- Follows I-70 for almost 10 miles, which reduces right of way acquisition and pavement cost compared to alternatives on new alignment
- I-70 connection point provides appropriate spacing from adjacent interchanges
- SR 67 interchange provides access to Mooresville
- Improves regional connectivity across the White River southwest of Indianapolis
- Appears to have fewer bat habitat impacts than alternatives E, J and M, which connect to I-70 near the airport

Disadvantages:

- Long crossing of White River floodway increases bridge costs
- Requires local access changes along SR 67
- Possible impacts to forested areas along SR 67
- I-70 interchange could require structures at White Lick Creek
- Crosses approximately 5 tributaries of White Lick Creek west of Mooresville



Alternative B

Description:

Alternative B follows SR 37 north through Martinsville to near Perry Road where it leaves SR 37, turns northwest and crosses the White River. The alternative then continues northwest across White Lick Creek south of Mooresville. After an interchange with SR 67, the alternative continues on the west side of White Lick Creek to meet I-70 at a new interchange location. Alternative B then follows I-70 northeast to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion Counties
- Alignment is adjacent to the Indianapolis International Airport
- Follows I-70 for almost 10 miles, which reduces right of way acquisition and pavement costs over alternatives on new alignment
- Appears to have fewer bat habitat impacts than alternatives E, J and M, which connect to I-70 near the airport
- I-70 connection point provides appropriate spacing from adjacent interchanges
- Improves regional connectivity across the White River southwest of Indianapolis
- Has interchange with SR 67 near Mooresville

Disadvantages:

- Crosses White River floodway, with potential I-69/SR 37 interchange impacts to floodway
- Crosses White Lick Creek south of Mooresville and could also impact White Lick Creek at I-70 interchange



Alternative D

Description:

Alternative D follows SR 37 north through Martinsville to Henderson Ford Road where it leaves SR 37 and turns north. Alternative D crosses the White River parallel to the existing Henderson Ford Road bridge, continues north and then turns to the west just north of Brooklyn. After crossing White Lick Creek and an interchange with SR 67, the alternative follows the west side of White Lick Creek to meet I-70 at a new interchange location. Alternative D follows I-70 northeast from the interchange to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion counties
- Alignment is adjacent to the Indianapolis International Airport
- Follows I-70 for almost 10 miles, which reduces right of way acquisition and pavement cost over alternatives on new alignment
- I-70 connection point provides appropriate spacing from adjacent interchanges
- Has interchange with SR 67 near Mooresville
- Appears to have fewer bat habitat impacts than alternatives E, J and M, which connect to I-70 near the airport

Disadvantages:

- Crosses White River floodway, with potential I-69/SR 37 interchange impacts to floodway
- Could impact Henderson Bridge Public Access Site at White River
- Crosses White Lick Creek south of Mooresville and could also impact White Lick Creek at I-70 interchange



Alternative E (Alternatives E1 and E2)

Description:

Alternative E follows SR 37 north through Martinsville to Henderson Ford Road where it turns north. Alternative E then passes north across the White River parallel to the existing Henderson Ford Road bridge. Alternative E continues north to an interchange with SR 144 and an interchange with SR 67 on the north side of Mooresville. From this point Option E1 bears northwest into Hendricks County and ties into I-70 at the existing SR 267 interchange. Option E1 then follows I-70 northeast to I-465. Option E2 turns northeast from the interchange with SR 67 and follows along the north edge of the SR 67/Indiana Southern RR corridors. At a point near the AmeriPlex Parkway it then turns north to tie into I-70 at the existing airport interchange. Alternative E follows I-70 northeast from the interchange to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion counties
- Option E1 follows I-70 for approximately 6.5 miles and Option E2 follows I-70 for approximately 3.5 miles, which reduces right of way acquisition and pavement cost over alternatives on new alignment
- Alignment is adjacent to the Indianapolis International Airport
- Option E2 does not require crossing White Lick Creek, as other alternatives near Mooresville do
- Option E1's I-70 connection at existing SR 267 interchange provides service to Plainfield other areas of Hendricks county, while maintaining adequate I-70 interchange spacing
- Provides service to Mooresville via SR 144 and SR 67 interchanges

Disadvantages:

- Crosses White River floodway, with potential I-69/SR 37 interchange impacts to floodway
- Both Options E1 and E2 impact the Indiana Bat Habitat Conservation Plan area between Mooresville and the Indianapolis International Airport
- Option E1's connection to I-70 requires reconstruction of the existing SR 267 interchange to accommodate freeway-to-freeway movements as well as safe access to SR 267 Option E2's connection to I-70 requires reconstruction of the existing interchanges with the terminal access road and with AmeriPlex Parkway in order to provide both freeway-to-freeway movements as well as safe access to these destinations
- Option E2 impacts the AmeriPlex Industrial Park and the Purdue Research Park
- Option E2 could constrain the proposed 3rd runway location at Indianapolis International Airport
- Option E2 impacts development along the SR 67 / Indiana Southern RR corridors. Crossing over and running parallel to the Indiana Southern RR could increase costs and would require coordination with the railroad



Alternative F (Alternatives F1, F2, and F3)

Description:

Alternative F follows SR 37 north through Martinsville to approximately Ennis Road in Morgan County, where it turns east. Option F1 passes north of Bargersville, while Options F2 and F3 pass south of Bargersville. Options F1 and F2 cross US 31 midway between Whiteland and Franklin, while Option F3 proceeds straight through Franklin. Alternative F would join I-65 between Johnson County Roads 200 N and 600 N. The three alignment options demonstrate different possible locations for the I-69/I-65 system interchange. Alternative F then follows I-65 north to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion counties
- Provides an east-west connector between SR 37 and I-65 south of I-465
- Provides service to Whiteland, New Whiteland, and Franklin along US 31
- Alternative F alignments have fewer impacts to developed areas than Alternatives H and I, which cross Johnson County further north
- Options F1 and F2 cross US 31 at the one remaining undeveloped area north of Franklin
- Options follow I-65 for 10 to 14 miles to reduce right of way acquisition and construction costs compared to alternatives on new alignment

Disadvantages:

- Leaves SR 37 alignment in an area where the White River is close to the SR 37 right of way, with minimal room for interchange ramps
- May impact the White River floodway and require multiple stream crossing bridges at SR 37
- F1 and F3 interchanges with I-65 are located at a stream crossing
- F3 crosses Young's Creek three times just west of Franklin
- F3 impacts several commercial and industrial buildings near US 31
- I-65 interchange location will be close to existing interchange locations and will likely require braided ramps or a collector-distributor system
- Alternative F3 impacts a golf course close to I-65 which could be a costly relocation



Alternative G (Alternatives G1 and G2)

Description:

Alternative G follows SR 37 north through Martinsville to approximately Big Bend Road in Morgan County, where it turns east. It runs due east into Johnson County, just north of Bargersville, and crosses US 31 between Whiteland and Franklin. Options G1 and G2 demonstrate two alternative locations for an I-69/I-65 system interchange, both of which are located between CR 200 N and CR 500 N. Alternative G then follows I-65 north to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion counties
- Provides an east-west connector between SR 37 and I-65 south of I-465
- Provides service to Whiteland, New Whiteland, and Franklin along US 31
- Leaves SR 37 alignment in an area where there is room between the White River and SR 37 right of way for interchange ramps.
- Follows I-65 for up to 13 miles to reduce right of way acquisition and construction costs compared to alternatives on new alignment
- New terrain alignment options (G1 and G2) avoid developed areas
- Alternative crosses US 31 at the one remaining undeveloped area north of Franklin

Disadvantages:

- I-65 interchange location for either Option G1 or G2 would impact Hurricane Creek and would likely require braided ramps or a collector-distributor system due to proximity to existing interchange at Whiteland Road



Alternative H

Description:

Alternative H follows SR 37 north through Martinsville to approximately Whiteland Road in Morgan County, where it turns east and parallels Whiteland Road. It runs due east through Johnson County and crosses US 31 in Whiteland. Alternative H joins I-65 at the existing Whiteland Road (CR 500 N) interchange. This interchange would be reconstructed to accommodate both freeway to freeway movements and local access, or local access would be move location closer to downtown Whiteland. Alternative H then follows I-65 to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion counties
- Provides an east-west connector between SR 37 and I-65 south of I-465
- Provides service to Whiteland, New Whiteland, Greenwood and Franklin along US 31
- Leaves SR 37 alignment in an area where there is room between the White River and the SR 37 right of way for interchange ramps.
- Follows I-65 for approximately 11.5 miles to reduce right of way acquisition and construction costs
- Remains on SR 37 alignment further north than Alternatives F and G, thereby reducing the new terrain right of way acquisition and construction costs compared to these alternatives on new alignment

Disadvantages:

- New terrain portion of the alignment passes through developed area, especially near US 31, where it passes through the center of the Town of Whiteland
- I-65 interchange would be located at the existing Whiteland Road interchange. This would require the interchange to be reconstructed to accommodate both freeway to freeway movements and local access or to move local access to a separate location



Alternative I

Description:

Alternative I follows SR 37 north through Martinsville to approximately Banta Road in Morgan County, where it turns east to parallel Smokey Row Road and Tracy Road. It runs due east through Johnson County and crosses US 31 in New Whiteland. Alternative I joins I-65 midway between the existing Whiteland Road (CR 500 N) interchange and the future Worthsville Road (CR 750 N) interchange. Alternative I then follows I-65 north to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion counties
- Provides an east-west connector between SR 37 and I-65 south of I-465
- Provides service to Whiteland, New Whiteland, Greenwood and Franklin along US 31
- Leaves SR 37 alignment in an area where there is room between the White River and the SR 37 right of way for interchange ramps.
- Follows I-65 for almost 10 miles to reduce right of way acquisition and construction costs compared to alternatives on new alignment
- Remains on SR 37 alignment further north than Alternatives F, G and H, thereby reducing the amount of new terrain construction

Disadvantages:

- New terrain portion of the alignment has an extensive impact on residential and commercial development, especially west of SR 135 and near US 31
- I-65 interchange location would be close to the existing Whiteland and Worthsville Road interchanges and would likely require braided ramps or a collector-distributor system



Alternative J

Description:

Alternative J follows SR 37 north through Martinsville to Smith Valley Road where leaves SR 37 and turns northwest. Alternative J then passes northwest across the White River and continues to an interchange with SR 67 at the existing AmeriPlex Parkway intersection. This alternative follows the AmeriPlex Parkway alignment to an interchange with I-70 and then follows I-70 northeast to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion counties
- Alignment is adjacent to the Indianapolis International Airport
- Improves regional connectivity across the White River southwest of Indianapolis
- Follows SR 37 alignment from Martinsville to north of SR 144 in order to reduce right of way acquisition and construction costs compared to alternatives on new alignment
- Follows I-70 for approximately 4 miles, which reduces right of way acquisition and pavement cost compared to alternatives on new alignment
- Leaves SR 37 alignment in an area where there is room between the White River and the SR 37 right of way for interchange ramps.

Disadvantages:

- Crosses White River floodway at a wide location, thus increasing bridge costs
- Traverses the Indiana Bat Habitat Conservation Plan area between Mooresville and the Indianapolis International Airport, with possible impacts to mitigation areas
- Connection to I-70 requires reconstruction of the existing interchanges with the terminal access road and with AmeriPlex Parkway in order to provide both freeway system movements and safe access to these destinations
- Requires construction of alternate access to AmeriPlex Park from SR 67 due to conversion of AmeriPlex Parkway to a freeway
- Could constrain the proposed 3rd runway location at Indianapolis International Airport if the I-69 geometry varies from the existing AmeriPlex Parkway
- Could impact quarry sites near its interchange with SR 37



Alternative K (Alternatives K1 and K2)

Description:

Alternative K follows SR 37 north through Martinsville to approximately Smith Valley Road/County Line Road in Johnson County, where it leaves SR 37 and turns west. Option K1 leaves SR 37 near Smith Valley Road, passes northwest across the White River and then curves north to follow the Mann Road corridor. Option K2 leaves SR 37 about two miles further north, at County Line Road, and passes west over the White River before curving to follow the same alignment as Option K1. Alternative K follows along the west side of Mann Road to the Southport Road area, where it crosses to the east side of Mann Road and proceeds to an interchange with I-465.

An option that followed the Mann Road corridor was considered in the I-69 Tier 1 EIS and dismissed due to potential aquatic habitat impacts and inconsistency with the Marion County Comprehensive Plan. Alternative K, which follows a similar alignment, was included in this analysis because it is potentially the shortest reasonable alternative reasonable alternative that avoids the developed SR 37 corridor in Marion County, it could improve regional connectivity, and it was suggested by several people at February 2015 public scoping meetings. The continued validity of impacts cited in the Tier 1 evaluation would need to be assessed before any K alternatives could be included in the EIS.

Advantages:

- Avoids impacts to developed areas along SR 37 in Marion County
- Follows SR 37 alignment from Martinsville to north of SR 144 in order to reduce right of way acquisition and construction costs compared to alternatives on new alignment
- Improves regional connectivity across the White River in southwestern Marion County with an interchange at Southport and Mann Roads
- Shortest alternative that leaves the SR 37 corridor
- Leaves SR 37 alignment in an area where there is room between the White River and the SR 37 right of way for interchange ramps.

Disadvantages:

- Crosses White River floodway at a wide location, thus increasing bridge costs
- A Mann Road alignment option was eliminated from the Tier 1 EIS due to potential impacts to wetlands and Southwestway Park, and due to inconsistency with the Marion County Comprehensive Plan
- Requires reconstruction of the existing I-465/Mann Road interchange to accommodate freeway-to-freeway movements as well as access to Mann Road. Alternately, local access could be eliminated at I-465 in lieu of the new I-69/Southport Road interchange
- The I-465/SR 67 interchange would require reconstruction due to its proximity to the I-465/I-69 interchange
- Option K1 impacts quarry sites at its interchange with SR 37



Alternative K3

Description:

Alternative K3 was investigated as an alternative to minimize the White River crossing impacts of Alternatives K1 and K2. Alternative K3 follows SR 37 north through Martinsville to approximately Cragen Road in Morgan County, where it leaves SR 37 and turns northwest across the White River and then curves north to follow the Mann Road corridor. Alternative K3 follows along the west side of Mann Road to the Southport Road area, where it crosses to the east side of Mann Road and proceeds to an interchange with I-465.

Like the K alternatives described previously, The continued validity of impacts cited for the Mann Road option in the Tier 1 evaluation would need to be assessed before K3 could be included in the EIS.

Advantages:

- Avoids impacts to developed areas along SR 37 in Marion County
- Follows SR 37 alignment from Martinsville to near SR 144 in order to reduce right of way acquisition and construction costs compared to alternatives on new alignment
- Improves regional connectivity across the White River in southwestern Marion County with an interchange at Southport and Mann Roads
- Leaves SR 37 alignment in an area where there is room between the White River and the SR 37 right of way for interchange ramps.
- Crosses the White River at a narrower location than K1 or K2

Disadvantages:

- A Mann Road alignment option was eliminated from the Tier 1 EIS due to potential impacts to wetlands and Southwestway Park, and due to inconsistency with the Marion County Comprehensive Plan
- Requires reconstruction of the existing I-465/Mann Road interchange to accommodate freeway-to-freeway movements as well as access to Mann Road. Alternately, local access could be eliminated at I-465 in lieu of the new I-69/Southport Road interchange
- The I-465/SR 67 interchange would require reconstruction due to its proximity to the I-465/I-69 interchange
- Has more development impact near the White River than K1 or K2



Alternative L

Description:

Alternative L follows SR 37 north through Martinsville to Smith Valley Road in Johnson County, where it leaves SR 37 and turns west. Alternative L then passes northwest across the White River and curves north to an interchange with SR 67 just south of AmeriPlex Parkway. This alternative follows along the north side of the SR 67 and Indiana Southern RR rights of way until it meets with an interchange at I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Johnson and Marion counties
- Provides access to the Indianapolis International Airport terminal via an interchange with existing AmeriPlex Parkway at SR 67
- Improves regional connectivity across the White River southwest of Indianapolis
- Follows the SR 37 alignment from Martinsville to north of SR 144 in order to reduce right of way acquisition and construction costs compared to alternatives on new alignment
- Leaves the SR 37 alignment in an area where there is room between the White River and the SR 37 right of way for interchange ramps

Disadvantages:

- Crosses White River floodway at a wide location, thus increasing bridge costs
- The interchange with I-465 will be complex and expensive due to the proximity of the existing I-70 and SR 67 interchanges and the Indiana Southern Railroad
- Crossing over and running parallel to the Indiana Southern Railroad could increase costs and would require coordination with the railroad
- Several existing commercial and residential properties, along with the Damar Services campus, would be impacted on the north side of the Indiana Southern Railroad
- Could constrain the proposed 3rd runway location at Indianapolis International Airport
- Impacts quarry sites at its interchange with SR 37



Alternative M

Description:

Alternative M follows SR 37 north through Martinsville to County Line Road in Johnson County, where it leaves SR 37 and turns west. Alternative M crosses the White River, bears north to an interchange with SR 67, and then proceeds to I-70 at the existing airport interchange. Alternative M follows I-70 northeast from the existing airport interchange to I-465.

Advantages:

- Avoids impacts to developed areas along SR 37 in Marion County
- Alignment is adjacent to the Indianapolis International Airport
- Improves regional connectivity across the White River southwest of Indianapolis
- Follows the SR 37 alignment from Martinsville to north of SR 144 in order to reduce right of way acquisition and construction costs compared to alternatives on new alignment
- Follows I-70 for over 3 miles, which reduces right of way acquisition and construction costs compared to alternatives on new alignment
- Leaves the SR 37 alignment in an area where there is room between the White River and the SR 37 right of way for interchange ramps.

Disadvantages:

- Crosses White River floodway at a wide location, thus increasing bridge costs
- Could constrain the proposed 3rd runway location at Indianapolis International Airport
- Traverses the Indiana Bat Habitat Conservation Plan area between Mooresville and the Indianapolis International Airport, with possible impacts to mitigation areas
- Connection to I-70 requires reconstruction of the existing interchanges with the terminal access road and with AmeriPlex Parkway in order to provide both freeway system movements and safe access to these destinations



Alternative P1

Description:

Alternative P1 follows SR 37 north through Martinsville to approximately Banta Road in Morgan County, where it turns west. The alternate crosses the White River and proceeds northwesterly across new terrain to I-70 at the existing airport interchange. Alternative P1 follows I-70 northeast from the existing airport interchange to I-465.

Advantages:

- Leaves SR 37 alignment to avoid impacts to developed areas in Johnson and Marion counties
- Leaves SR 37 alignment in an area where there is room between the White River and the SR 37 R/W for interchange ramps
- Provides good service to the airport terminal via connection to the existing airport interchange
- Improves regional connectivity across the White River southwest of Indianapolis
- Follows the SR 37 alignment from Martinsville to just south of SR 144 in order to reduce right-of-way acquisition and potentially reuse existing pavement
- Follows I-70 for over 3 miles, which reduces right-of-way acquisition and pavement cost

Disadvantages:

- Could constrain the proposed 3rd runway location at Indianapolis International Airport
- Could impact the Indiana Bat Airport Habitat Conservation Plan area between Mooresville and the airport
- Connection to I-70 requires reconstruction of the existing interchanges with the terminal access road and with Ameriplex Parkway in order to provide both freeway system movements and safe access to these destinations
- Impacts developed area west of White River in Morgan County



Alternative P2 (Alternative K4)

Description:

Alternative P2 follows SR 37 north through Martinsville to near Perry Road where it leaves SR 37, turns north and crosses the White River. The alternative then continues northeast and generally parallels Centenary Road/Mann Road through Morgan County. As Alternative P2 crosses into Marion County it follows along the west side of Mann Road to the Southport Road area, where it crosses to the east side of Mann Road and proceeds to an interchange with I-465.

Advantages:

- Leaves SR 37 alignment to avoid impacts to developed areas in Johnson and Marion counties
- Follows SR 37 alignment from Martinsville north for a distance in order to reduce right-of-way acquisition and potentially reuse existing pavement
- Improves regional connectivity across the White River in southwestern Marion County with an interchange at Southport and Mann Roads
- Leaves SR 37 alignment in an area where there is room between the White River and the SR 37 right-of-way for interchange ramps.

Disadvantages:

- Crosses White River floodway, with potential I-69/SR 37 interchange impacts to floodway
- A Mann Road alignment option was eliminated from the Tier 1 EIS due to potential impacts to wetland and Southwestway Park, and due to inconsistency with the Marion County Comprehensive Plan
- Requires reconstruction of the existing I-465/Mann Road interchange to accommodate freeway-to-freeway movements as well as access to Mann Road. Alternately, local access could be eliminated at I-465 due to the new I-69/Southport Road interchange
- The I-465/SR 67 interchange would require reconstruction due to its proximity to the I-465/I-69 interchange



Alternative P3

Description:

Alternative P3 diverges from SR 37 south of Martinsville. The alternative crosses the White River and follows existing SR 67 north for more than 12 miles. South of Mooresville the alternative diverges from SR 67 to the east and proceeds northeasterly on a new terrain alignment. As Alternative P3 crosses into Marion County it follows along the west side of Mann Road to the Southport Road area, where it crosses to the east side of Mann Road and proceeds to an interchange with I-465.

Advantages:

- Leaves SR 37 alignment to avoid impacts to developed areas in Johnson and Marion counties
- Follows existing SR 67 for over 12 miles, which reduces right-of-way acquisition and possibly pavement cost
- SR 67 interchange provides good access to Mooresville

Disadvantages:

- Crosses White River floodway at a wide location, thus increasing potential impacts or mitigation cost
- A Mann Road alignment option was eliminated from the Tier 1 EIS due to potential impacts to wetland and Southwestway Park, and due to inconsistency with the Marion County Comprehensive Plan
- Requires reconstruction of the existing I-465/Mann Road interchange to accommodate freeway-to-freeway movements as well as access to Mann Road. Local access to Mann Road could be eliminated at I-465 due to the new I-69/Southport Road interchange
- The I-465/SR 67 interchange would require reconstruction due to its proximity to the I-465/I-69 interchange
- Requires local access changes along SR 67 where I-69 will be aligned
- Impacts to developed areas, especially near Morgan/Marion county line.
- Utility conflicts at I-465
- Wetland and bat roost impacts along White River



Alternative P4 (Alternative P)

Description:

Alternative P4 diverges from SR 37 south of Martinsville. The alternative crosses the White River and follows existing SR 67 north for more than 12 miles. South of Mooresville the alternative diverges from SR 67 and generally follows along the western edge of White Lick Creek to meet I-70 at a new interchange location. Alternative P4 then follows I-70 northeast to I-465.

Advantages:

- Leaves SR 37 alignment to avoid impacts to developed areas in Johnson and Marion counties
- Provides service to the Indianapolis International Airport area
- Follows existing SR 67 for over 12 miles, which reduces right-of-way acquisition and possibly pavement cost
- Follows I-70 for over 9 miles, which reduces right-of-way acquisition and pavement cost
- I-70 connection point provides good spacing from adjacent interchanges
- SR 67 interchange provides good access to Mooresville
- Fewer bat habitat impacts than alternatives E, J and M, which connect to I-70 near the airport

Disadvantages:

- Crosses White River floodway at a wide location, thus increasing potential impacts or mitigation cost
- Requires local access changes along SR 67
- Wetland and bat roost impacts along White River



Alternative P5

Description:

Alternative P5 diverges from SR 37 south of Martinsville. The alternative crosses the White River and follows existing SR 67 north for approximately 3 miles where it turns north just north of the SR 67 and SR 39 intersection. The alternative then generally parallels SR 39 to the east. After interchanges with SR 67 and SR 42 the alternative meets I-70 at a new interchange location. Alternative P5 then follows I-70 northeast to I-465.

Advantages:

- Leaves SR 37 alignment to avoid impacts to developed areas in Johnson and Marion counties
- Provides service to the Indianapolis International Airport area
- Follows I-70 for over 11 miles, which reduces right-of-way acquisition and pavement cost
- I-70 connection point provides good spacing from adjacent interchanges
- Fewer development impacts than many alternatives

Disadvantages:

- Crosses White River floodway at a wide location, thus increasing potential impacts or mitigation cost
- Terrain north of SR 67 is rugged/rolling.
- Impacts to forested areas north of SR 67
- Requires local access changes along SR 67
- Wetland and bat roost impacts along White River



Alternative P6

Description:

Alternative P6 diverges from SR 37 south of Martinsville. The alternative crosses the White River and generally parallels SR 39, approximately two miles to the west. After interchanges with SR 67, SR 142, and SR 42 the alternative meets I-70 at a new interchange location. Alternative P6 then follows I-70 northeast to I-465.

Advantages:

- Leaves SR 37 alignment to avoid impacts to developed areas in Johnson and Marion counties
- Provides service to the Indianapolis International Airport area
- Follows I-70 for over 15 miles, which reduces right-of-way acquisition and pavement cost
- I-70 connection point provides good spacing from adjacent interchanges
- Fewer development impacts than many alternatives

Disadvantages:

- Crosses White River floodway at a wide location, thus increasing potential impacts or mitigation cost
- Terrain north of SR 67 is rugged/rolling.
- Impacts to forested areas north of SR 67
- Wetland and bat roost impacts along White River



Alternative P7 (Alternative N)

Description:

Under Alternative P7, I-69 departs from the SR 37 corridor at the SR 39 interchange and bypasses the city of Martinsville to the east. I-69 rejoins the SR 37 corridor near the SR 44 interchange north of the City. This alternative would have two interchanges along the bypass, one near Ohio Street and one at SR 252.

Advantages:

- Avoids impacts to developed property along SR 37 in Martinsville
- Improves pedestrian safety along existing SR 37 by reducing through traffic
- Simplifies proposed access roads in Martinsville
- Will include less retaining wall due to less constrained R/W

Disadvantages:

- Alignment is within the Indian Creek floodway
- Adds 0.72 miles to Alternative C