

## Chapter 2. Alternatives

*This chapter describes the alternatives and how they were developed. Four steps were used to narrow down the preliminary range of alternatives.*

Chapter 2 contains four parts:

- Section 2.1 describes how the alternatives were developed
- Section 2.2 describes how the more than 100 alternatives around the Centralia-Sandoval area, Patoka, Vernon, Vandalia, Ramsey Creek, and Ramsey were narrowed down in each community to a total of eleven remaining alternatives
- Section 2.3 describes the eleven remaining alternatives carried forward for detail study and explains how they were evaluated
- Section 2.4 describes how the Preferred Alternatives will be selected

### 2.1 Alternative Development

#### *Where did the lines on the map come from?*

The original range of build alternatives was developed through the public involvement process by working with the various advisory groups and the Project Study Group (PSG). The advisory groups include the Community Advisory Groups (CAGs) and the Regional Advisory Group (RAG) and consist of local stakeholders who serve as representatives of the general public. The advisory groups are discussed in Chapter 4. The PSG includes technical representatives from FHWA, IDOT, and the consultant engineering teams.

During a series of meetings and workshops held in the fall and winter of 2008 (and an additional workshop in the summer of 2010 for the Vandalia area), the CAG and RAG members were presented with aerial maps showing the project area. The members were asked to draw alternatives on the maps based upon their understanding of the project study area. The brainstorm sessions were held with the advisory groups after they developed the Problem Statement and discussed transportation issues, but before the Purpose and Need Statement was finalized. No “don’ts or can’ts” were imposed upon where the alternatives were drawn. Sensitive or protected resources were discussed at the workshops and shown on the aerial maps. Some environmental resource information such as the location of parks, floodplains, and streams were shown on the maps. In general, the advisory group members tried to avoid state parks even though during the preliminary development process alternative ideas were not restricted.

#### **Project Study Group (PSG)**

A team that includes representatives from the Illinois Department of Transportation (IDOT), the Federal Highway Administration (FHWA), and members of the consultant engineering firms. The PSG is responsible for leading the project and making all final project related decisions.



*The members of the advisory groups developed preliminary alternatives by drawing on maps.*

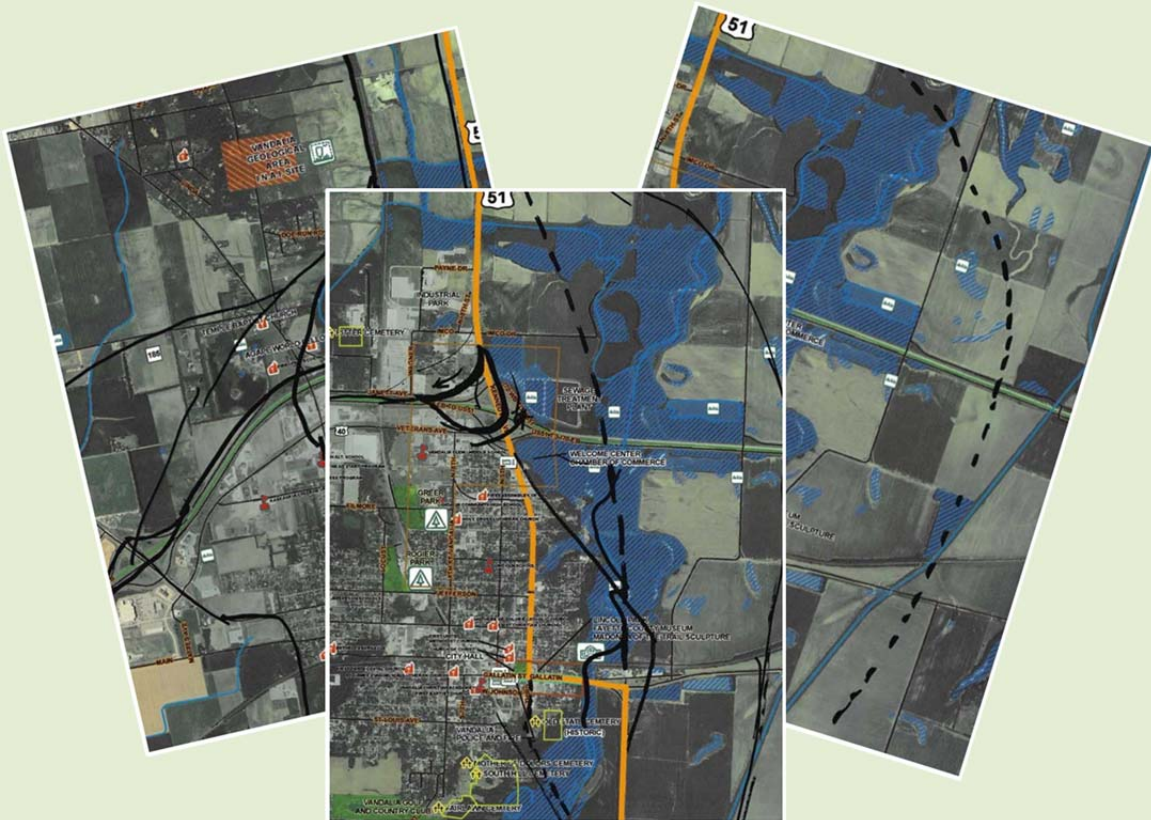
#### **Community Advisory Group (CAG)**

A group made up of local stakeholders who volunteered to be a part of the study, and advised the PSG during major project decisions. The CAG members developed alternatives near the towns they represent.

#### **Regional Advisory Group (RAG)**

A group similar to the CAG, the RAG develop alternatives along the entire length of the project, emphasizing the portions of US 51 between the CAG communities.

The CAG members developed alternatives near the towns they represented. For example, the Ramsey CAG members developed alternatives around the community of Ramsey since they are most familiar with the area. The RAG developed alternatives along the entire length of the project, emphasizing the portions of US 51 between the CAG communities. After the advisory groups developed the initial range of alternatives, the PSG reviewed the maps and added several additional alternatives to ensure that a full range of alternatives were considered.



*The advisory group members brainstormed the location of alternatives by drawing on aerial maps containing environmental resource information such as streams and floodplains. The maps above show some of the preliminary alternatives drawn by Vandalia CAG members.*

*The project team electronically reproduced the alternatives drawn by the advisory group members and presented them to the public for review at a series of Public Information Meetings (PIMs).*

***How was the public involved in the alternative development process?***

Stakeholders who were not members of an advisory group had an opportunity to review and provide comment on the alternatives during the Public Information Meetings (PIMs) held in November 2009 and May 2010. The preliminary alternatives and a summary of the advisory group meetings were available for viewing on the project website. The public could comment via the project mailing address, project comment line, or the project email address.

The original alternatives were modified based upon public input and as more environmental resource information was gathered. Comments and recommendations received from the public were reviewed and taken into consideration. For example, information obtained at PIMs included the location of new businesses and small family cemeteries. Based on that information, the alternatives were shifted where possible.

***What types of Build Alternatives were considered?***

Alternatives that bypass to the east, to the west, or follow existing US 51 through the towns were considered. One exception was in Ramsey where alternatives that bypassed to the west were not developed. The advisory groups and the PSG did not develop a western bypass alternative which would require avoidance of the State Park, schools, and a Nature Preserve (Ramsey Railroad Prairie Nature Preserve); such avoidance would result in lengthy alternatives that would result in additional mileage. Therefore, the alternatives would not meet the need of connectivity to communities, goods, and services.

Multiple alternatives were developed in two additional areas along existing US 51. The locations were 1) south of Ramsey near Ramsey Creek, and 2) north of Oconee near Opossum Creek. The areas near the two streams are unique. Ramsey Creek is a high-quality stream and the bridge carrying Old US 51 is in place next to the bridge carrying existing US 51. Using the Old US 51 bridge was included as an alternative. The area near Opossum Creek is steep and wooded. Multiple alternatives were developed near Opossum Creek because the steeply wooded areas and varying topography appeared to pose engineering constraints to vertical profile development.

For the remaining sections of US 51, options included widening existing US 51 by either adding lanes to the east side of existing US 51, to the west side of existing US 51, or widening along both sides of existing US 51.

In addition to the original Build Alternatives, a “No Build” Alternative was introduced.



*Alternatives that bypass towns were developed. The towns where bypasses were developed are circled in the above image.*

**No Build Alternative**

Maintains US 51 as it currently exists, and includes only improvements needed to maintain the existing roadway.

**Transportation System Management (TSM) Alternative**

TSM strategies typically include minor improvements to the existing transportation system such as adjusting lane width or improving intersections.

**Travel Demand Management (TDM) Alternative**

TDM strategies are policy changes implemented to influence travel behavior, spread travel demand across peak periods, and reduce the demand for single-occupancy vehicle trips.

***What is the No Build Alternative?***

The No Build Alternative maintains present-day US 51 as it currently exists, and includes only those improvements needed to maintain the existing roadway, such as roadway resurfacing. The No Build Alternative does not meet the project's Purpose and Need Statement, but is carried through to the end of the study and serves as a basis for comparison.

***What other alternatives were considered?***

In addition to the Build Alternatives and the No Build Alternative, Transportation System Management (TSM) and Travel Demand Management (TDM) alternatives were considered. TSM strategies are typically minor improvements to the existing transportation system. TSM strategies include the reconstruction or rehabilitation of existing US 51, intersection capacity improvements (intersection updates), reconfiguration of interchange spacing, adding traffic signals, adjusting lane widths, adding traffic calming measures (speed humps), adding passing lanes at high-traffic locations, and widening shoulders.

TDM strategies are policy changes implemented to influence travel behavior, spread travel demand across peak periods, and reduce the demand for single-occupancy vehicle trips. TDM measures include recommending public transit options, carpooling recommendations including ride-sharing incentives, and parking regulations (prohibit or restrict on street parking).

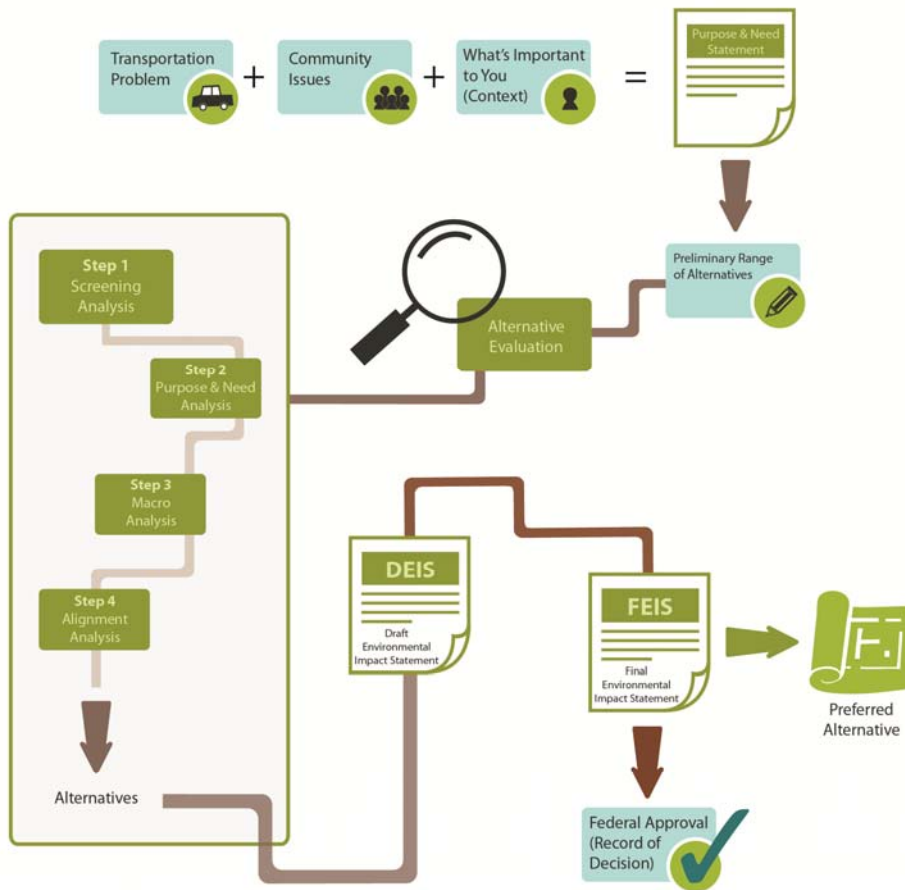
The TSM and TDM alternatives do not meet the Purpose and Need of the project. Specifically, the TSM and TDM alternatives fail to improve the connectivity within the south central Illinois region or to enhance highway system continuity. The TSM and TDM alternatives would not meet the stated need for a centralized roadway that promotes efficient and safe travel in the region for a wide variety of transportation users. Because the TSM and TDM alternatives do not satisfy the Purpose and Need, they were eliminated early in the alternative process and not fully developed.

Alternatives such as intersection improvements, widening existing lanes and/or shoulders, local road improvements, and passing lanes at high traffic areas were considered. Such stand-alone alternatives do not improve connectivity within the south central Illinois region or enhance the highway system continuity. The alternatives do not provide free flow conditions or consistent speed limits along the US 51 corridor. Travel times are increased without free flow conditions and differing speeds increase crash potential. Therefore, such alternatives do not satisfy the Purpose and Need and were eliminated early in the alternative process and not fully developed.

## 2.2 Alternative Evaluation

### How were the alternatives evaluated?

The original alternatives developed were then evaluated using a four-step process. During this four-step process, the number of alternatives was narrowed down. The remaining alternatives are studied throughout the remainder of this document, the DEIS. The Preferred Alternative, or the final alternative, is selected from the remaining alternatives. The steps in the US 51 process are shown below.



**4-Step Alternative Evaluation Process**

**Is the No Build Alternative included in the evaluation?**

The No Build Alternative is not considered in the four-step evaluation process. Although the No Build Alternative does not meet the project's Purpose and Need, it is carried through to the end of the evaluation process to serve as a basis for comparison with the remaining alternatives.

The four steps are documented in the technical reports *Corridor Development and Screening Process* (May 2009), *Purpose and Need Documentation* (September 2009), *Macro Analysis Memo* (April 2010), *Alignment Analysis Memo* (April 2010), and *Vandalia Alignment Analysis Memo* (January 2011). The reports describe the procedures and the evaluations in detail. The reports are available under separate cover. A summary of the four steps is provided below.

**4-Step Alternative Evaluation Process**

**Screening Analysis**  
 This is the first step in the alternative evaluation process where the preliminary range of alternatives is reviewed. Some sections, or small pieces that made up the larger alternatives, are eliminated or consolidated.

**What is Step 1?**

Step 1 is the Screening Analysis in the process. The project team divided the alternatives into small sections, or pieces, for analysis. The CAG members were asked to review the sections, and as a group, decide which sections should be carried forward, which should be eliminated because they did not meet the Purpose and Need Statement, which should be modified, and which should be consolidated. Only the sections through or around the communities were evaluated during this step.

Seven criteria were used for the elimination, modification, or consolidation of sections. The criteria used in the Screening Analysis are listed in Table 2.2-1.

**Table 2.2-1: Criteria Considered in the Screening Analysis**

Criteria
1. Does the section encourage safe and efficient travel?
2. Does the section encourage long distance travel (related to travel time)?
3. Does the section promote/encourage the movement of goods and services?
4. Does the section improve connectivity in the South Central Illinois Region?
5. Does the section enhance highway system continuity?
6. Does the section provide an efficient north-south route (related to distance)?
7. Does the section represent a similar section with the same intent?

If any of the answers to questions 1 through 6 was “no”, that section was eliminated. Criteria 1 through 6 were based upon the Purpose and Need Statement while criterion 7 was generated from the CAG meetings to consolidate similar alternatives. For criterion 7, if there were more than one section in the same general location, with similar starting and end points that served the same purpose, a "best fit" section was created and carried to the next evaluation step.

After the CAG members reviewed the sections, the RAG and PSG evaluated the remaining sections and revisited some of the eliminated sections for further study to ensure a reasonable range were being considered. Sections whose intent was not met by a remaining section, that met the Purpose and Need Statement, or those that provided a logical connection to existing US 51 were carried forward for further consideration.

The majority of the sections were not eliminated during the Screening Analysis, but were modified and/or consolidated. Some sections were eliminated by default as they were combined with another section that was previously eliminated.

**4-Step Alternative Evaluation Process**

***What is Step 2?***

The Purpose and Need Analysis is Step 2 in the alternative evaluation process. Prior to the Purpose and Need Analysis, the sections that remained after the Screening Analysis were combined to form preliminary alternatives. The entire length of the alternatives, rather than the smaller individual sections, was evaluated in the Purpose and Need Analysis. Similar to the Screening Analysis, only the alternatives through or around the communities were evaluated. The alternatives between the communities were not evaluated. The No Build Alternative does not meet the Purpose and Need of the project, but was carried forward as a basis for comparison with the alternatives.

**Purpose and Need Analysis**  
 This is the second step in the alternative evaluation process where the alternatives are evaluated to make sure they comply with the goals established in the project's Purpose and Need Statement.

The Purpose and Need Analysis was completed by the project team. The needs identified in the Purpose and Need Statement were broken down into specific goals, summarized in Table 2.2-2. All of the alternatives were at least somewhat consistent with the Purpose and Need. So, no alternatives were eliminated in this step. The project team presented the results of the Purpose and Need Analysis to the CAG members.

**4-Step Alternative Evaluation Process**

**Table 2.2-2: Criteria Considered in the Purpose and Need Analysis**

Identified Need	Goal
<b>Need: Continuity</b>	<b>Does the alternative...</b>
Safe and Efficient Travel	...provide safe travel for a wide variety of transportation users?
	...reduce potential for slow moving farm equipment to conflict with faster moving cars?
	...meet minimum design standards?
Encourage Long Distance Travel	...encourage free flow (reduce conflicts with on-street parking, cross streets, railroad crossings, driveways and field entrances)?
	...improve north/south travel time over length of alternative (minimize speed limit changes)?
<b>Need: Connectivity</b>	<b>Does the alternative...</b>
Promote/Encourage the Movement of Goods and Services	...promote and encourage the movements of good and services through uninterrupted flow?
	...accommodate projected Year 2035 traffic volume?
Improve Connectivity in the South Central Illinois Region	...provide efficient access for all types of transportation in South Central Illinois?
	...improve connection to employment centers in South Central Illinois (ADM/Decatur, Memorial Health/Springfield, General Tire/Mt. Vernon, GSI/Pana/Assumption, St. Anthony Memorial/Effingham)?
Enhance Highway System Connectivity	...enhance connection to interstates and major communities?
	...improve connection to commercial and industrial centers in Vandalia and Centralia?
	...improve connection to metropolitan areas outside of the US 5 study area (Decatur, Springfield, Terre Haute, St. Louis)
Provide an Efficient North-South Route	...provides favorable option over use of I-57 for north-south travel in South Central Illinois

**Macro Analysis**  
 This is the third step in the alternative evaluation process where the impacts to environmental, community, agricultural, and cultural resources of each 500 foot wide alternative are calculated. The alternatives with the highest resource impacts are eliminated.

**What is Step 3?**

During Step 3, the Macro Analysis considered the environmental, cultural, community, agricultural, cultural, and operational impacts of each remaining alternative for a 500 foot width. The list of resources evaluated is in Table 2.2-3.



4-Step Alternative  
Evaluation Process

**Table 2.2-3: Resources Evaluated in the Macro Analysis and Alignment Analysis**

Resource	Unit of Measure
<b>Environmental</b>	
Water Quality/Resources	Floodplain (acres affected)
	Floodway (acres affected)
	Biologically Significant Streams (number of crossings)
	Class I Streams (number of crossings)
	Streams (number of crossings)
	Drinking Water Supplies – Surface Water (number affected)
Wetlands	Wetlands (acres affected)
	Wetlands (number affected)
Special Waste	CERCLIS Sites (number affected)
Illinois Natural Area Inventory (INAI) Sites	INAI Sites (acres affected)
High-Quality Woodlands	High-Quality Woodland Sites (acres affected)
Threatened and Endangered Species	Threatened and Endangered Species (number affected)
Important Habitat Areas	Important Habitat Areas (number affected)
<b>Community</b>	
Residences	Homes (number displaced)
Businesses	Commercial Buildings (number displaced)
Public Facilities	Public Facilities (number displaced)
Land Use	Compatible with Adopted Land Use Plan (yes or no)
Section 4(f) & 6(F) Impacts	Parklands (number affected)
	Parklands (acres affected)
Utilities	Utilities including Tank Farms (number of conflicts)
Community	Divides or Isolates a Community (yes or no)
<b>Agricultural</b>	
Prime and Important Farmland	Prime and Important Farmland (acres affected)
Farmsteads	Farm Out Buildings (number affected)
Severances	Parcels (number affected)
Centennial/ Sesquicentennial Farms	Farms (number affected)
<b>Cultural</b>	
Cultural	Historic Sites (number affected)
	Cemeteries (number affected)
<b>Operations</b>	
Distance	Distance of travel (miles)
	Travel time (minutes:seconds)

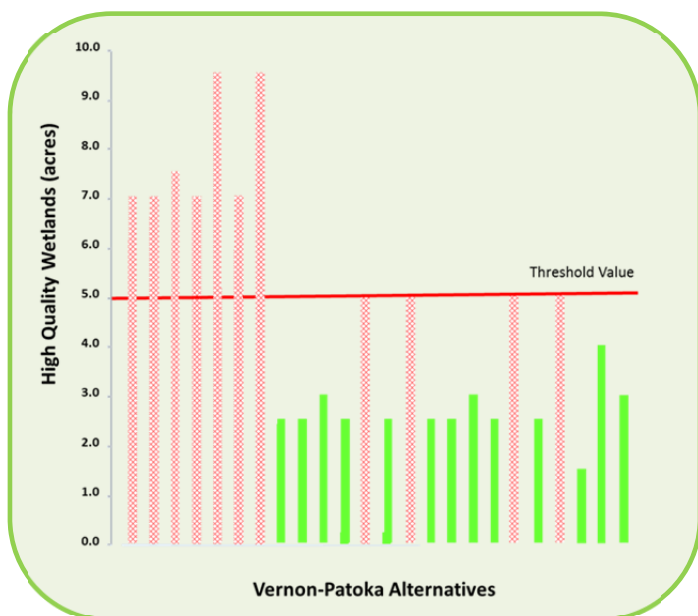
**4-Step Alternative  
Evaluation Process**

Not all resources exist in each community, and not all resources that do exist were impacted by the corridors under consideration. The resource impacts fell into one of three groups:

1. Resources that were not impacted by any alternative under consideration. For example, no known wetlands were impacted by any of the Ramsey alternatives.
2. Resources that were impacted equally or within the same range by all alternatives. For example, all of the Vernon-Patoka alternatives crossed four streams.
3. Resources where impacts varied widely among corridors. For example, residential displacements in Centralia-Sandoval ranged from 8 to 325.

Resources in the first and second group were not used to eliminate alternatives, only resources in the third group were differentiating. For the resource impacts in this group, the range of impacts was graphed and a threshold value was selected based upon the range. The threshold value was established in order to eliminate alternatives with the highest relative impacts. Alternatives with impacts equal to or greater than the threshold value were eliminated. The resource impacts varied from community to community, therefore the threshold varied was unique to each community.

For example, high-quality wetland impacts in Vernon-Patoka ranged from 1.5 to 9.5 acres. The range of impacts were graphed and based upon the natural breakpoints in the data, a threshold value of 5 acres was selected. In this case, 5 acres was selected because it was a natural breakpoint in the range of impacts. The 11 alternatives that impacted 5 or more acres of high-quality wetlands were eliminated. The remaining 13 alternatives were further evaluated. This example is illustrated in the chart below.



**4-Step Alternative Evaluation Process**

*In Step 3, the range of each impacted resource was graphed, and a threshold value was selected based upon the range. The alternatives with impacts that met or exceeded the threshold value were eliminated.*

*This chart shows that 11 alternatives were eliminated for impacting five or more acres of high-quality wetlands in Vernon-Patoka.*

*In Step 3, the range of each impacted resource was graphed, and a threshold value was selected based upon the range. The alternatives with impacts that met or exceeded the threshold value were eliminated.*

*This chart shows that 11 alternatives were eliminated for impacting five or more acres of high-quality wetlands in Vernon-Patoka.*

The project team completed Step 3, and the results were shared with the CAG members. The resources and the threshold values used for elimination were reviewed by the CAG members to make sure they were in agreement with the process. The resources used for elimination in each community are described in detail later in this chapter.

The regulatory mandates and protection of resources and CAG input was considered when determining which resources to use for elimination. For example, avoidance and minimization of wetlands was an important criterion because Federal law states that wetlands must be avoided and minimized when practicable. Although avoidance of homes is not mandated by Federal or State law, most of the CAG members indicated that avoidance of homes was important to them, so number of homes impacted was often used to compare and eliminate alternatives.

**What is Step 4?**

The Alignment Analysis is Step 4. This step followed an identical process as Step 3, comparing impacts and eliminating alternatives based on the greatest impacts. However, Step 4 used a narrower corridor of 200 feet. This is a more realistic width for a four lane expressway. Additionally, the previous three steps evaluated only the alternatives through and around the large towns, but the Alignment Analysis also included the alternatives between towns in the rural areas along existing US 51.

The 200 foot alternatives were developed within the previous 500 foot corridor based on engineering considerations and avoidance of environmental and community resources when possible. The alternatives in each community had an identical starting and end point so the impacts could be compared. For areas

**Alignment Analysis**

This is the fourth step in the alternative evaluation process where the impacts to environmental, community, agricultural, and cultural resources of each 200 foot wide alternative were calculated. The alternatives with the highest overall impacts were eliminated.

**4-Step Alternative Evaluation Process**



*State scientists spent hundreds of hours in the field collecting environmental data for the US 51 project.*

**What is the difference between the Macro Analysis and the Alignment Analysis?**

The Macro Analysis and Alignment Analysis both considered impacts to environmental and cultural resources. The Macro Analysis was a broad-stroke review to ensure that a feasible roadway could be developed within a 500 foot wide alternative and include only alternatives through and around the larger towns. For the Alignment Analysis, a smaller 200 foot alternative was developed within each 500 foot Macro Analysis alternatives. The 200 feet represent a more realistic width of the right-of-way needed for a 4-lane expressway. The Alignment Analysis included alternatives through and around the larger towns and the alternatives between towns.

where there was only one alternative between communities, the alternative was reviewed to ensure that it was reasonable and feasible in order to be carried forward.

The resources compared in Step 4 were identical to those in Step 3 with a few exceptions. Several criteria (groundwater resources and travel time / distance) were only considered in Vandalia. Groundwater resources, specifically, the number of wells, is a unique issue in Vandalia because of a shallow aquifer located north of I-70. Travel time and distance were considered only in Vandalia because of the variation in length and location of the alternatives in the area.

***Where did the resource information used in Step 3 and 4 come from?***

Information for some of the environmental and agricultural resources came from existing data. Numerous Federal, State, and local agencies along with non-governmental organizations were contacted for their available data. For example, the floodplain information came from the Federal Emergency Management Agency (FEMA), who maintains an inventory of floodplain data for the country. Other resources with existing data included floodplains, wells, Illinois Natural Area Inventory (INAI) sites, parks, prime and important farmland, and Centennial and Sesquicentennial Farms.

Some of the data was supplemented with information received through public involvement activities. For example, although much of the Centennial Farm information was obtained from the Illinois Department of Agriculture (IDOA), in several instances the public would notify the project team when they thought that the data collected from IDOA was missing a registered Centennial Farm. The project team would then verify the information and add it to the data set.

Some of the environmental, cultural, and community resource information was gathered specifically for the US 51 project. A team of state biologists and scientists from the Illinois Natural History Survey (INHS) conducted field surveys in the project area in 2009, 2010, 2011, and 2012. The INHS collected field data on wetlands, high-quality woodlands, threatened and endangered species, and important habitat areas. Other state agencies conducted field surveys to obtain information on special waste sites, cultural information, and historic sites. The project team gathered some of the community information specifically for the project. The project team reviewed existing maps and performed field reviews to document the locations of homes, businesses, commercial buildings, public buildings, and cemeteries. The information was refined based upon public input. At the second set of CAG meetings, exhibits were displayed. The exhibits consisted of collected data overlain on aerial

photographs. The attendees were asked to review the data and to mark up the maps to show any observed discrepancies. The exact location of the features was verified and entered into the data set. New information was received from the public throughout the course of this project as new attendees came to meetings and shared their knowledge of the community. The information was updated throughout the duration of the project.

More detailed information for some environmental resources, including wetlands, was made available during Step 4, the Alignment Analysis, as compared to Step 3, the Macro Analysis. The additional information was received from the INHS after the Macro Analysis was completed. Based on the new information, some of the alternatives were modified, or shifted slightly between the Macro Analysis and the Alignment Analysis to minimize or avoid impacts.

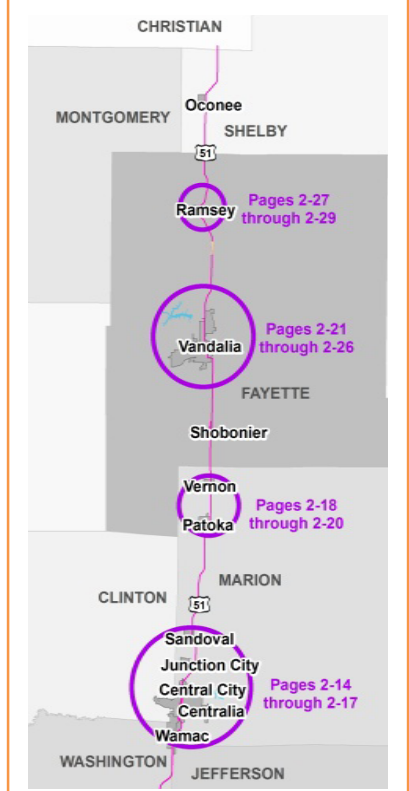
**Alternative Screening**

The alternative screening process for each community is described on the following pages:

- Centralia-Sandoval area, pages 2-14 through 2-17
- Vernon-Patoka, pages 2-18 through 2-20
- Vandalia, pages 2-21 through 2-26
- Ramsey, pages 2-27 through 2-29
- Areas between the larger communities, pages 2-30 through 2-31

**4-Step Alternative Evaluation Process**

The alternative screening process was unique to each community. The screening process for each community is described on the following pages in this Chapter:



Alternative screening for the areas between the communities is described on pages 2-30 through 2-31.

CENTRALIA-  
SANDOVAL***How were the alternatives screened in the Centralia-Sandoval area?***

The Centralia-Sandoval area includes the communities of Wamac, Centralia, Central City, Junction City, and Sandoval. Numerous alternatives that traveled through and around these communities were included in the original range of alternatives. The original range of alternatives in Centralia-Sandoval is shown in Figure 2.2-1, inset A. The four step process that was used to narrow the alternatives in Centralia-Sandoval is discussed below.

**Step 1: Centralia-Sandoval Screening Analysis**

The original range of alternatives included a total of 71 sections, or pieces. Four of the 71 sections were eliminated for failing to satisfy the Step 1 Screening Analysis criteria (in Table 2.2-1). Two of the sections required complex railroad crossings and two sections resulted in limited access. One section was eliminated by default (there was no need for section because a connecting section was previously eliminated). One section located through downtown Centralia satisfied all screening criteria and was unique in that it was the only section that traversed through downtown Centralia, so it was carried through to the next evaluation step. The 65 remaining sections were modified and/or consolidated into 37 sections. A total of 38 sections in the Centralia-Sandoval area were carried forward from the Screening Analysis into Step 2, the Purpose and Need Analysis. The alternatives remaining after the Screening Analysis shown in Figure 2.2-1, inset B.

**Step 2: Centralia-Sandoval Purpose and Need Analysis**

The 38 sections remaining after the Screening Analysis were combined to form 123 alternatives. All of the 123 alternatives met the criteria set forth in the Step 2 Purpose and Need Analysis (in Table 2.2-2), and were carried forward into Step 3, the Macro Analysis.

**Step 3: Centralia-Sandoval Macro Analysis**

The impacts to the environmental, cultural, agricultural, and community resources (in Table 2.2-3) resulting from the 123 alternatives in Centralia-Sandoval were calculated. The following resources were used for alternative elimination.

**Wetlands:** Wetlands were identified by the INHS throughout the Centralia-Sandoval area. First, high-quality wetlands were considered. High-quality wetlands typically contain a diverse mix of native plants and are relatively undisturbed. Of the 123 alternatives evaluated, 27 alternatives that impacted the greatest acres of high-quality wetlands were eliminated based upon a threshold value of 30 or more acres of wetlands. Next, the non-high-quality wetlands

were considered, and 38 additional alternatives were eliminated that impacted the highest acreage of wetlands. Most of the eliminated alternatives bypassed the far west side of Centralia and the east side of Sandoval. A total of 58 alternatives remained.

- Commercial displacements:** Next, commercial displacements were considered. Commercial building displacements ranged from zero to 306 buildings for the 58 remaining alternatives. The 21 alternatives that displaced the highest number of commercial buildings (40 or more buildings) were eliminated as there were other practicable alternatives that met the Purpose and Need and resulted in fewer (27 or less) commercial impacts. Most of the eliminated alternatives traveled through the center of Centralia and/or Sandoval. A total of 37 alternatives remained.
- Residential displacements:** Residential displacements ranged from nine to 165 homes for the remaining 37 alternatives. Out of 37, 24 alternatives that displaced the highest number of homes (82 or more homes) were eliminated as there were other practicable alternatives that remained that minimized residential impacts. The eliminated alternatives primarily traveled through the center of Centralia and/or Sandoval. A total of 13 alternatives remained.
- Special waste sites:** Two of the thirteen remaining alternatives traveled directly through a special waste (CERCLIS/Superfund) site on the east side of Sandoval, the former Sandoval Zinc Company smelter. The two alternatives that directly impacted the special waste site were eliminated. The CERCLIS/Superfund site was avoided as soils may pose a risk to human health and the environment. Eleven alternatives remained.
- Engineering considerations:** Six alternatives of the eleven remaining alternatives were eliminated due to engineering considerations. Two alternatives that presented tight curved alignments were eliminated for safety reasons. Four additional alternatives were eliminated because they were longer in length and offered no advantage to nearby similar alternatives. The alternatives were eliminated because they were not logical from the standpoint of distance traveled and driver expectation. Five alternatives remained.
- Divide or Isolate a Neighborhood:** Two of the five remaining alternatives bypassed west of Centralia through an existing residential neighborhood. The two alternatives were eliminated because they

CENTRALIA-SANDOVAL

**Displacement**  
 A direct impact to a home, business, or other building. Impacts to driveways, detached garages, and parking lots are not displacements.



The former zinc smelter located east of Sandoval is a CERCLIS special waste site.

**What is a special waste site?**  
 A special waste site is a facility that generates or handles hazardous or other regulated substances. A CERCLIS/Superfund site is a type of special waste site listed by the USEPA as one of the worst hazardous waste sites in the United States. There is one CERCLIS/Superfund site in the project study area, former Sandoval Zinc Company smelter east of Sandoval. Typically, new roads avoid crossing CERCLIS/Superfund sites if possible.

CENTRALIA-  
SANDOVAL

severed the neighborhood, resulting in about 30 homes being isolated.

The remaining three alternatives in the Centralia-Sandoval area were carried forward from the Macro Analysis into the Alignment Analysis (Step 4). Remaining were an alternative that bypassed west of Centralia and west of Sandoval, an alternative that bypassed west of Centralia and east of Sandoval, and an alternative that bypassed east of Centralia across Raccoon Lake and east of Sandoval. The three alternatives are shown in Figure 2.2-1, inset C.

Step 4: Centralia-Sandoval Alignment Analysis

The impacts to the environmental, cultural, agricultural, and community resources resulting from the three remaining alternatives in Centralia-Sandoval were calculated for a 200 foot wide area.



*Raccoon Lake is located east of Centralia. The Federal and State resource agencies did not approve of an eastern bypass of Centralia that crossed Raccoon Lake.*

Of these three alternatives, the one bypassing Centralia to the east and crossing Raccoon Lake resulted in higher impacts to floodplains, wetlands, high-quality wetlands, and residential and commercial displacements when compared to the two alternatives that bypass Centralia to the west. While the differences in resource impacts were notable when comparing the final three remaining alternatives, the PSG recommended continuing forward with all three alternatives.

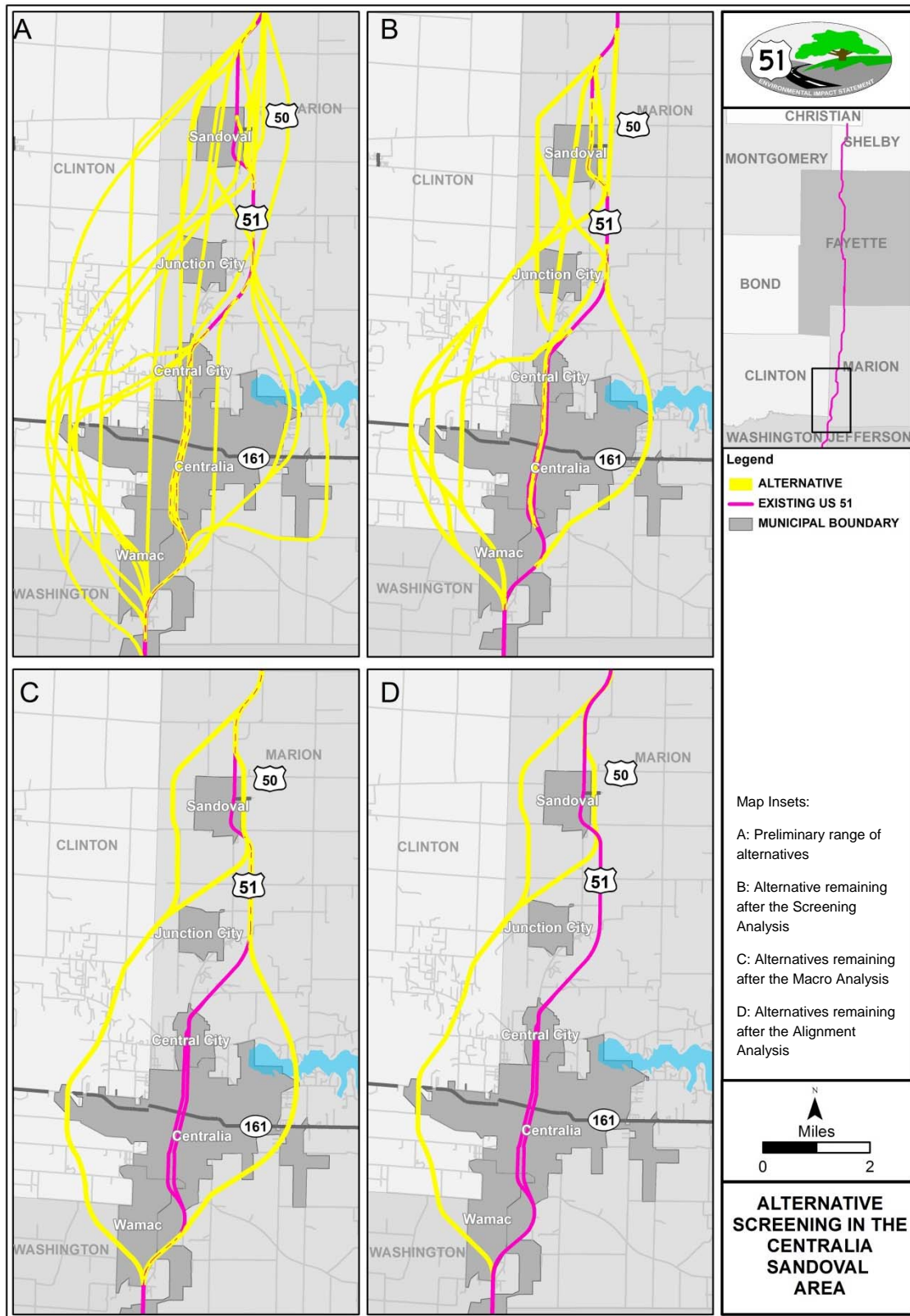
The three alternatives were presented to the Federal and State resource agencies at a meeting held on June 9, 2010. The purpose of the meeting was to seek concurrence from the resource agencies on the alternatives to carry forward for further study.

The agencies did not grant concurrence to study the eastern bypass of Centralia because it resulted in a higher number of impacts to floodplains, wetlands, high-quality wetlands, homes, and commercial and public facility buildings in comparison to the two other alternatives on the west side of Centralia.

Therefore, the eastern bypass of Centralia was eliminated. Two alternatives were carried forward from the Alignment Analysis: an alternative that bypassed west of Centralia and west of Sandoval, and an alternative that bypassed west of Centralia and east of Sandoval. The alternatives remaining after the Alignment Analysis are shown in Figure 2.2-1, inset D.



Figure 2.2-1: Alternative Screening in Centralia-Sandoval Area



VERNON-PATOKA

***How were the alternatives screened in Vernon-Patoka?***

Alternatives that traveled through and around Vernon and Patoka were included in the original alternatives drawn by the various groups as shown in Figure 2.2-2, inset A.

The process that was used to narrow the preliminary range of alternatives in Vernon-Patoka is discussed below.

Step 1: Vernon-Patoka Screening Analysis

The original alternatives included a total of 22 sections, or pieces. Twenty-one of the sections were combined and modified into 19 consolidated sections based on the Step 1 Screening Analysis criteria (in Table 2.2-1). One individual section satisfying the screening criteria could not be consolidated with other sections, so it was carried forward. A total of 20 sections were carried forward from the Step 1 Screening Analysis into the Step 2 Purpose and Need Analysis. The alternatives remaining after the Screening Analysis shown in Figure 2.2-1, inset B.



*Under Federal law, impacts to wetlands must be avoided or minimized when practicable. Wetland impacts were one of the differentiating resources used to eliminate alternatives in Vernon-Patoka.*

Step 2: Vernon-Patoka Purpose and Need Analysis

The 20 sections remaining after the Screening Analysis were combined to form 24 alternatives. All of the 24 alternatives met the criteria set forth in the Purpose and Need Analysis (in Table 2.2-2), and were carried forward into the Step 3 Macro Analysis.

Step 3: Vernon-Patoka Macro Analysis

Impacts to the environmental, cultural, agricultural, and community resources (in Table 2.2-3) resulting from the 24 alternatives in Vernon-Patoka were calculated. The following resources were used for alternative elimination.

- **High-quality wetlands:** Wetlands, including high-quality (undisturbed) wetlands were identified by the INHS. Of the 24 remaining alternatives, the eleven that impacted the most acres of high-quality wetlands were eliminated. The eliminated alternatives traveled primarily along the east side of Patoka and the west side of Vernon. A total of 13 alternatives remained.

- **Commercial displacements:** Commercial buildings displacements ranged from 0 to 28 for the remaining alternatives. Four alternatives displaced a disproportionately high number of commercial buildings and were eliminated. The eliminated alternatives traveled along the east side of Patoka and through the center of Vernon. Nine alternatives remained.
- **Residential displacements:** Residential displacements ranged from 19 to 29 for the nine remaining alternatives. Seven alternatives that resulted in the highest number of residential displacements were eliminated. The eliminated alternatives were primarily eastern bypasses of Patoka and Vernon.

The remaining two alternatives in Vernon-Patoka were carried forward from the Step 3 Macro Analysis into the Step 4 Alignment Analysis, an alternative that utilizes existing US 51 east of Patoka and bypassed west of Vernon, and an alternative that bypassed US 51 east of Patoka and bypassed west of Vernon. The two alternatives are shown in Figure 2.2-2, inset C.

#### Step 4: Vernon-Patoka Alignment Analysis

The impacts to the environmental, cultural, agricultural, and community resources resulting from the two remaining alternatives in Vernon-Patoka were calculated.

Both of the remaining alternatives bypassed to the west of Vernon. The only place the two alternatives differed was east of Patoka. One alternative utilized US 51 east of Patoka, and the other bypassed existing US 51 east of Patoka. The alternative that bypassed existing US 51 east of Patoka was developed to address perceived safety concerns due to the curve along existing US 51 at this location.

Based on preliminary engineering, it was determined that bypassing existing US 51 in this area is not required to design a safe roadway. The alternative that bypassed existing US 51 east of Patoka impacted a slightly greater number of wetlands and had more utility conflicts than the other remaining alternative, which maximized use of the existing US 51 roadway. In addition, the majority of public comments favored utilizing the existing roadway when possible.

Therefore, the alternative that bypassed existing US 51 east of Patoka was eliminated. The remaining alternative that utilized existing US 51 east of Patoka and bypassed west of Vernon was carried forward from the Alignment Analysis. The alternative remaining after the Alignment Analysis is shown in Figure 2.2-2, inset D.

Figure 2.2-2: Alternative Screening in Vernon-Patoka



### ***How were the alternatives screened in Vandalia area?***

## VANDALIA

Alternatives that traveled through and around Vandalia were included in the original alternatives drawn by the various groups. Vandalia is unique to the project study area as it is the only community that requires the crossing of an interstate (I-70) and a sizeable river crossing (the Kaskaskia River). The original alternatives developed by the Vandalia CAG and the PSG are shown in bright yellow on Figure 2.2-3, inset A.

The process that was used to narrow the alternatives in Vandalia is discussed below.

#### Step 1: Vandalia Screening Analysis

The original alternatives included a total of 54 sections, or pieces. Two revised sections failed to meet the criteria set forth in the Step 1 Screening Analysis (in Table 2.2-1). One of the sections conflicted with a working railroad, and the other bisected the downtown historic district. Four sections were eliminated by default (a connecting section was previously eliminated, rendering the remaining sections to be of no use). The remaining sections were modified or consolidated. A total of 20 sections were carried forward from the Step 1 Screening Analysis into the Step 2 Purpose and Need Analysis. The alternatives remaining after the Screening Analysis shown in Figure 2.2-2, inset B.

#### Step 2: Vandalia Purpose and Need Analysis

The 20 sections remaining after the Screening Analysis were combined to form 21 alternatives. All of the 21 alternatives met the criteria set forth in the Purpose and Need Analysis (in Table 2.2-2), and were carried forward into the Step 3 Macro Analysis.

#### Step 3: Vandalia Macro Analysis

The impacts to the environmental, cultural, agricultural, and community resources (in Table 2.2-3) resulting from the 21 alternatives in Vandalia were calculated. The following resources were used for alternative elimination.

- **High-quality wetlands:** Wetlands were identified throughout the Vandalia area by the INHS. The presence of high-quality wetlands along the entire Kaskaskia River bluffs south of Vandalia means that any western bypass alternative developed results in impacts. The alternatives were shifted to minimize impacts to the greatest extent possible. The six alternatives that resulted in the greatest impacts to high-quality wetland acres were eliminated. The six alternatives all bypassed to the west of Vandalia. A total of 15 alternatives remained.

VANDALIA



*The Kaskaskia River floodplain is extensive on the east and south sides of Vandalia. The regulatory floodplain is shown in blue.*

- **Floodplain:** On the eastern side of Vandalia, the Kaskaskia River floodplain is extensive. By law, Federal agencies must avoid impacts to floodplains when other practicable alternatives exist. And if impacts are unavoidable, the impacts must be reduced as much as practicable. Since existing US 51 crosses the Kaskaskia River, it is impossible to completely avoid the floodplain. Floodplain impacts ranged from 156 to 469 acres for the remaining 15 alternatives. The two alternatives that bypassed Vandalia to the east impacted over 100 acres more floodplain than the other remaining alternatives. These alternatives were eliminated from further consideration. The 13 remaining alternatives all bypassed Vandalia to the west.
- **Commercial displacements:** Commercial displacements ranged from 0 to 22 businesses for the remaining 13 alternatives. The alternative with the highest number of impacts was eliminated. The alternative with the next highest impact resulted in 13 commercial displacements. The alternative utilized a portion of the existing I-70 corridor between the interchange on the east side of Vandalia and the interchange on the west side of Vandalia. Twelve alternatives remained.
- **High-quality woodlands:** High-quality woodlands were identified by INHS near the US 51 and I-70 interchange within the eastern portion of Vandalia, and along the Kaskaskia River bluffs south of Vandalia. Of the remaining 12 alternatives, five alternatives impacted high-quality woodlands and were eliminated from further consideration. Seven alternatives remained.
- **Land Use:** Compatibility with existing land use plans was considered when comparing the seven remaining alternatives. For two alternatives, the commercial development at the existing interchange west of Vandalia would be impacted by the limited access from the new roadway. As a result, two alternatives were eliminated from consideration.

Five alternatives that bypassed to the west of Vandalia were carried forward from the Step 3 Macro Analysis into the Step 4 Alignment Analysis. These five alternatives are shown in bright yellow on Figure 2.2-3, inset C.

Step 4: Vandalia Alignment Analysis

The impacts to the environmental, cultural, agricultural, and community resources resulting from the five alternatives in Vandalia were calculated for the 200 foot footprint. The following resources were used for alternative elimination.

## VANDALIA

- **Engineering Considerations:** Two of the remaining five alternatives went through a very steep area south of Vandalia. To meet roadway design standard, a truck climbing lane would be required which is undesirable due to the increased footprint of the roadway. Therefore, the two alternatives were eliminated from further study.
- **Land Use, Agricultural Impacts, and Engineering Considerations:** The three remaining alternatives were western bypasses. One of the three alternatives was located farther west than the other two alternatives. Almost four miles of the alternative was outside of Vandalia's corporate limits. It exhibited the greatest acreage impacts to prime and important farmland. Vehicles heading southbound would have to travel approximately two miles directly west in their bypass of Vandalia. For all of these cumulative impacts, the alternative was eliminated. Two alternatives remained.

One of the remaining two alternatives impacted several high-quality wetlands along an abandoned railroad right-of-way north of the Vandalia corporate limits. Based upon coordination with the United States Army Corps of Engineers (USACE) – St. Louis District, these wetlands were created on fill, and are not regarded as highly as wetlands created naturally. The remaining high-quality wetlands impacted by this alternative were associated with the Kaskaskia River and tributaries south of Vandalia. Due to the numerous wetlands along the Kaskaskia River south of Vandalia, the wetlands cannot be avoided. Alternatives were refined to minimize the wetlands. For these reasons and based upon discussions with USACE, the alternative was considered a reasonable alternative for further study.

The other remaining alternative traversed the southeast portion of the Vandalia Geologic Area INAI site. Based upon coordination with the Illinois Department of Natural Resources (IDNR) and based on a preliminary report by Illinois State Geological Survey (ISGS), avoidance of this site is not necessary as long as the integrity of the site is maintained. By traversing the edge of the INAI site, the alternative avoided impacts to high-quality wetlands.

Therefore, the two western bypasses were carried forward from the Alignment Analysis. The two alternatives are shown in bright yellow on Figure 2.2-3, inset D.

VANDALIA

**Illinois Natural Area Inventory site**

Illinois Natural Inventory Area (INAI) sites include high-quality natural areas, habitats of endangered species, or sites with important features. There are two INAI sites in the project area, the Vandalia Geologic Area on the north side of Vandalia, which is a unique geologic feature formed by the glaciers, and Ramsey Creek, which crosses existing US 51 south of Ramsey. The INAI sites are identified by the Illinois Department of Natural Resources (IDNR).



*The Vandalia Geologic Area INAI site is located on the north side of Vandalia.*

**Additional Coordination in Vandalia - VCAG**

The results of the Step 4 Alignment Analysis were presented at a Public Information Meeting (PIM) held in early May, 2010. Approximately 34 comments were received from Vandalia residents following the PIM. The majority of the comments were from residents who lived in the neighborhoods on the north side of Vandalia in the proximity of the remaining alternatives. IDOT invited the commenters to a meeting held on June 3, 2010 in Vandalia. At the meeting, the residents expressed concern over potential impacts associated with the two remaining alternatives, including home impacts, pollution and visual effects.

After the meeting with the Vandalia residents, the project team presented the results of the Alignment Analysis to the Federal and State resource agencies at a meeting on June 9, 2010. The project team shared the concerns expressed from the Vandalia residents. The resource agencies noted the residents' concern, but granted concurrence for the two remaining alternatives. Concurrence means that the agencies agreed with the results of the analysis and that the two alternatives could be carried further for study. Although concurrence was granted at this meeting, after the meeting IDOT decided to revisit the alternative development and evaluation process in Vandalia. The Vandalia CAG was reorganized to expand representation in the community, to continue to build consensus, and to expand local input regarding the alternative selection process.



The reorganized CAG (VCAG) meetings are summarized in Chapter 4 of this document. The work of the original CAG was not replaced by the work performed by the VCAG. The alternatives that remained at the conclusion of the original CAG process that were presented at the public meeting were maintained through the VCAG process and remain in consideration in this document. The goal of the VCAG was to identify additional alternatives.

The reorganized CAG, known as the VCAG, revisited the steps of the alignment development. The VCAG developed and evaluated a total of 39 alternatives between August and November 2010. The range of alternatives developed by the VCAG are shown in orange in Figure 2.2-3, inset A.

The alternative evaluation process was unique during the VCAG coordination. The project team evaluated the alternatives to ensure they complied with the Screening Analysis criteria and met the Purpose and Need. The impacts to the resources considered in the Alignment Analysis were quantified. Several additional criteria were considered, including number of water wells within 200 feet of the alternatives. This criterion was added because of the shallow aquifers in the vicinity of the neighborhoods north of Vandalia. The residents expressed concern about the impact to the wells. Operational considerations, such as the difference in travel time (minutes and seconds) between the alternatives, were also evaluated. The project team and the VCAG walked step by step through the impacts associated with each of the alternatives. During the course of several meetings, the VCAG eliminated 35 alternatives. Some were eliminated due to resource impacts, other were eliminated based on VCAG input.

The VCAG came to a consensus to present four alternatives at a PIM in November of 2010. Based upon resource impacts, VCAG coordination, and public input obtained, two alternatives, an eastern bypass and a western bypass alternative that traveled parallel to I-70 through Vandalia, were eliminated. Two alternatives, a far western bypass and an alternative that is dual-marked with I-70 through Vandalia remained. The two alternatives developed by the VCAG, along with the original two alternatives developed with the original CAG, are carried forward and are shown in Figure 2.2-3, inset D.

VANDALIA

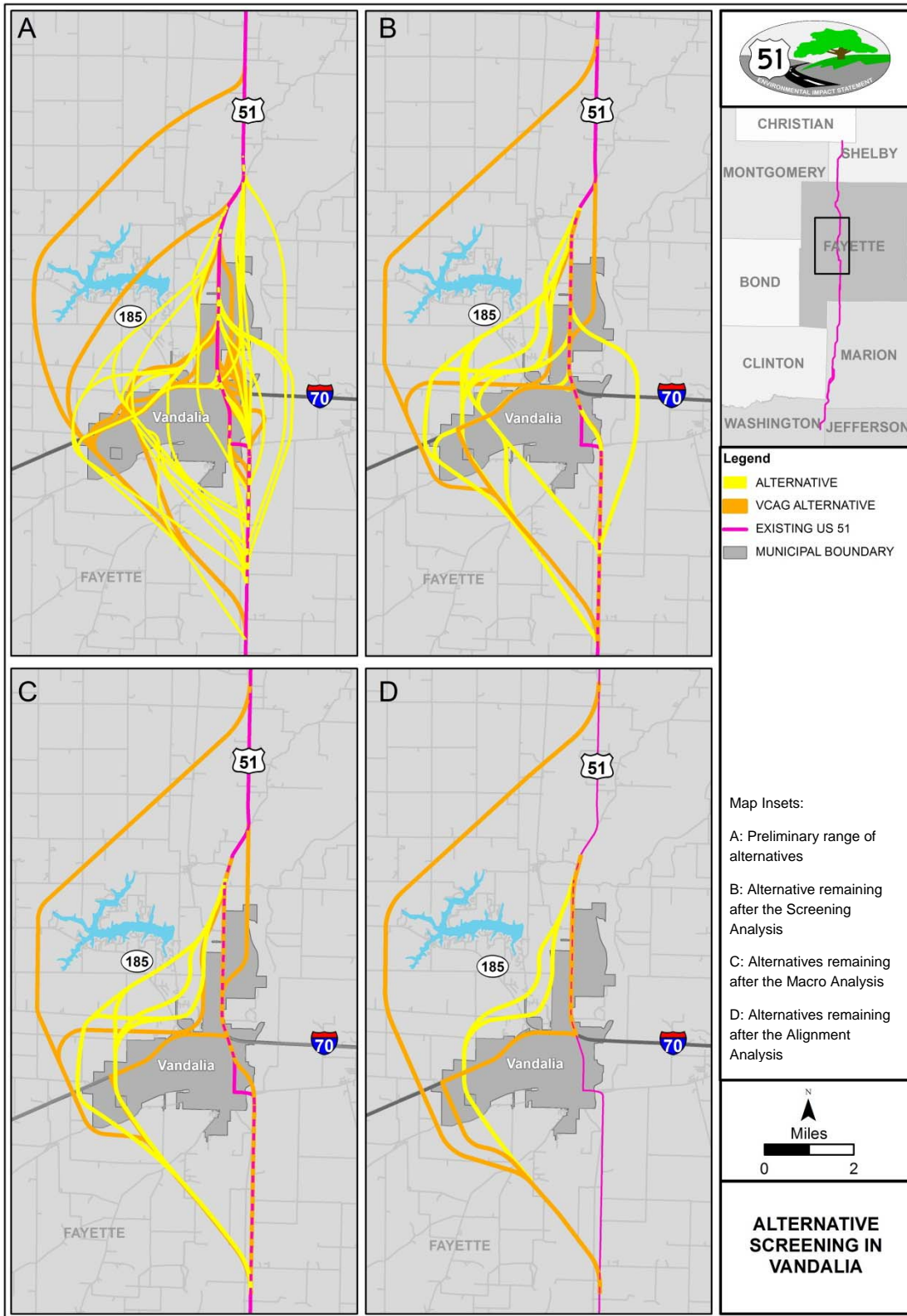


*The Vandalia CAG was reorganized based on public input. The reorganized group, known as the VCAG, developed and evaluated additional alternatives through and around Vandalia*

**What is a shallow aquifer?**

A shallow aquifer is an area where groundwater is within 20 feet of the surface.

Figure 2.2-3: Alternative Screening in Vandalia



***How were the alternatives screened in Ramsey?***

Alternatives that traveled through and bypassed to the east of Ramsey were included in original alternatives. Alternatives that bypassed to the west of Ramsey were not developed. The advisory groups and the PSG did not develop a western bypass due to the location of Ramsey Railroad Prairie Nature Preserve, Ramsey Lake State Park, and the location of existing US 51. The preliminary range of alternatives are shown in Figure 2.2-4, inset A.

The process that was used to narrow the preliminary range of alternatives in Ramsey is discussed below.

Step 1: Ramsey Screening Analysis

The original alternatives included a total of 18 sections, or pieces. The 18 sections were evaluated against the Step 1 Screening Analysis criteria (in Table 2.2-1). A total of seven sections were carried forward into the Step 2 Purpose and Need Analysis. The alternatives remaining after the Screening Analysis shown in Figure 2.2-4, inset B.

Step 2: Ramsey Purpose and Need Analysis

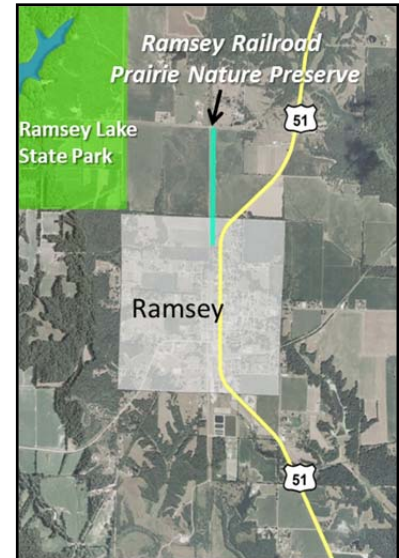
The seven sections remaining after the Screening Analysis were combined to form six alternatives. All of the six alternatives met the criteria set forth in the Purpose and Need Analysis (Table 2.2-2), and were carried forward into the Step 3 Macro Analysis.

Step 3: Ramsey Macro Analysis

The impacts to the environmental, cultural, agricultural, and community resources (in Table 2.2-3) resulting from the seven alternatives in Ramsey were calculated. The following resources were used for alternative elimination.

- **Residential Displacements, Commercial Displacements, and Parkland:** One of the six alternatives traveled through the center of Ramsey, following the existing US 51 alignment. Widening US 51 to a four-lane roadway in this area resulted in a total of 125 displacements to homes, businesses, and public facilities, four times more than the number of displacements for any of the remaining alternatives. The alternative also impacted 1.9 acres of parkland. For these reasons, the alternative was eliminated.

RAMSEY



*Alternatives that traversed west of Ramsey were not developed due to the location of the Ramsey Railroad Nature Preserve, Ramsey Lake State Park, and present-day US 51*

RAMSEY

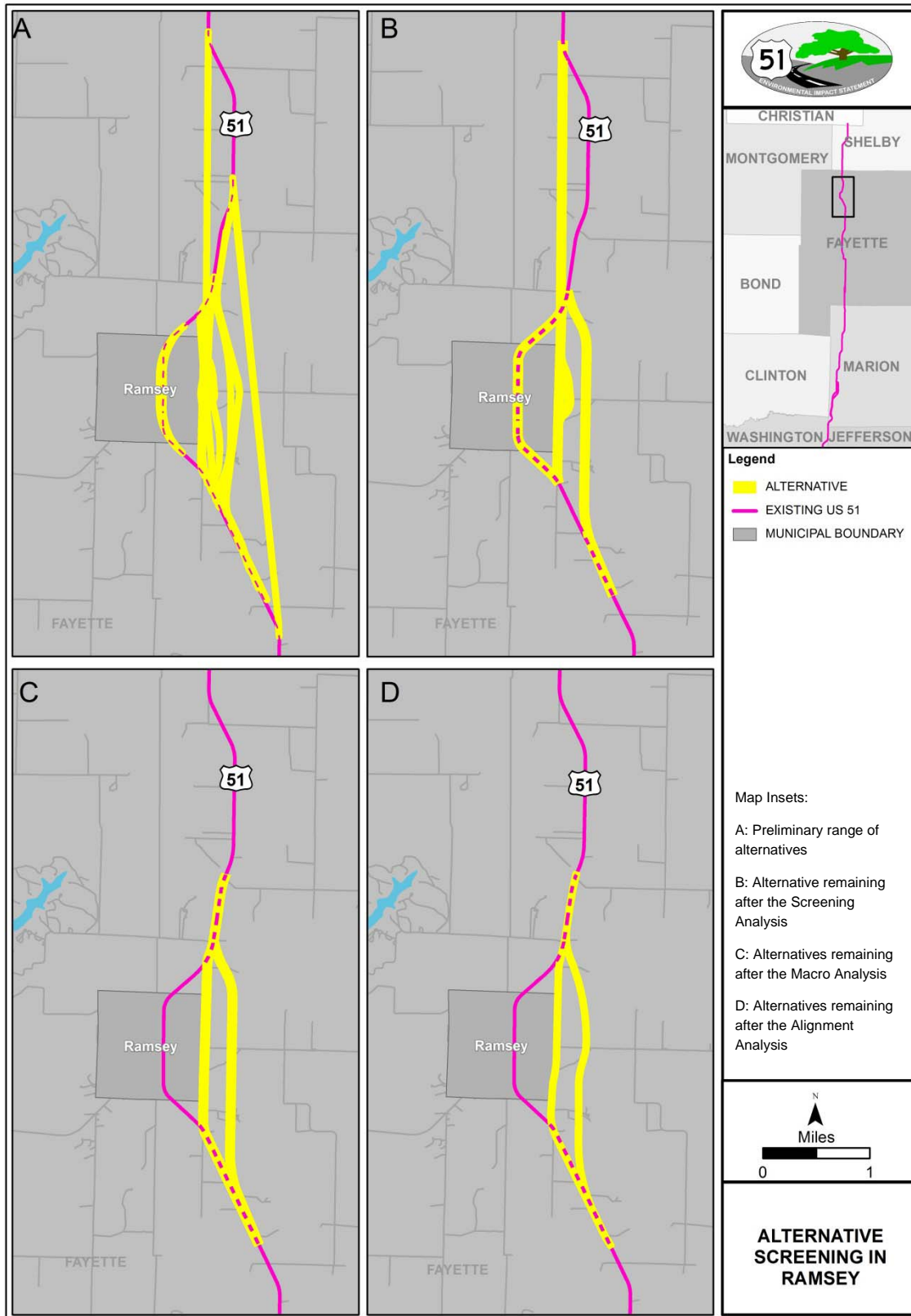
- **Farm Severances:** The number of farm severances was used to differentiate between the five remaining alternatives. Two alternatives severed four farms. The other three alternatives severed between zero and two farms. The two alternatives that severed four farms were eliminated.
- **Engineering Considerations:** Two of the remaining three alternatives were identical with the exception of a short section east of Ramsey where one alternative curved to the east. The alternative was developed early in the CAG process with the intention of avoiding what appeared on the aerial photograph to be several streams. Field data collection determined that these streams did not exist. Therefore, the alternative that curved east was eliminated.

Two eastern bypass alternatives were carried forward from the Step 3 Macro Analysis into the Step 4 Alignment Analysis. The alternatives are shown on Figure 2.2-4, inset C.

Step 4: Ramsey Alignment Analysis

The impacts to the environmental, cultural, agricultural, and community resources resulting from the two alternatives in Ramsey were calculated. The impacts resulting from both alternatives were similar. Therefore, both alternatives were carried forward for further consideration. The alternatives are shown in Figure 2.2-4, inset D.

Figure 2.2-4: Alternative Screening in Ramsey



***How were the alternatives screened for the areas between communities?***

The sections between the communities were evaluated in the Step 4 Alignment Analysis. For most of the sections of US 51 between the communities, options included widening to the east, to the west, or widening equally along both sides to minimize impacts to resources and homes. Multiple alternatives were developed at two locations due to the unique characteristics of the areas: south of Ramsey near Ramsey Creek, north of Oconee near Opossum Creek.

**Ramsey Creek Alternatives**

Ramsey Creek is unique in the project area because it is an INAI Site and a Biologically Significant Stream. The existing US 51 bridges over Ramsey Creek south of Ramsey. The bridge that carried Old US 51 over Ramsey Creek is located west of the existing bridge. The old bridge is in place but is no longer in use. Because of the location of Old US 51, the project team developed two alternatives near Ramsey Creek in an effort to minimize impacts to the stream and the adjacent wooded areas. The alternatives are shown in Figure 2.2-5.

Ramsey Creek Option A was developed to utilize the corridor where the bridge carrying Old US 51 exists for the southbound lanes. The northbound and southbound lanes split south of Ramsey Creek. The southbound lanes diverge west of existing US 51 and utilize the bridge carrying Old US 51 over Ramsey Creek. The northbound lanes utilize existing US 51. Ramsey Creek Option B follows existing US 51 across Ramsey Creek and does not utilize the old bridge.

The resource impacts resulting from both options were calculated during the Step 4 Alignment Analysis. Ramsey Creek Option A and Ramsey Creek Option B had similar impacts, so both alternatives were carried forward.

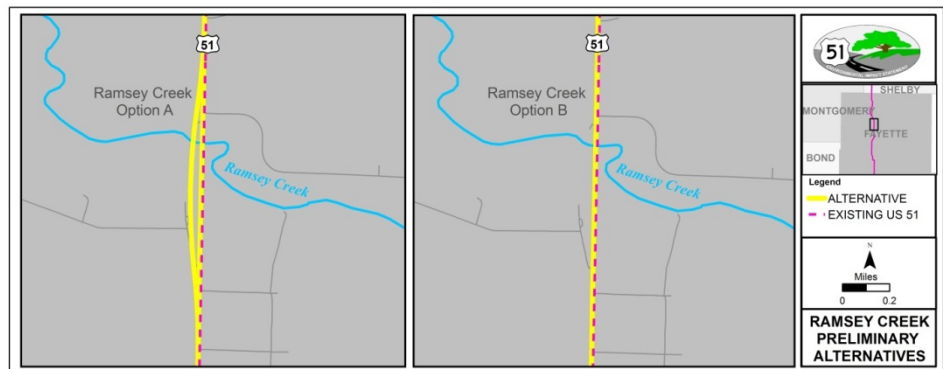


*Multiple alternatives were developed where US 51 crosses Ramsey Creek, including an alternative that utilized the corridor sharing the bridge carrying Old US 51 over Ramsey Creek.*

**Biologically Significant Stream**

Stream quality is assessed by the Illinois Department of Natural Resources (IDNR) Biological Stream Rating System (BSRS). High-quality streams are those streams that are designated as Biologically Significant or stream segments rated “A” or “B” for Diversity or Integrity. Biologically Significant Streams have high-quality water resources that contain diverse fish and aquatic species. Stream segments that are identified as Biologically Significant are unique resources and the biological communities must be protected at the stream reach, as well as upstream of the reach.

**Figure 2.2-5: Preliminary Alternatives near Ramsey Creek**



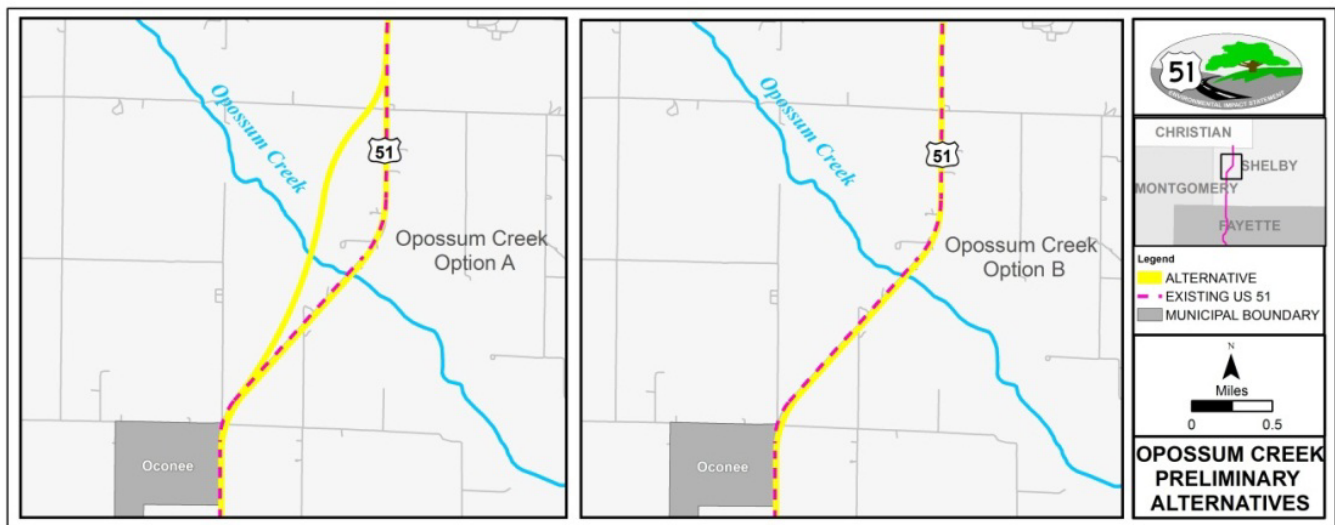
### Opossum Creek Alternatives

The current US 51 bridges over Opossum Creek north of Oconee. The area near Opossum Creek is very steep and wooded. The area appeared to present engineering constraints to vertical profile development due to the varying topography, so two alternatives were developed, which are shown in Figure 2.2-6.

Opossum Creek Option A has northbound and southbound lanes that split south of Opossum Creek. The northbound lanes continue along existing US 51, while the split west of existing US 51 would serve southbound traffic. Opossum Creek Option A was developed by the project team early in the alternative development process. The split travel lanes were proposed as an alternative to widening or replacing the existing US 51 bridge over Opossum Creek and to minimize impacts to the surrounding steep wooded area. Opossum Creek Option B follows existing US 51 across Opossum Creek requiring widening or replacement of the existing bridge.

After the completion of the Alignment Analysis, more detailed engineering work was completed. Opossum Creek Option A would result in adverse mileage for some residents living along existing US 51. Access to the existing farm residence located between the proposed northbound and southbound lanes would be affected. Option A would also sever a farm associated with the residence. It was determined that the topography along Opossum Creek B could accommodate the widening of existing US 51. Therefore, Opossum Creek A was eliminated.

**Figure 2.2-6: Preliminary Alternatives near Opossum Creek**



## 2.3 Remaining Alternatives Carried Forward for Detailed Study

### *What alternatives remained after the alternative evaluation process?*

After the original alternatives were narrowed down for the length of the project, eleven separate alternatives resulted and are evaluated further in this document. Multiple alternatives remain near the communities of Sandoval, Vandalia, Ramsey, and near Ramsey Creek. The alternatives in each community have identical starting and end points so that they can be compared against each other. In some locations, only one alternative location remains. The areas where there is only one alternative are referred collectively as the “US 51 Build Alternative.” The impacts resulting from the alternatives are compared to the No Build Alternative in Chapter 3. The alternatives are summarized in Table 2.3-1 and are shown in Figure 2.3-1. Each alternative is shown on a separate map in Figures 2.3-2 to 2.3-14.

#### **US 51 Build Alternative**

The alternative between the larger towns where there is only one remaining alternative is referred to collectively as the US 51 Build Alternative. The US 51 Build Alternative is shown in orange below. Existing US 51 is shown in pink.



The US 51 Build Alternative is compared against the No Build Alternative.



**Table 2.3-1: Summary of Alternatives Carried Forward for Detailed Study**

Location	Name	Description	Figure
Wamac to Junction City	US 51 Build Alternative	Western bypass of Wamac, Centralia, Central City, and Junction City	2.3-2
Junction City to north of Sandoval	CS Alt 1	Western bypass of Junction City and Sandoval	2.3-3
	CS Alt 2	Western bypass of Junction City, eastern bypass of Sandoval	2.3-4
North of Sandoval to south of Vandalia	US 51 Build Alternative	Expansion of existing US 51 and western bypass of Patoka	2.3-5
Vandalia	V Alt 1	Western bypass of Vandalia around Vandalia Lake	2.3-6
	V Alt 2	Western bypass of Vandalia, north of Airport Road (CH 50)	2.3-7
	V Alt 3	Western bypass of Vandalia, along Airport Road (CH 50)	2.3-8
	V Alt 4	Western bypass of Vandalia, with 2.9 miles of dual marking along I-70	2.3-9
North of Vandalia near Ramsey Creek	Ramsey Creek Option A (RCOA)	Two-lane, one-way paired roadways using existing bridge over Ramsey Creek and the adjacent Old US 51 bridge over Ramsey Creek	2.3-10
	Ramsey Creek Option B (RCOB)	Expansion of the existing US 51 using existing bridge over Ramsey Creek	2.3-11
South of Ramsey	US 51 Build Alternative	Expansion of existing US 51	2.3-12, 2.3-13
Ramsey	R Alt 1	Eastern bypass of Ramsey, 0.4 miles east of the existing US 51 alignment	2.3-12
	R Alt 2	Eastern bypass of Ramsey, 0.7 miles east of the existing US 51 alignment	2.3-13
North of Ramsey to Christian/Shelby Co. line	US 51 Build Alternative	Expansion of existing US 51 alignment	2.3-14

Figure 2.3-1: Alternatives Carried Forward for Detailed Study (Page 1 of 2)

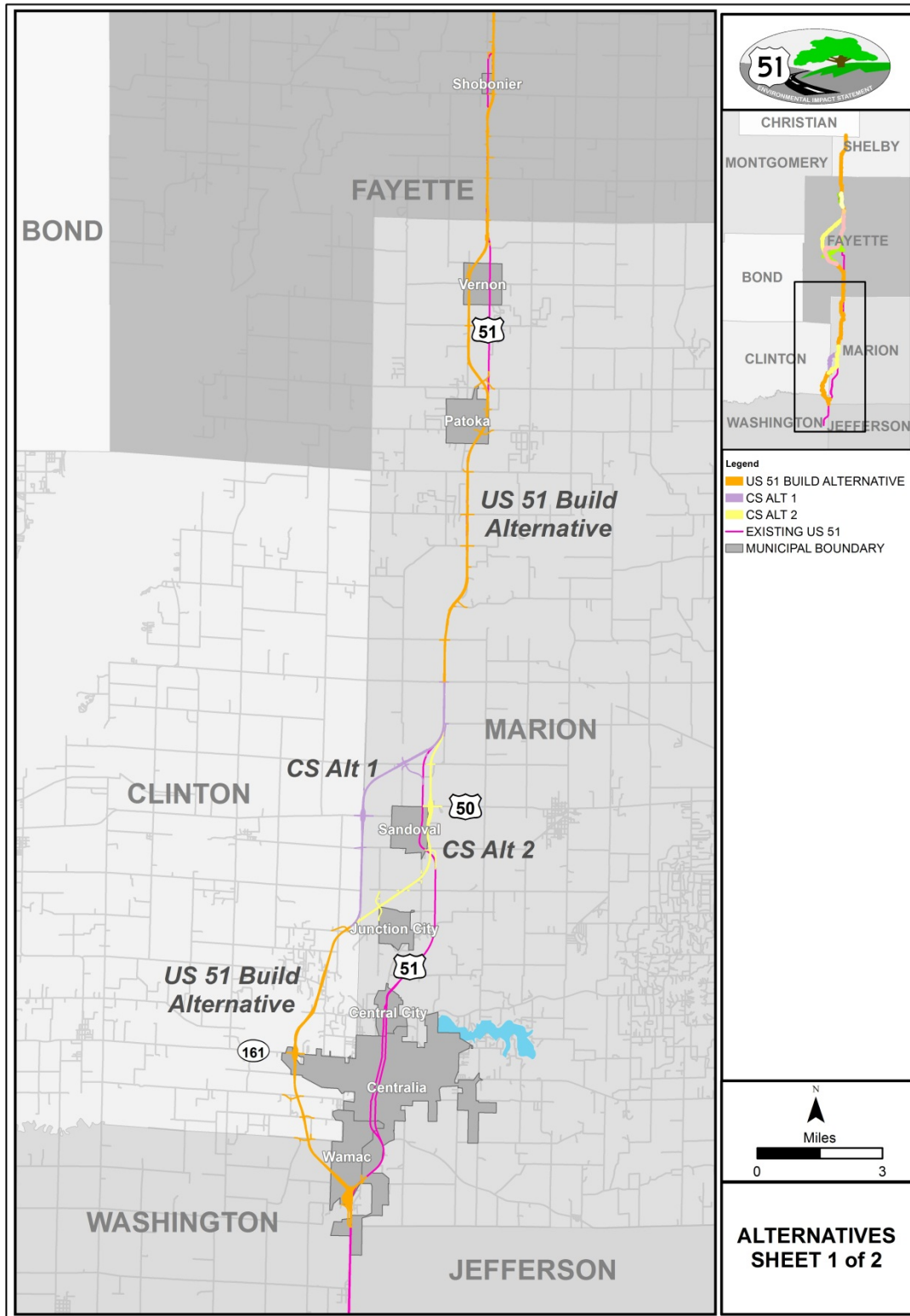
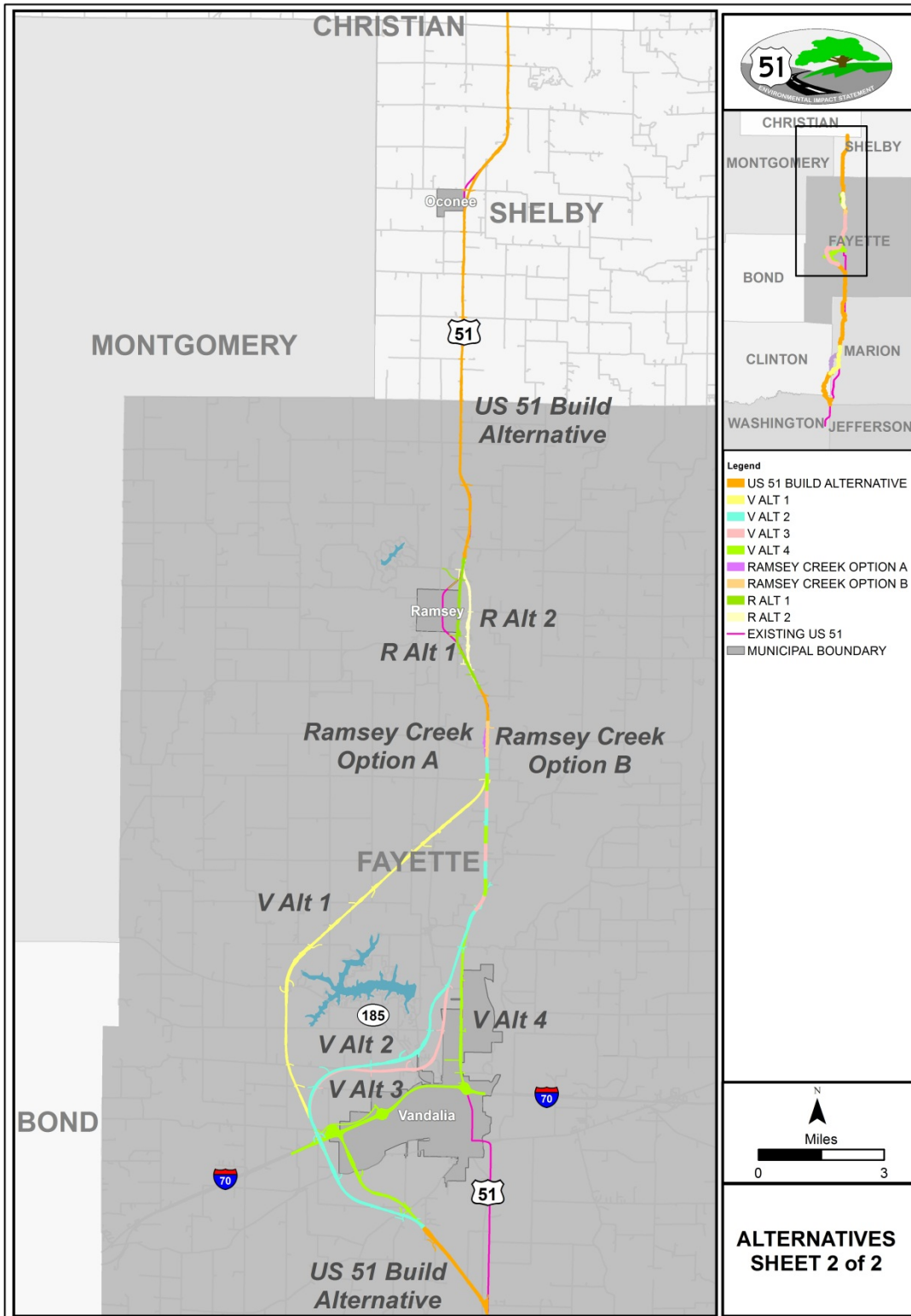
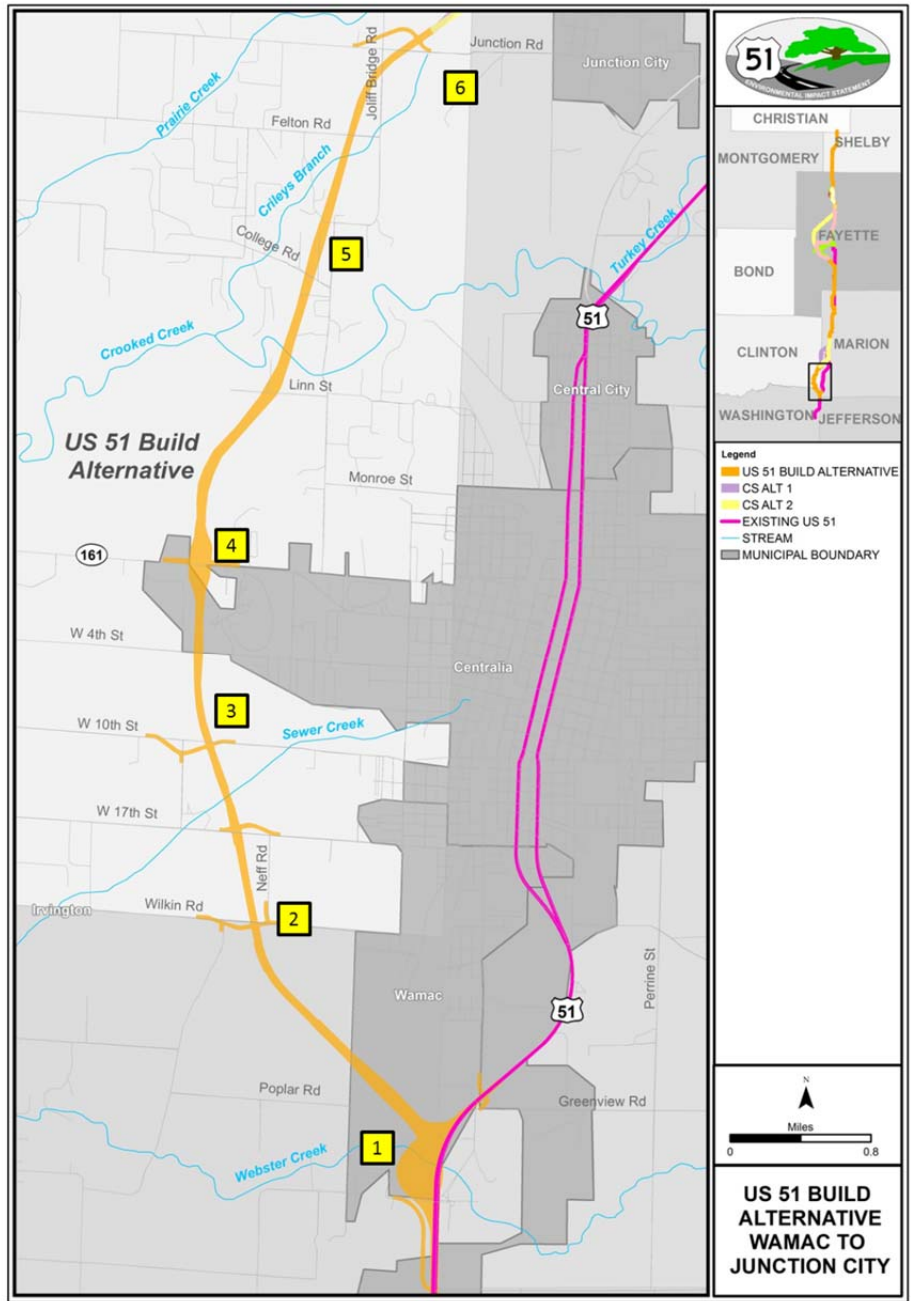


Figure 2.3-1: Alternatives Carried Forward for Detailed Study (Page 2 of 2)



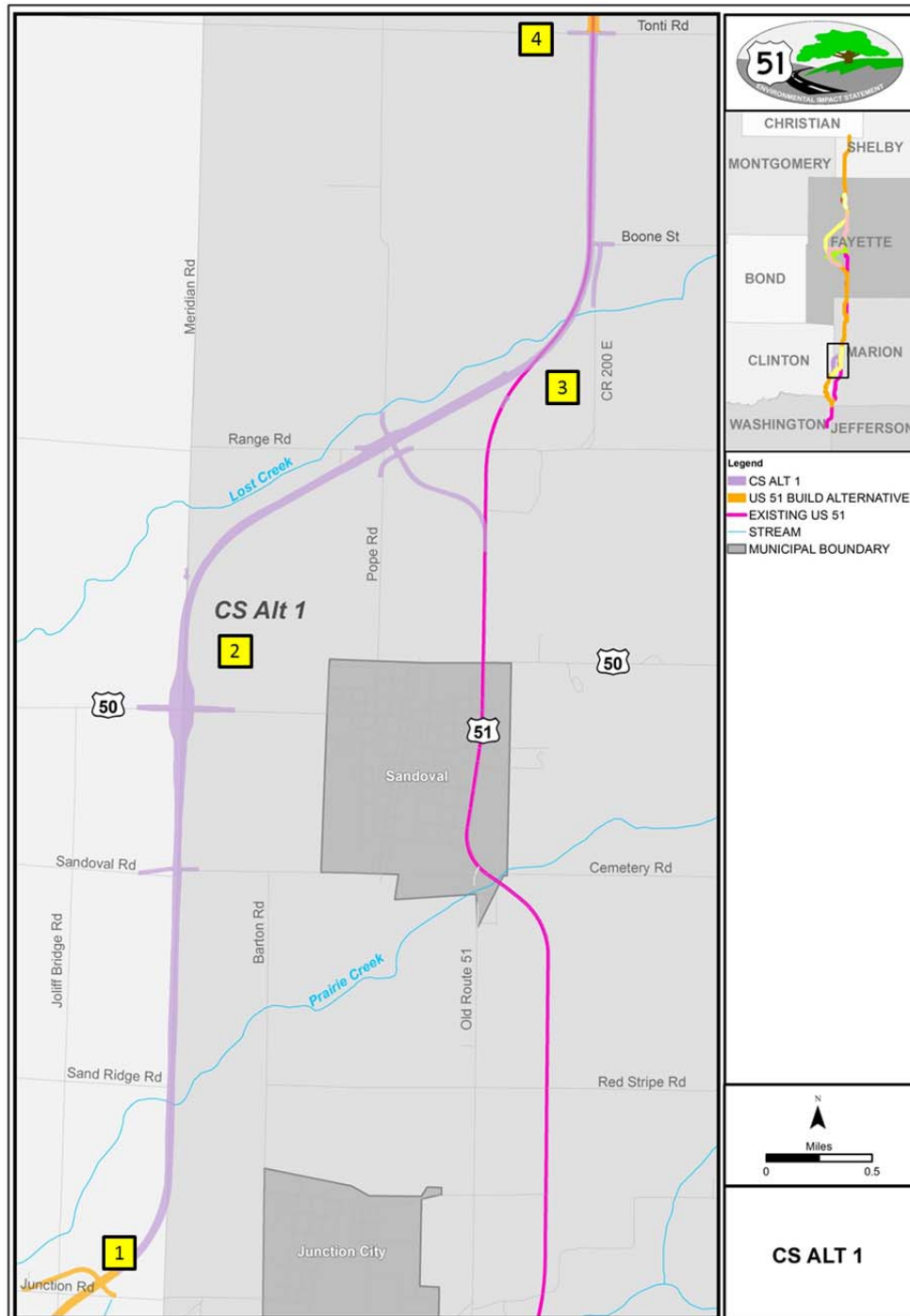
**Figure 2.3-2: US 51 Build Alternative - Wamac to Junction City**

This alternative is a western bypass of the Wamac, Central City, Centralia, and Junction City. The southern limit is located at Greenview Church Road south of the City of Wamac (1). The alternative bypasses the City of Wamac and City of Centralia by traveling northwest towards Wilkin Road just west of Neff Road (2). The alternative continues by traveling northwest towards 10th Street (3). At this point, the alternative traverses north past Illinois 161 just west of the Centralia Correctional Center (4) and is approximately 2.3 miles west of existing US 51 through the City of Centralia. Turning northeast, the alternative passes the Burlington Northern Railroad east of Jolliff Bridge Road (5) and ends near Junction Road (6).



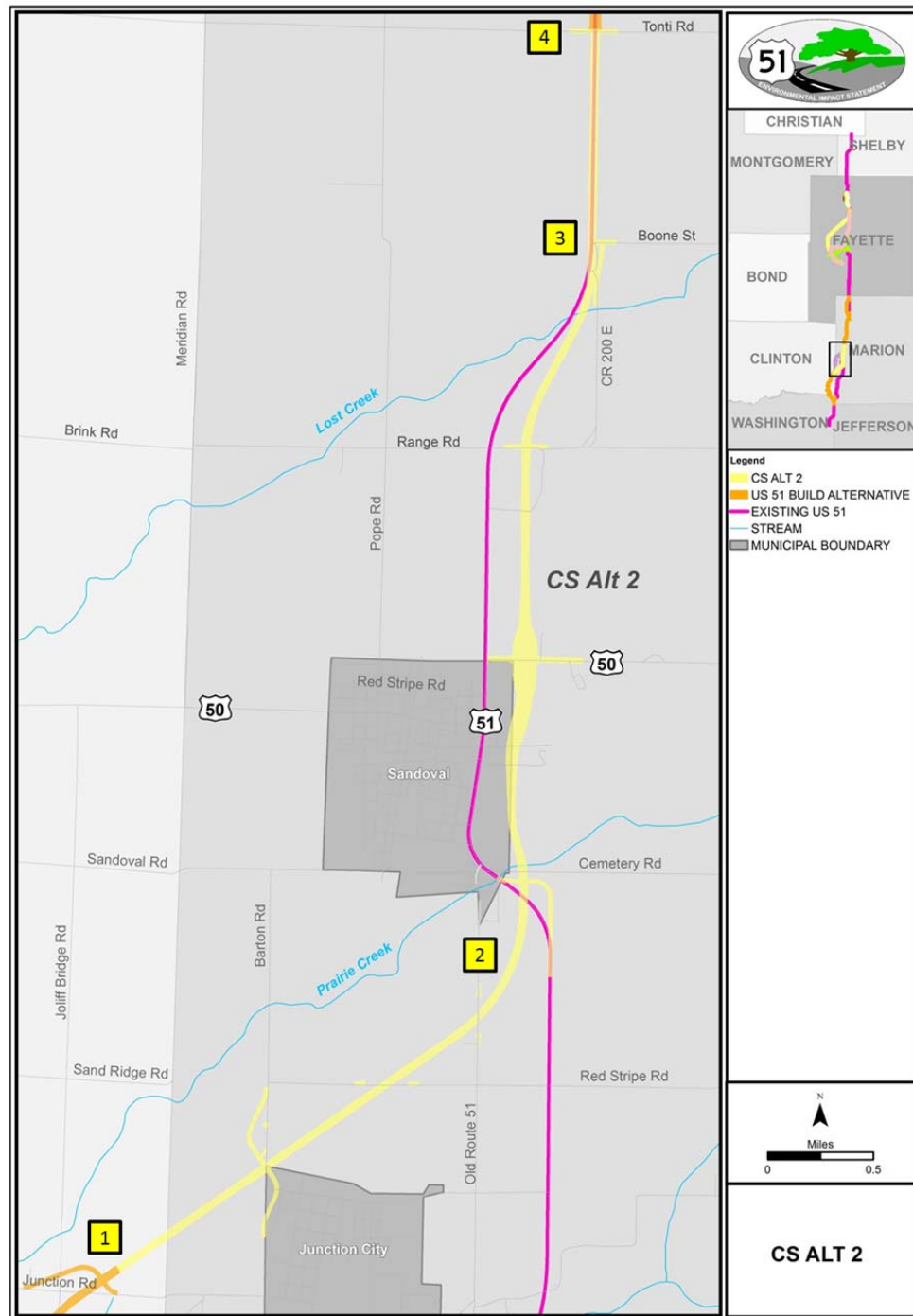
**Figure 2.3-3: CS Alt 1**

This alternative is a western bypass of Junction City combined with a western bypass of the Village of Sandoval. The southern limit is located near Junction Rd (1). The alternative travels north along Meridian Rd and travels adjacent to Sandoval High School (2). The alternative then turns northeast where it joins existing US 51 just north of Range Rd (3) and ends near Tonti Road (4).



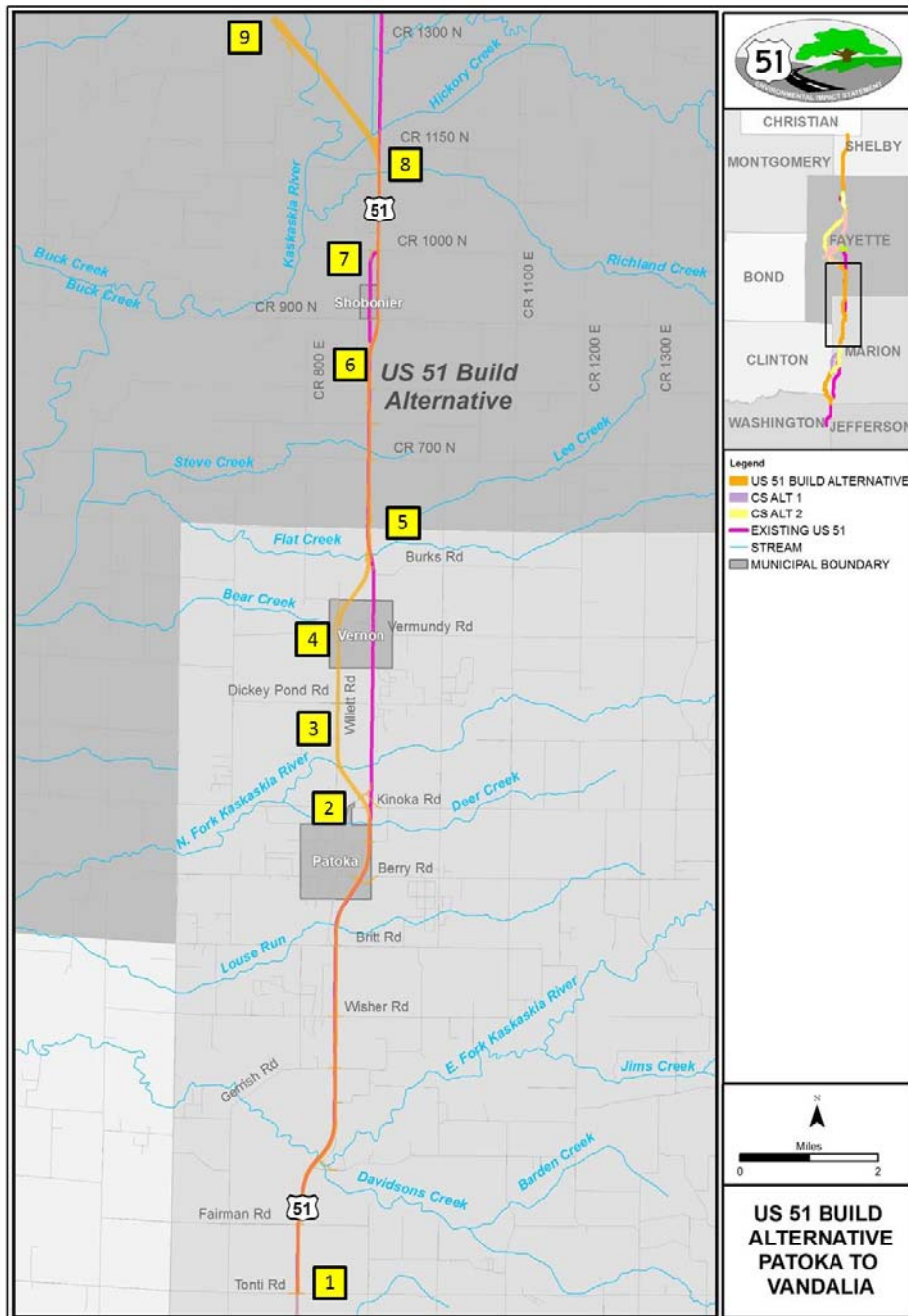
**Figure 2.3-4: CS Alt 2**

This alternative is a western bypass of Junction City combined with an eastern bypass of the Village of Sandoval. The southern limit is located near Junction Rd (1). The alternative travels northeast around Junction City, and continues to a point east of the Colonial Golf Course (2). Traveling north and approximately 1,000 feet east of existing US 51, the alternative continues along the east side of Sandoval until it joins existing US 51 near Boone Street (3). The alternative ends near Tonti Rd (4).



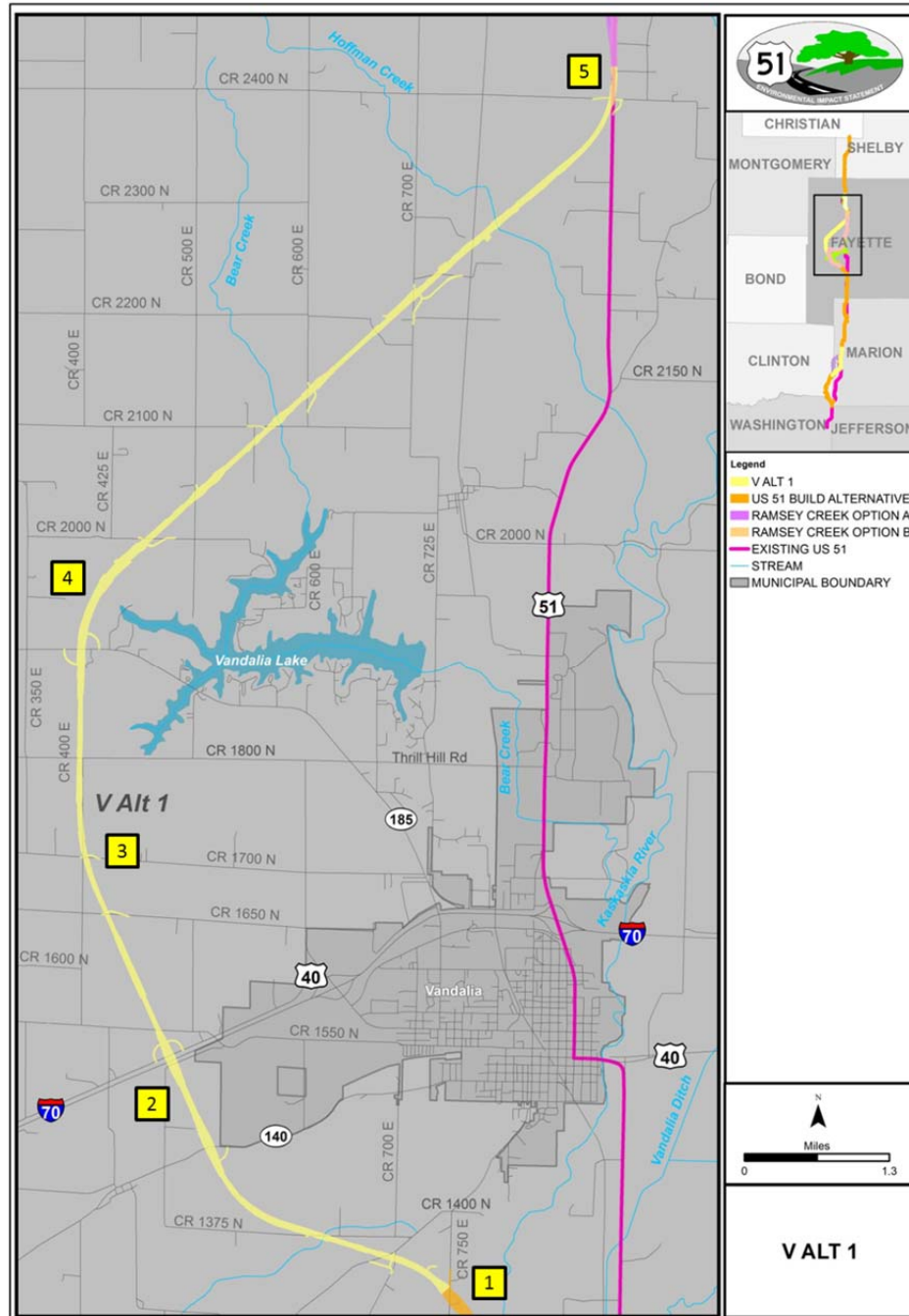
**Figure 2.3-5: US 51 Build Alternative - South of Patoka to Vandalia**

This alternative follows existing US 51 throughout a rural area of northern Marion County and bypasses east of the Village of Patoka and west of the Village of Vernon. The northern end of the alternative bypasses existing US 51 to the west where it joins the Vandalia alternatives. The southern limit is Tonti Road (1) and it follows US 51 north for approximately six miles. Near Kinoka Road (2), the alternative traverses northwest toward Willett Road (3). The alternative travels north along Willett Road for approximately two miles before it turns northeast near Vermundy Road (4) and connects with US 51 near Burks Road (5). The alternative travels north along US 51 to Shobonier where it splits and runs approximately 0.25 mile east of existing US 51 (6). The alternative reconnects with existing US 51 near County Road (CR) 1000 N and continues north (7). The alternative veers northwest just south of CR 1150 N (8) and ends near CR 1300 N (9).



**Figure 2.3-6: V Alt 1**

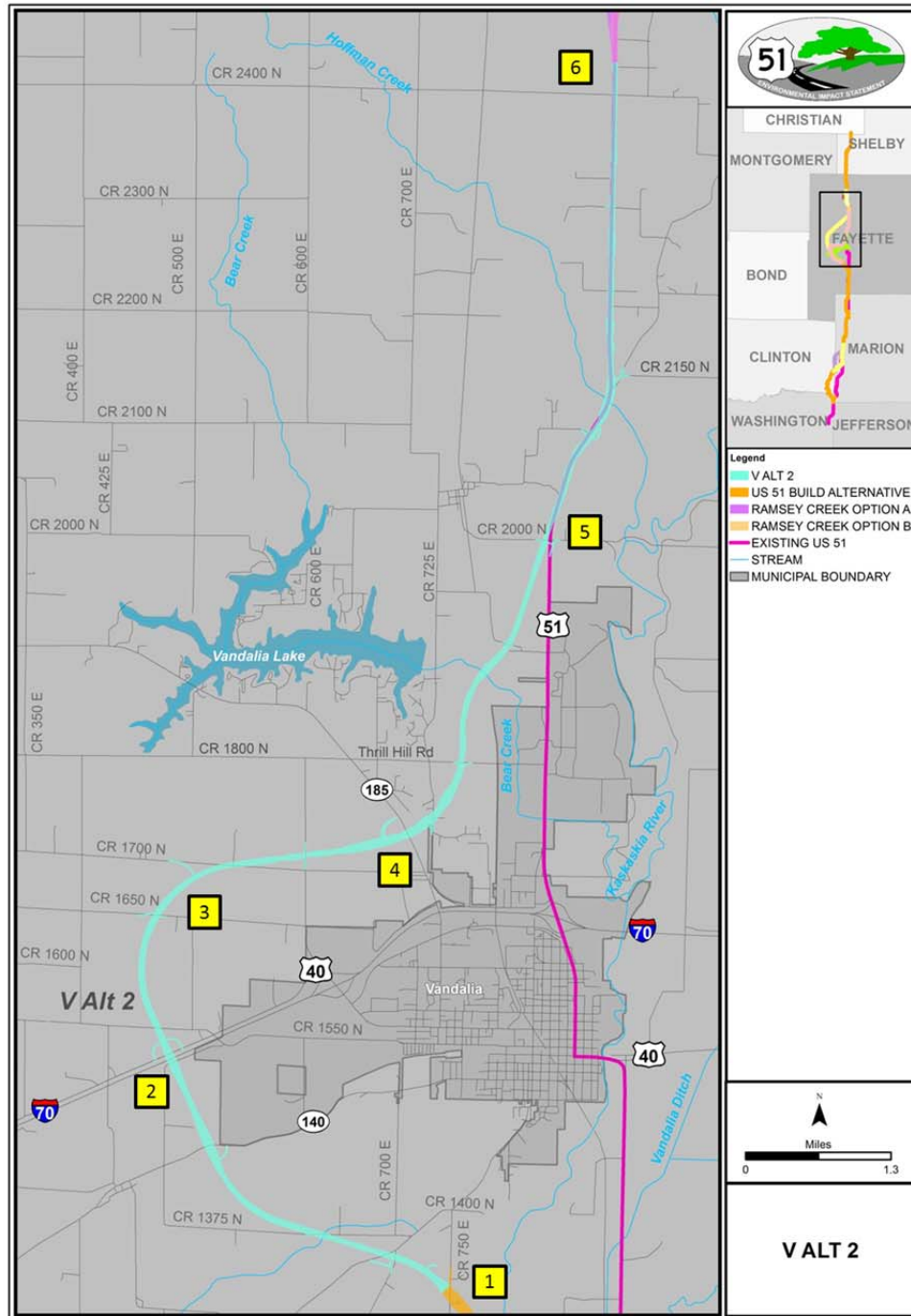
The alternative is a bypass situated to the west of the City of Vandalia. The southern limit is located at CR 750 E approximately 0.5 mile south of CR 1400 N (1). The alternative travels northwest and crosses over I-70 (2). At this point, the alternative travels northwest and turns north in the vicinity of CR 1700 N (3) following existing CR 400 E for approximately two miles until it crosses IL 185 southwest of Vandalia Lake (4). At this point, the alternative turns northeast and travels approximately seven miles to join with existing US 51 just north of CR 2400 N (5).





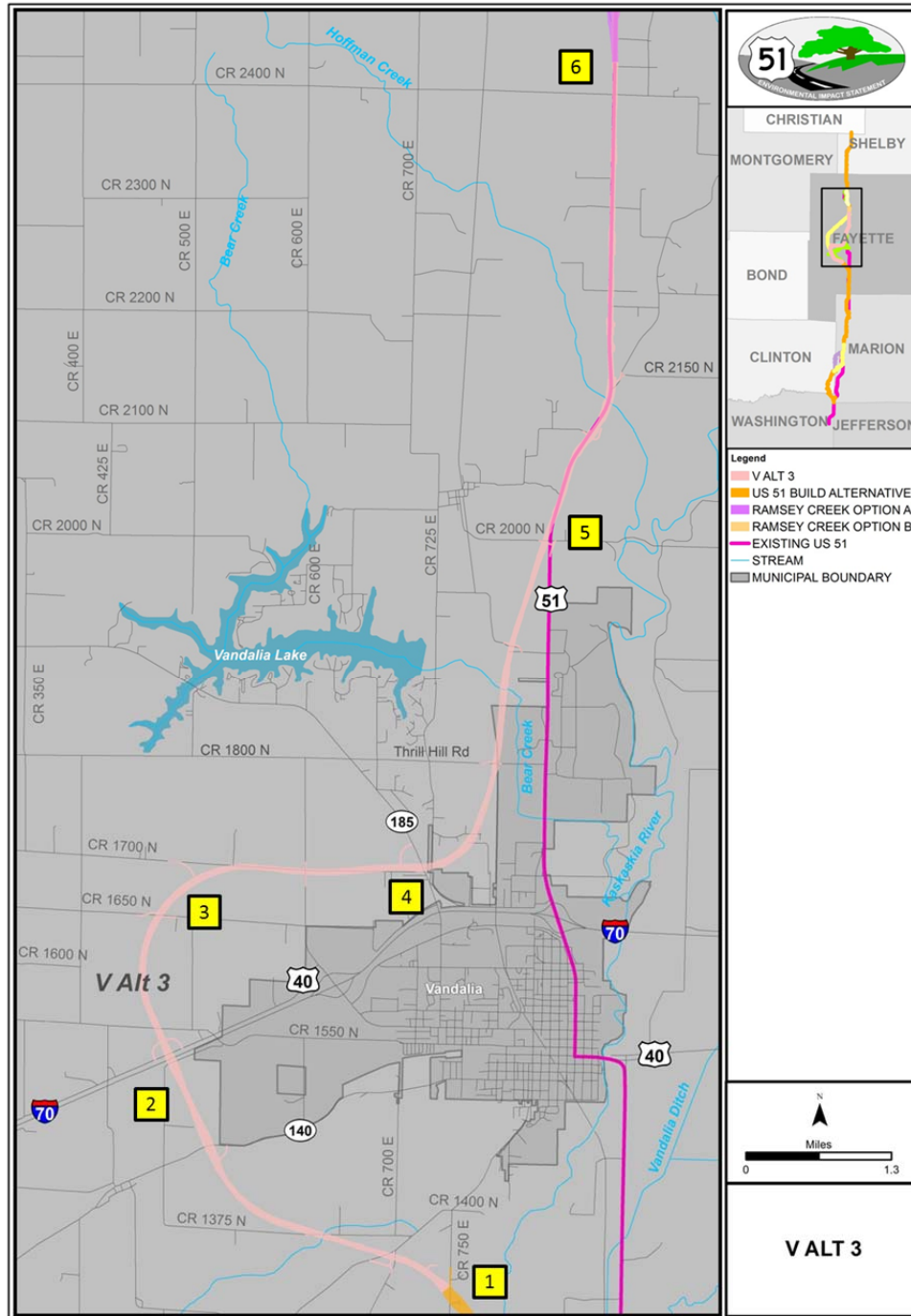
**Figure 2.3-7: V Alt 2**

The alternative is a bypass situated to the west of the City of Vandalia. The southern limit is located at CR 750 E approximately 0.5 mile south of CR 1400 N (1). The alternative travels northwest and crosses over I-70 (2). At this point, the alternative turns northeast (3) traveling approximately 2.2 miles before crossing IL 185 (4). The alternative continues traveling northeast for approximately 3.1 miles until it joins existing US 51 near CR 2000 N (5). Following existing US 51 north towards Ramsey the alternative ends just north of CR 2400 N (6).



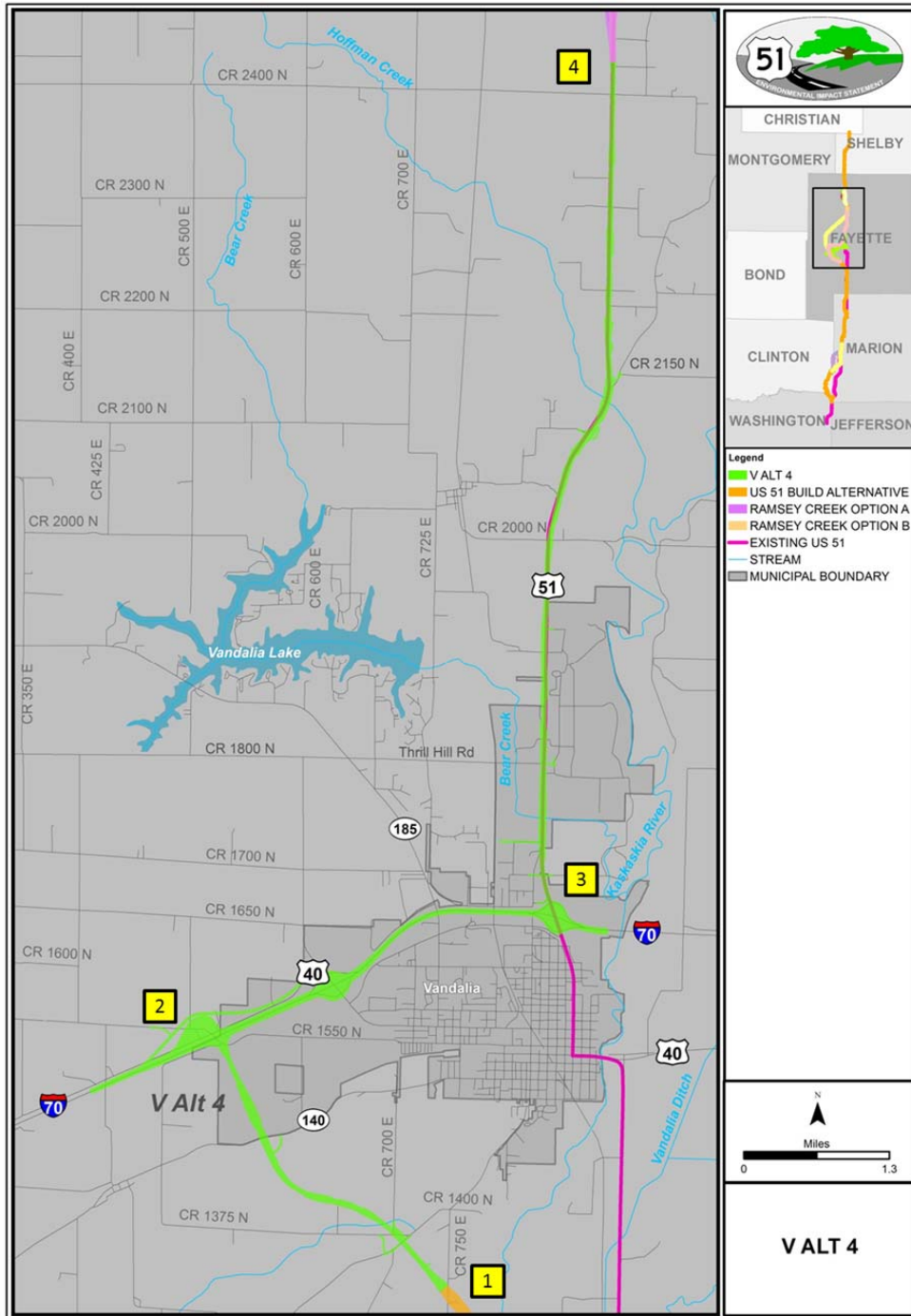
**Figure 2.3-8: V Alt 3**

The alternative is a bypass situated to the west of the City of Vandalia. The southern limit is located at CR 750 E approximately 0.5 mile south of CR 1400 N (1). The alternative travels northwest and crosses over I-70 (2). From this point the alternative turns northeast until it crosses CR 1700 N (3). The alternative travels east along CR 1700 N for approximately 1.3 miles until it crosses IL 185 (4). The alternative turns northeast and travels for approximately 3.3 miles until it joins existing US 51 near CR 2000 N (5). Following existing US 51 north towards Ramsey the alternative ends just north of CR 2400 N (6).



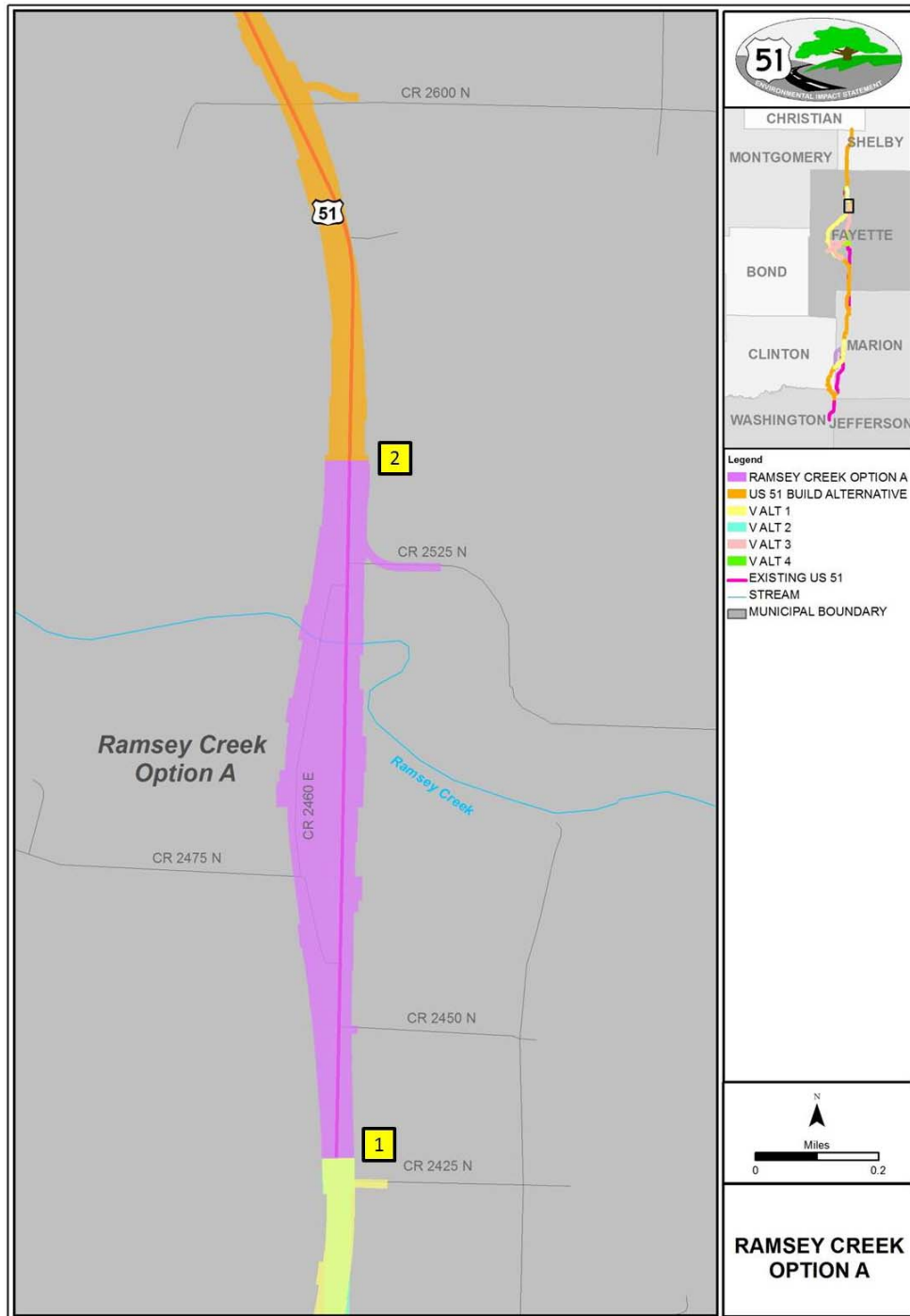
**Figure 2.3-9: V Alt 4**

The alternative is a bypass situated to the west of the City of Vandalia. The southern limit is located at CR 750 E approximately 0.5 mile south of CR 1400 N (1). The alternative travels northwest and crosses over I-70 (2). At this point, the alternative merges onto and becomes dual marked with I-70 for approximately 2.9 miles until it reaches the existing US 51 and I-70 interchange on the northeast side of Vandalia (3). From this point, the alternative merges onto existing US 51 and then follows existing US 51 north toward Ramsey where it ends just north of CR 2400 N (4).



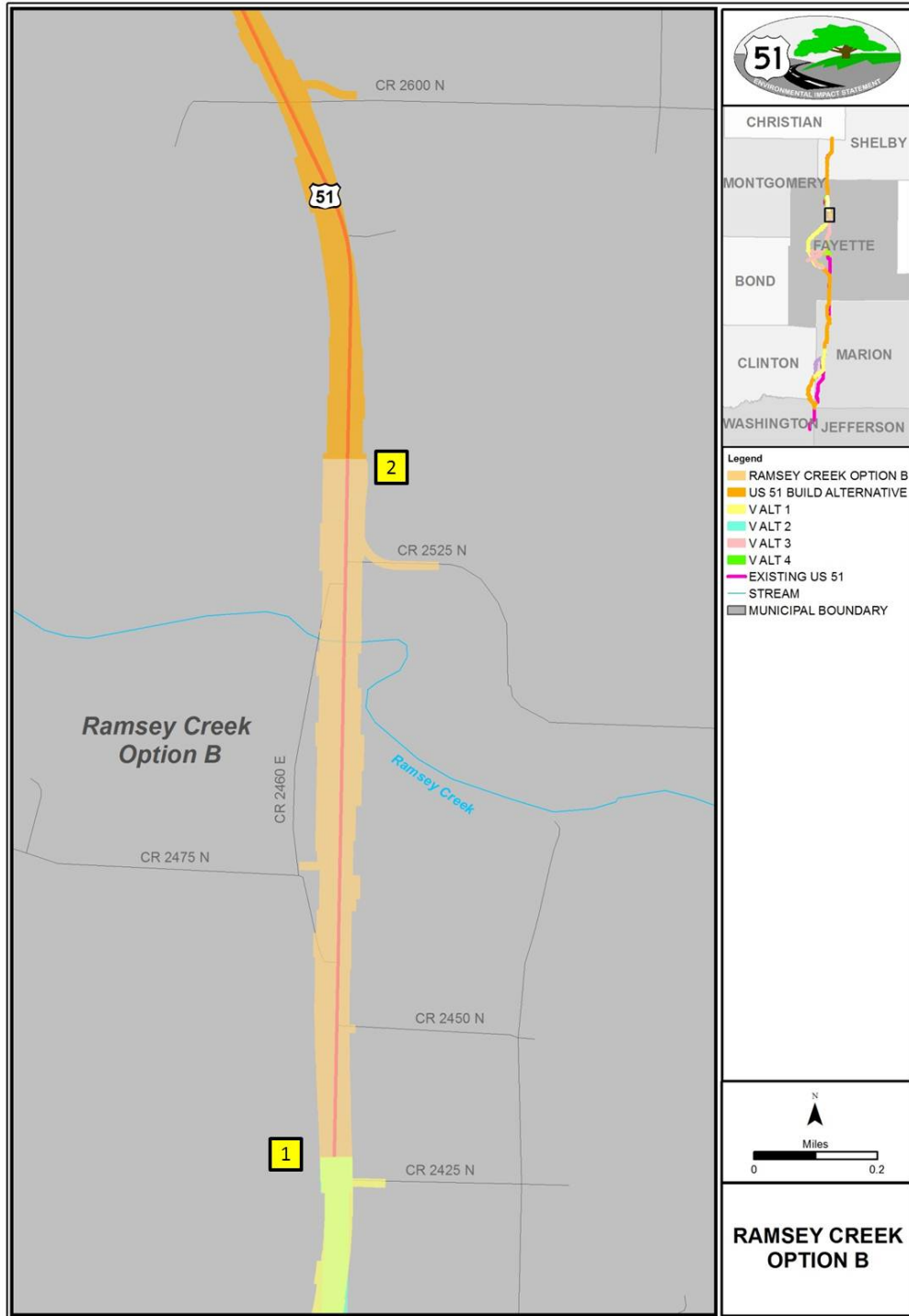
**Figure 2.3-10: Ramsey Creek Option A (RCOA)**

This alternative follows the US 51 roadway between Vandalia and Ramsey. The southern limit is located just north of CR 2425 N (1). At this point, the northbound and southbound lanes split. The northbound lanes continue north following the existing US 51 bridge crossing Ramsey Creek; the southbound lanes curve northwest and utilize the corridor shared by the existing bridge carrying Old US 51 over Ramsey Creek. The northbound and southbound lanes join approximately two tenths of a mile north of CR 2525 N (2).



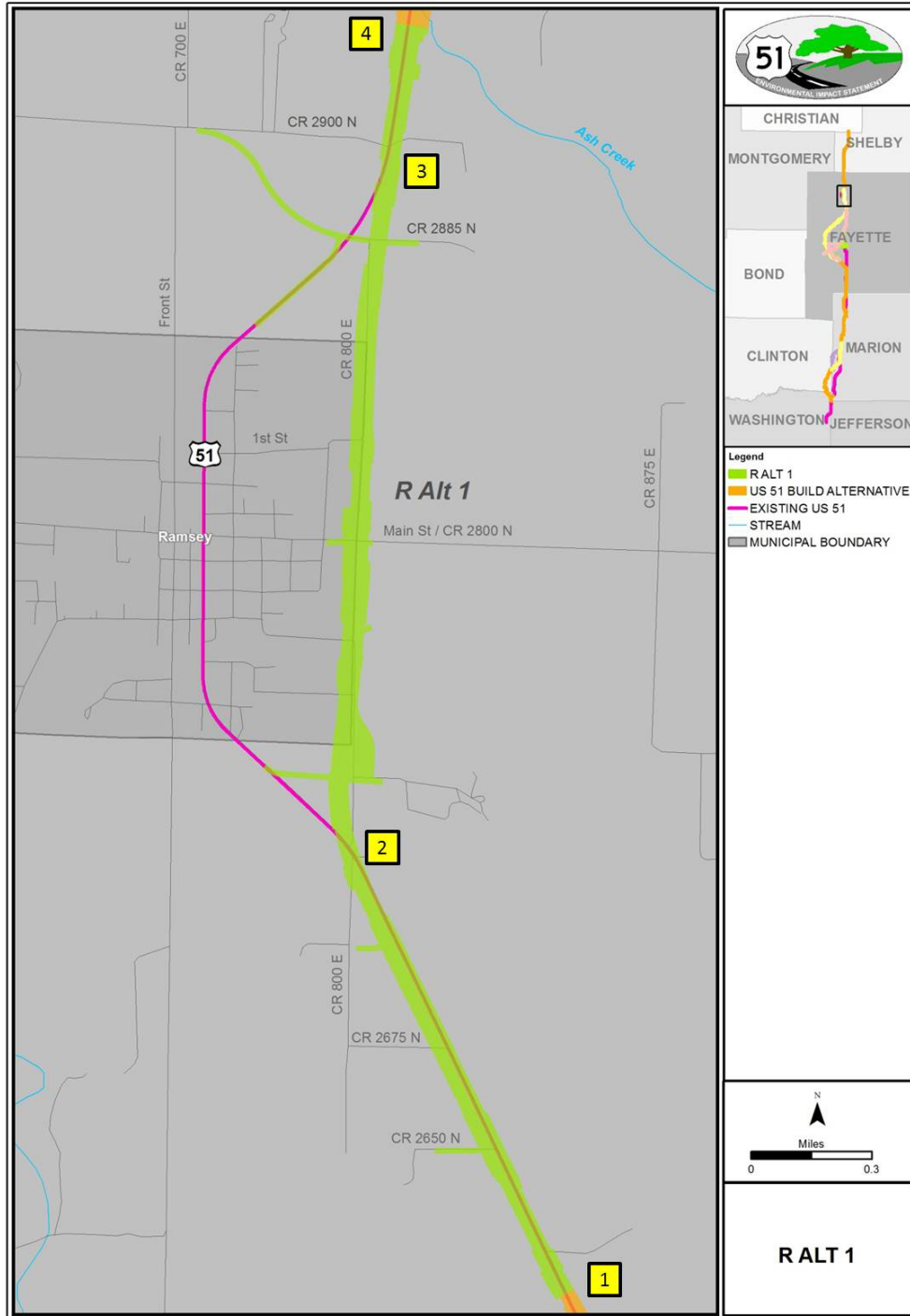
**Figure 2.3-11: Ramsey Creek Option B (RCOB)**

This alternative follows the US 51 roadway between Vandalia and Ramsey and utilizes the existing US 51 bridge crossing Ramsey Creek. The southern limit is located just north of CR 2425 N (1) and the northern limit is approximately two tenths of a mile north of CR 2525 N (2).



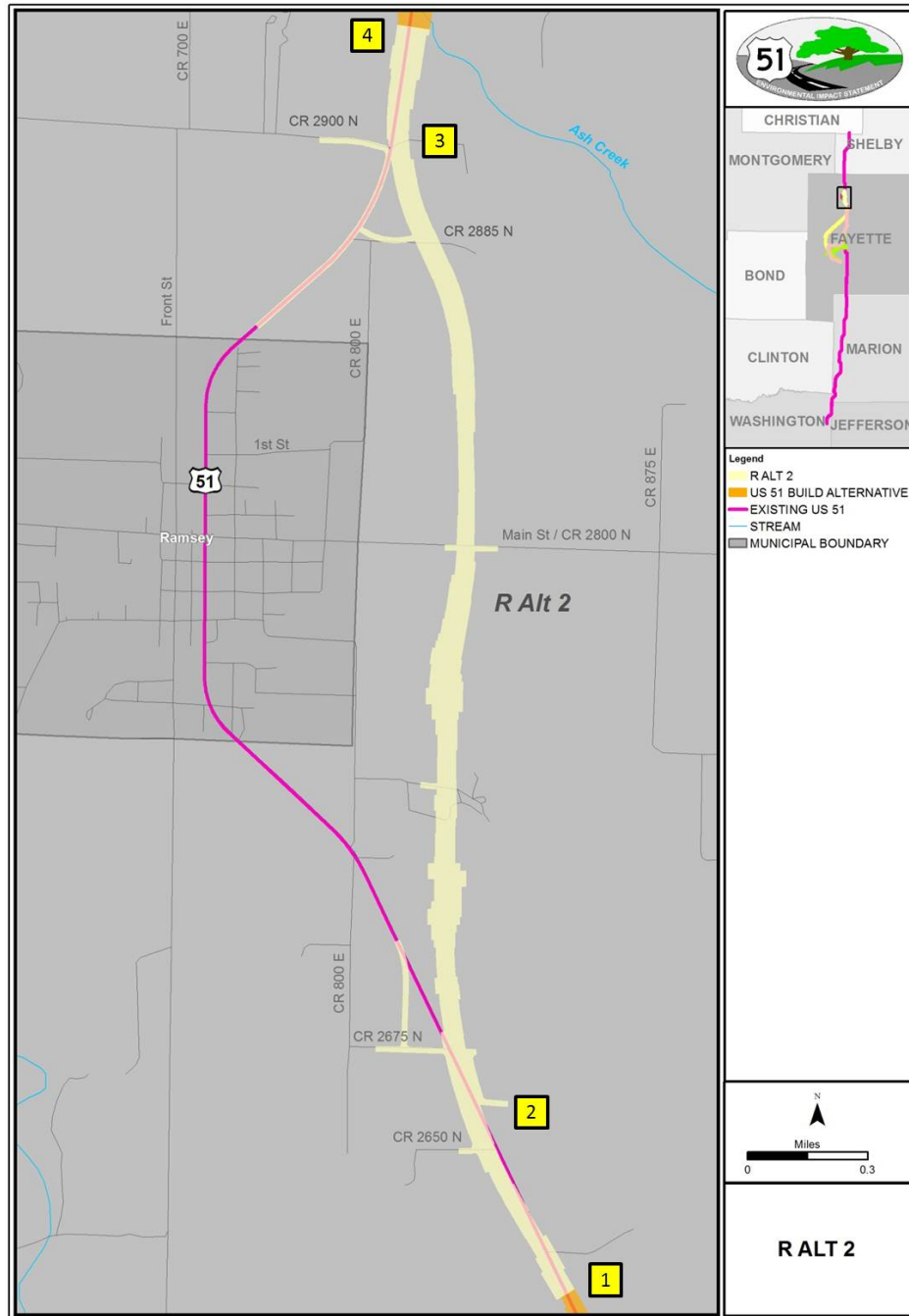
**Figure 2.3-12: R Alt 1**

This alternative is a bypass situated east of the Village of Ramsey. The southern limit is located approximately three tenths of a mile south of CR 2650 N (1). The alternative bypasses Ramsey by turning north (2) as existing US 51 continues northwest towards town. The alternative continues north, approximately 2,000 feet east of and parallel to existing US 51 through the Village of Ramsey, until joining existing US 51 one tenth of a mile north of CR 2885 N (3). The alternative continues along existing US 51 and ends less than one half mile north of CR 2900 N (4).



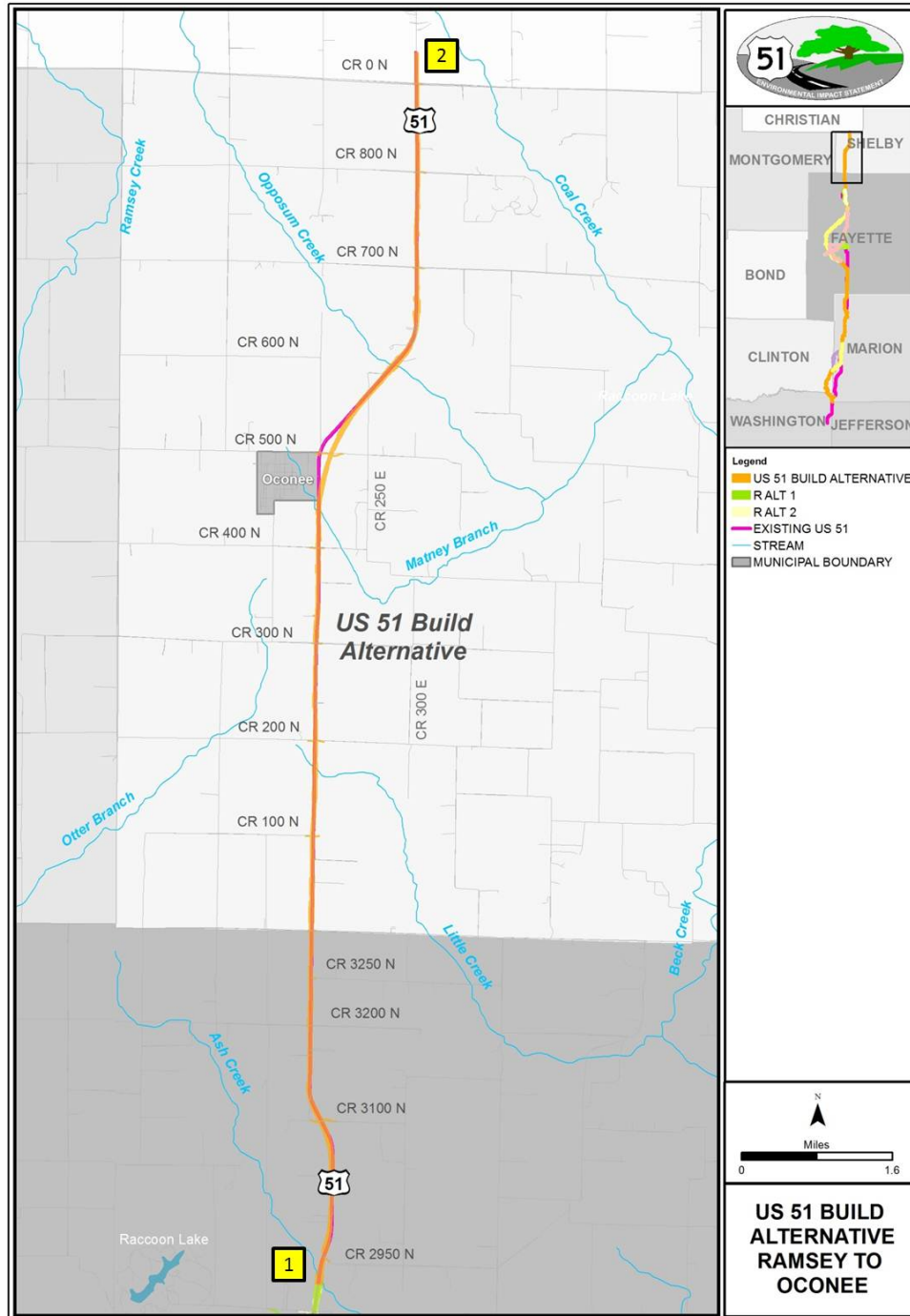
**Figure 2.3-13: R Alt 2**

This alternative is a bypass situated east of the Village of Ramsey. The southern limit is located approximately three tenths of a mile south of CR 2650 N (1). The alternative bypasses Ramsey by turning north (2) as existing US 51 continues northwest towards town. From this point, the alternative traverses north and is approximately 3,500 feet east of and parallel to existing US 51 through the Village of Ramsey until joining existing US 51 near CR 2900 N (3). The alternative continues along existing US 51 and ends less than one half mile north of CR 2900 N (4).



**Figure 2.3-14: US 51 Build Alternative - North of Ramsey to Christian/Shelby County Line**

This alternative follows the US 51 roadway north of Ramsey. Its southern limit is located approximately one tenth mile north of CR 2885 N (1). The alternative follows existing US 51 north for approximately 13.5 miles until the end of the project limits (2) joining a proposed 4-lane improvement south of Pana. The existing US 51 curve east of Oconee has been modified to provide safer access to the adjacent commercial businesses.

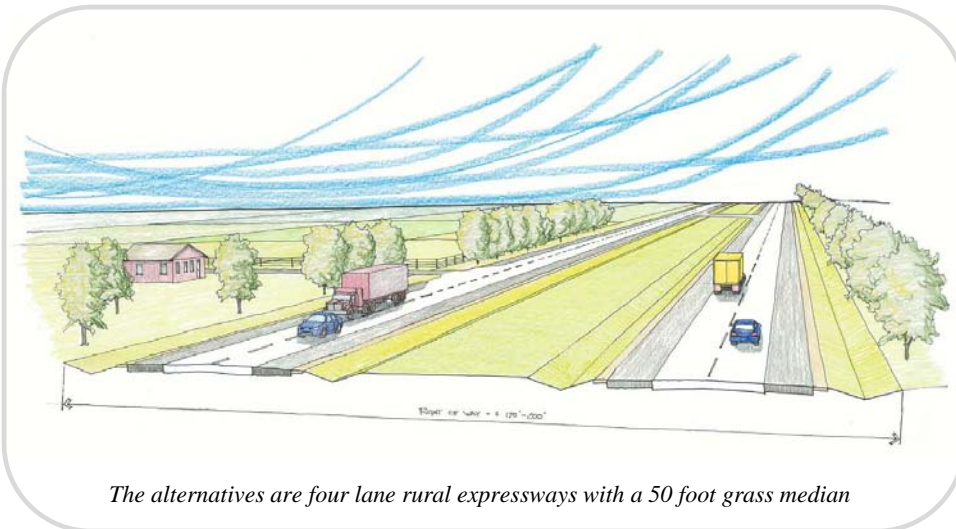




**What will the new road look like?**

**Roadway Type:**

The new highway will be a four-lane (two lanes in both directions) rural expressway with a 50 foot grass median. The one exception to the median width is Ramsey Creek Option A, which is a pair of one-way, two-lane highways (the northbound and southbound lanes are split).



Each of the four travel lanes is 12 feet in width with a ten foot paved shoulder along the outside lane. The total right-of-way of the road (including travel lanes, median, and ditches) is approximately 200 feet.

Within the project limits, US 51 is the only two-lane highway link in the four-lane north-south regional transportation network, composed of I-39, US 51, I-64, and I-57. The proposed expressway will improve mobility to the area by providing a facility with partial access control which will provide consistent speed limits and consistent access points. Additionally, with the improved mobility provided to the area as a result of the proposed project; residents, commercial traffic and local farmers will have a safer facility to complete their intended trips. Connectivity and continuity are issues that can be addressed by a transportation improvement that improves US 51 to four lanes.

**Speed Limit:** The speed limit will be 65 miles per hour (mph) along improved US 51.

**Interchanges:** The need for an interchange varies based on site-specific conditions. Factors reviewed to determine interchange location include access control, congestion, safety, site topography, road-user benefits, access, and traffic volumes. Based on the factors listed above, interchanges are proposed at the following roads:

- US 51 in Wamac: The US 51 Build Alternative joins existing US 51 in Wamac and Centralia with a trumpet interchange at the southern project limits, as shown in Figure 2.3-15 below.

**Figure 2.3-15: US 51 Build Alternative Interchange with Existing US 51 near Wamac**



- IL-161 west of Centralia: The US Build Alternative contains a new diamond interchange at IL-161 west of Centralia, as shown on Figure 2.3-16 below.

**Figure 2.3-16: US 51 Build Alternative Interchange with IL 161 in Centralia**



- US-50 near Sandoval: CS Alt 1 contains a diamond interchanges at US-50 west of Sandoval. CS Alt 2 includes a new diamond interchange east of Sandoval, as shown Figure 2.3-17 below.

**Figure 2.3-17: CS Alt 1 and CS Alt 2 Interchanges with US 50 near Sandoval**

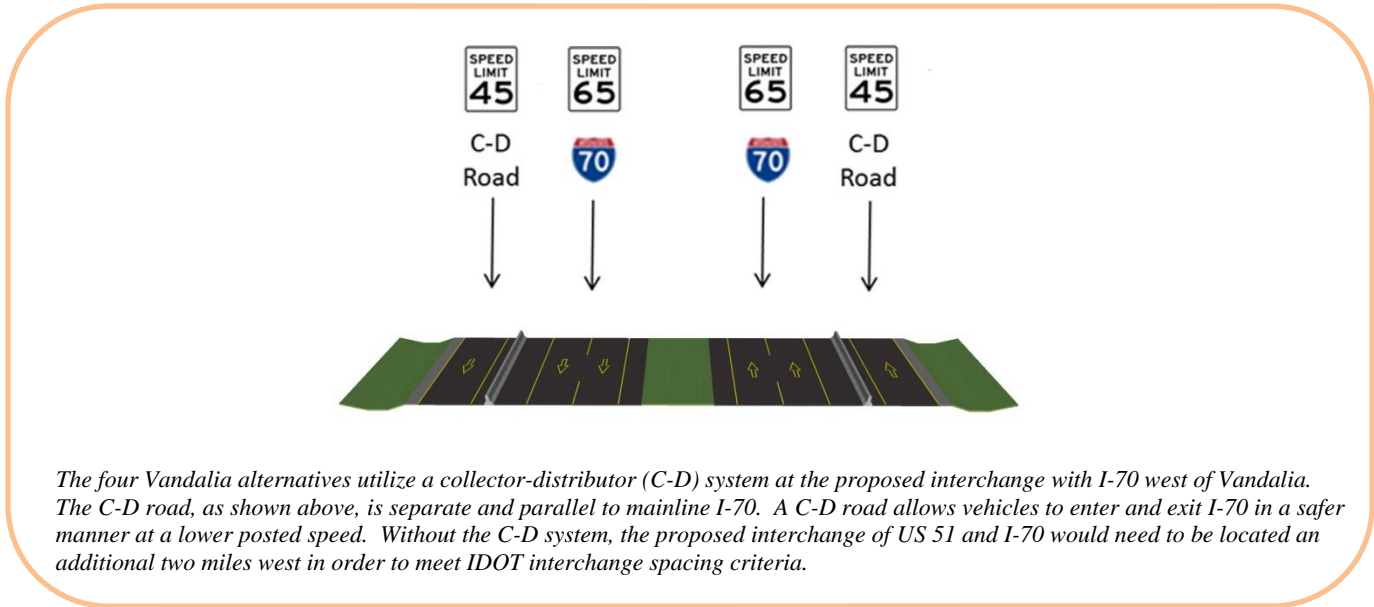


- I-70 in Vandalia: V Alt 4 contains a new interchange with I-70 west of Vandalia, as shown in Figure 2.3-18. The interchange utilizes a Collector-Distributor (C-D) system. A C-D system is an additional roadway parallel to but separated from the existing main line I-70 that provides the ability for vehicles to enter and exit in a safer manner. The C-D road will be between the new interchange and the existing interchange at I-70/US 40 (Exit 61).

**Figure 2.3-18: V Alt 4 Interchanges with I-70 West of Vandalia**



The speed limit on the C-D roads will be 45 mph. The C-D system allows the existing I-70/US 40 (Exit 61) interchange to remain open without impacting Vandalia businesses. Without the C-D system, the proposed US 51/I-70 interchange would be an additional two miles west to meet the spacing recommendation. An interchange located that far west of Vandalia was considered too far west by the VCAG.



*The four Vandalia alternatives utilize a collector-distributor (C-D) system at the proposed interchange with I-70 west of Vandalia. The C-D road, as shown above, is separate and parallel to mainline I-70. A C-D road allows vehicles to enter and exit I-70 in a safer manner at a lower posted speed. Without the C-D system, the proposed interchange of US 51 and I-70 would need to be located an additional two miles west in order to meet IDOT interchange spacing criteria.*

V Alt 4 also utilizes the existing interchange at US-51 and I-70 on the east side of town (Exit 63), as shown in the Figure 2.3-19. The existing interchange will require reconstruction.

**Figure 2.3-19: V Alt 4 Reconfiguration of Existing Interchange with I-70 on the East Side of Vandalia**



V Alts 1, 2, and 3 do not connect to I-70 via an interchange in Vandalia. An interchange with I-70 is not warranted for V Alts 1, 2, or 3. An interchange is also not warranted for V Alts 1, 2, or 3 at IL 185 in Vandalia.

**Access to Cross Roads:** Most of the existing side road intersections will remain open and will be located approximately every mile. They will all have designated turn lanes for the left and right turning vehicles. Some of the minor side roads will be closed or rerouted.

In addition to the two-way stop controlled intersections spaced approximately every mile, at some locations there will be median openings spaced at the half mile to provide a legal turn-around for all vehicles, including emergency vehicles.

Intersections are proposed at arterial streets as well as IL-185 in Vandalia.

**Residential Access:** Residential access along US 51 will be maintained. To ensure safety, residential driveways were spaced at least 500 feet from each other where possible. When two or more residential driveways are spaced closer together, a frontage road was developed to allow a single point of access along US 51.

Residential access points along mainline US 51 are right-in/right-out only. That means that a vehicle cannot take a left-hand turn onto US 51 from a residential driveway. At some locations there are openings in the median approximately every half mile to allow vehicles to turn around where an excessive number of field entrances and residential drives are located between crossroad intersections.

A residential driveway cannot be located within 300 feet of a side road. If an existing driveway that had direct access to US 51 was located within 300 feet of a side road, the driveway was relocated.

**Farm Access:** Similar to residential access, access to farm fields will be maintained with right-in/right-out driveways. No median openings will be provided for single farm access points along mainline US 51. That means that a vehicle cannot take a left-hand turn onto US 51 from a farm access driveway. At some locations there are openings in the median approximately every half mile to allow vehicles to turn around where an excessive number of field entrances and residential drives are located between crossroad intersections.

**Commercial Access:** Commercial access along existing US 51 will be provided. However, no commercial business can have direct access to US 51. All commercial access must be from a side road and frontage roads or service drives will be built as needed.

**Existing US 51 in Bypass Areas:** Existing US 51 will remain in place through the towns of Wamac, Centralia, Central City, Sandoval, Patoka, Vandalia, and Ramsey

where bypasses are planned. Existing US 51 will remain operational.

***What are the impacts resulting from the eleven alternatives carried forward for detailed study?***

The impacts to environmental, cultural, agricultural, and community resources resulting from the eleven remaining alternatives are evaluated and described throughout Chapter 3. The impacts resulting from the alternatives are analyzed in greater detail in this document than they were in Step 3 Macro Analysis and Step 4 Alignment Analysis. More detailed studies are included in this document, including a noise analysis.

A summary of the design characteristics and resource impacts resulting from each alternative is provided in Table 2.3-2. Refer to Section 2.3 for maps and descriptions of the various alternatives and Chapter 3 for detailed information about the resources and resource impacts.

**Table 2.3-2: Design Characteristics and Resources Affected by the Alternatives Carried Forward for Detailed Study**

Design Characteristics and Environmental Resources Affected	Remaining Alternatives										
	US 51 Build	CS Alt 1	CS Alt 2	V Alt 1	V Alt 2	V Alt 3	V Alt 4	RCOA	RCOB	R Alt 1	R Alt 2
<b>Design Characteristics</b>											
Length of Roadway (miles)	34.4	5.0	5.0	14.6	14.3	14.8	14.3	1.1	1.1	3.3	3.3
Right-of-Way required for Construction (acres) <sup>1</sup>	1,494.0	213.6	213.5	541.6	541.8	541.8	686.9	64.9	46.6	124.1	124.1
New Interchanges (number)	2	1	1	0	0	0	3	0	0	0	0
New Impervious Area (acres)	485.0	110.0	111.2	153.5	140.0	139.0	138.6	7.5	8.6	35.5	36.0
Estimated Cost (millions)	\$588.9	\$86.2	\$92.8	\$180.9	\$192.2	\$185.0	\$215.9	\$14.8	\$16.2	\$32.3	\$31.1
<b>Social/Economic Resources</b>											
Total Residences displaced (number) <sup>2</sup>	51	5	12	9	25	29	38	0	0	15	6
Businesses (non-agricultural) displaced (number)	5*	0	2	0	1	1	2	1	1	1	0
Worship Centers displaced (number)	0	0	0	0	0	0	0	0	0	0	0
<b>Agricultural Resources</b>											
Farm Residences displaced (number)	28	4	4	9	20	14	14	0	0	2	3
Farm Businesses displaced (number)	2	1	1	0	0	0	0	0	0	0	0
Agricultural Soils (acres)	877	169	148	500	433	408	279	22	13	68	94
Farm Severances (by tract)	58	11	27	39	29	26	14	1	1	7	5
Affected Farms (number)	245	39	47	78	84	84	67	9	8	21	15
Total Adverse Travel between Split Farm Parcels, Based on One Round Trip (miles) for each Operator	21.6	13.0	6.9	30.6	4.8	3.3	1.4	0	0	0.6	0.9
Prime Farmland (acres)	416	9	5	351	284	294	210	10	6	56	61
Statewide and Local Important Farmland (acres)	384	158	141	120	127	97	49	8.2	7	11	20
Landlocked Parcels (number)	0	0	0	0	0	0	0	0	0	0	0
<b>Cultural Resources</b>											
National Register-eligible Historic Resources with Adverse Effects (number)	0	0	0	0	0	0	0	0	0	0	0
<b>Noise Impacts</b>											
Residences, Classrooms, or Churches with Noise Impacts (number)	0	0	0	0	0	0	1	0	0	0	0
<b>Natural Resources</b>											
Forest Impacts (acres)	201	18	3	92	34	32	39	29	17	8	13
Large Forest Stands (acres)	13.89	0	0	30.77	0.77	0.77	0.77	11.57	4.52	0	0

**Table 2.3-2: Design Characteristics and Resources Affected by the Alternatives Carried Forward for Detailed Study**

Design Characteristics and Environmental Resources Affected	Remaining Alternatives										
	US 51 Build	CS Alt 1	CS Alt 2	V Alt 1	V Alt 2	V Alt 3	V Alt 4	RCOA	RCOB	R Alt 1	R Alt 2
Protected Species Potentially Affected (number)	6	2	2	2	2	2	2	2	2	2	2
<b>Special and Protected Lands</b>											
Nature Preserves Affected	0	0	0	0	0	0	0	0	0	0	0
Illinois Natural Areas Inventory Sites Affected (number/acres)	0	0	0	0	1/ 11.5	0	0	1/0.29	1/0.16	0	0
Parks and Forest Preserves Affected (number)	0	0	0	0	0	0	0	0	0	0	0
<b>Water Resources/Quality</b>											
Surface Water Crossings (number)	55	1	2	19	10	10	7	1	1	3	3
Private Water Wells displaced /within 200 feet (number)	8/17	0/1	0/0	4/1	4/13	7/17	6/10	0/1	0/1	3/3	1/2
<b>Floodplains</b>											
Floodplain along New Crossing (feet)	23,345	485	250	0	1,715	6,400	0	0	0	0	0
Floodplain along Existing Crossing (feet)	2,470	0	265	0	700	1,350	9,410	1,445	1,000	0	0
Floodplains Crossed (number)	11	1	1	0	2	2	2	1	1	0	0
<b>Wetlands</b>											
Wetland Impact (acres)	37.8	0.3	3.9	1.3	2.6	15.2	4.6	0.2	0.1	0.2	0.6
Wetland Impact (number)	38	5	9	5	9	11	14	3	2	4	3
<b>Special Waste Sites</b>											
Special Waste Sites Affected (number)	34	4	7	4	3	3	17	0	0	7	5

<sup>1</sup>Includes existing ROW

<sup>2</sup>Includes farm residences

\*2 of 5 businesses vacant/abandoned former commercial buildings



## 2.4 Preferred Alternative

### *How is a Preferred Alternative selected?*

The resource impacts resulting from the eleven remaining alternatives were compared in order to identify one Preferred Alternative in each community. Generally, the Preferred Alternative is the alternative that minimizes the impacts to environmental, cultural, agricultural, and community resources. Public input is considered when selecting the Preferred Alternative. However, FHWA and IDOT must comply with Federal and State laws. This means that the alternative selection cannot be based entirely on public input. The Preferred Alternative must meet the Purpose and Need Statement, and result in the relatively fewest impacts to environmental resources that are protected by Federal and State laws.

All of the eleven Build Alternatives meet the Purpose and Need of the project. Although the No Build Alternative does not meet the Purpose and Need, it can be selected as the Preferred Alternative if the impacts resulting from the Build Alternatives are of a magnitude that FHWA, IDOT, or the Federal and State resource agencies consider to be a greater environmental detriment than the No Build Alternative's inability to meet the project's Purpose and Need.

### *What are the Preferred Alternatives in each community?*

The Preferred Alternative for each community has not yet been determined. The US 51 Build Alternative will be recommended as the Preferred Alternative for the area between communities. The US 51 Build Alternative is located between communities where only one alternative remains. A Public Hearing will be held in spring of 2014. The input received from stakeholders following the Public Hearing and the results of the DEIS will be considered when selecting a Preferred Alternative. The Preferred Alternatives will be identified in the Final Environmental Impact Statement (FEIS).

The Preferred Alternative selection process will be unique for each community. As shown in Table 2.3-2, not all of the resources exist in each community, and not all resources were affected by the alternatives. In some cases, the alternatives in each community resulted in identical impacts to a given resource. These impacts could not be used to differentiate between the alternatives. Resources that were impacted differently in each community will be used to screen the alternatives. A discussion of the alternative impacts in each community is below.

#### **Preferred Alternative**

The Preferred Alternative is the final alternative that meets the purpose and need. Typically, the preferred alternative results in the least amount of impacts to the environmental, cultural, agricultural and community resources. The FHWA and IDOT consider public input when selecting the Preferred Alternative.

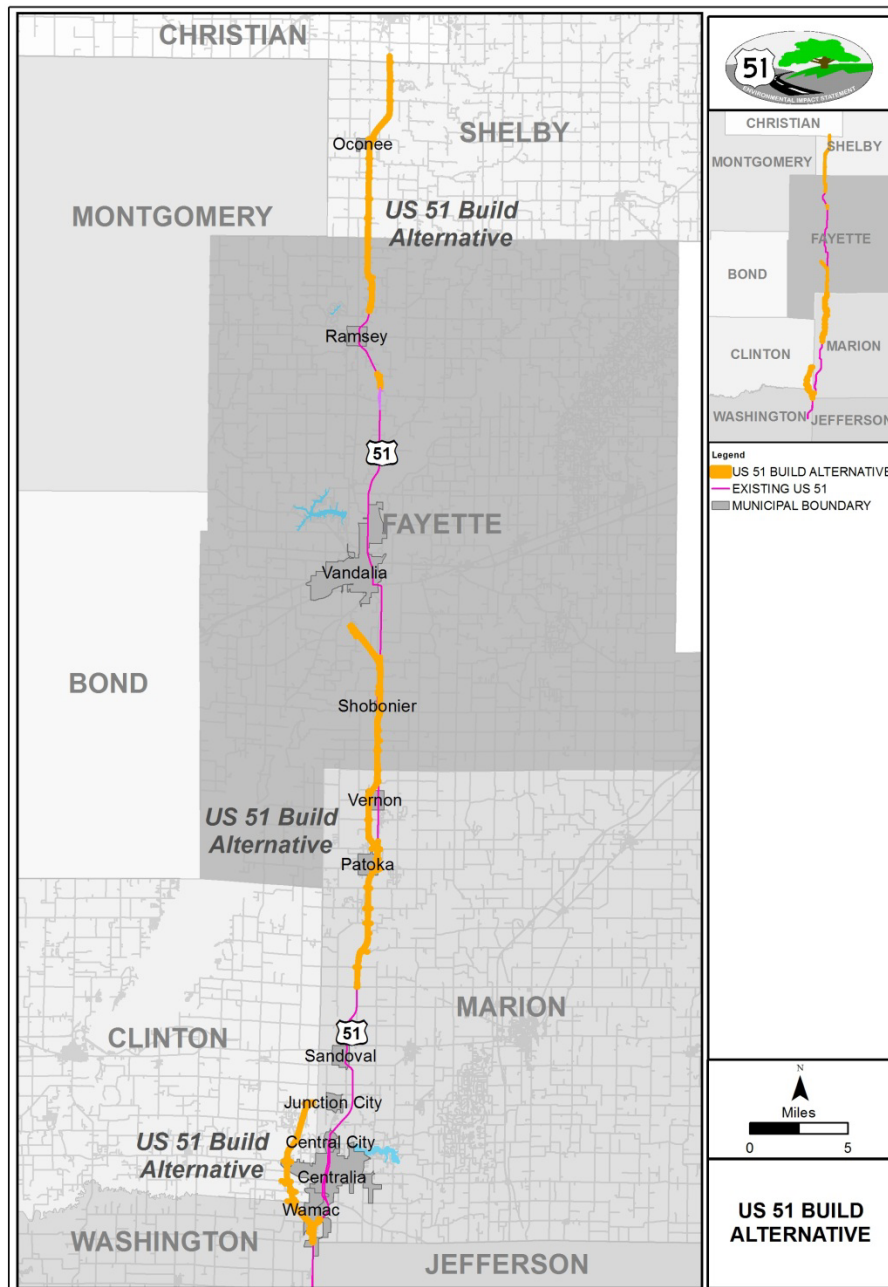
#### **Can the No Build Alternative be selected as the Preferred Alternative?**

The No Build Alternative may be selected as the Preferred Alternative if the environmental impacts resulting from the Build Alternatives are so great that FHWA, IDOT, or the Federal and State resource agencies consider selecting it.

US 51 Build Alternative

The alternative between the larger towns where there is only one remaining alternative is referred to collectively as the US 51 Build Alternative, and is shown in Figure 2.4-1. The US 51 Build Alternative bypasses existing US 51 to the west near Wamac, Centralia, Central City, Junction City, Vernon, and the southern portion of Vandalia. The US 51 Build Alternative travels along existing US 51 east of Patoka and along the rural areas between the large communities. The US 51 Build Alternative is compared against the No Build Alternative.

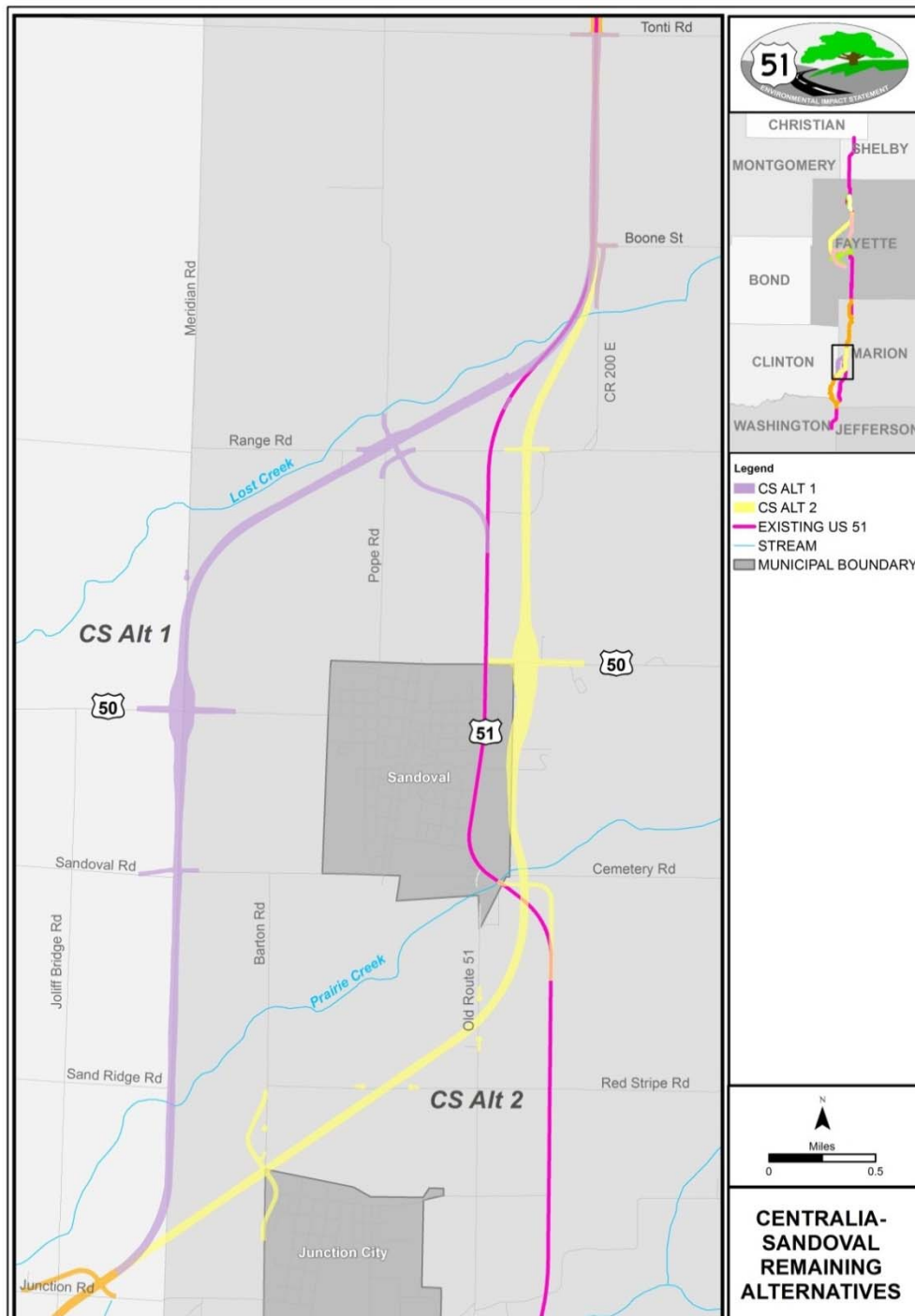
**Figure 2.4-1: US 51 Build Alternative**



Centralia-Sandoval Alternatives

The two remaining alternatives in Central-Sandoval are shown in Figure 2.4-2. The resources impacts that differed between the two Centralia-Sandoval alternatives are listed in Table 2.4-1. The resource impacts will be considered when identifying a Preferred Alternative in Centralia-Sandoval.

**Figure 2.4-2: Remaining Alternatives in Centralia-Sandoval**



**Table 2.4-1: Centralia-Sandoval Alternatives Design Characteristics and Resource Impacts**

Design Characteristics and Environmental Resources Affected	Remaining Alternatives	
	CS ALT 1	CS ALT 2
<b>Design Characteristics</b>		
Length of Roadway (miles)	5.0	5.0
Right-of-Way required for Construction (acres) <sup>1</sup>	213.6	213.5
Interchanges (number)	1	1
New Impervious Area (acres)	110.0	111.2
Estimated Cost (millions)	\$86.2	\$92.8
<b>Social/Economic Resources</b>		
Total Residences displaced (number) <sup>2</sup>	5	12
Businesses (non-agricultural) displaced (number)	0	2
<b>Agricultural Resources</b>		
Farm Residences displaced (number)	4	4
Farm Businesses displaced (number)	1	1
Agricultural Soils (acres)	169	148
Farm Severances (by tract)	11	27
Affected Farms (number)	39	47
Total Adverse Travel between Split Farm Parcels, Based on One Round Trip (miles) for each Operator	13.0	6.9
Prime Farmland (acres)	9	5
Statewide and Local Important Farmland (acres)	158	141
<b>Natural Resources</b>		
Forest Impacts (acres)	18	3
Protected Species Potentially Affected (number)	2	2
<b>Water Resources/Quality</b>		
Surface Water Crossings (number)	1	2
Private Water Wells displaced /within 200 feet (number)	0/1	0/0
<b>Floodplains</b>		
Floodplain Crossed along New Crossing (feet)	485	250
Floodplain Crossed along Existing Crossing (feet)	0	265
Floodplains Crossed (Number)	1	1
<b>Wetlands</b>		
Wetland Impact (acres)	0.3	3.9
Wetland Impact (number)	5	9
<b>Special Waste Sites</b>		
Special Waste Sites Affected (number)	4	7

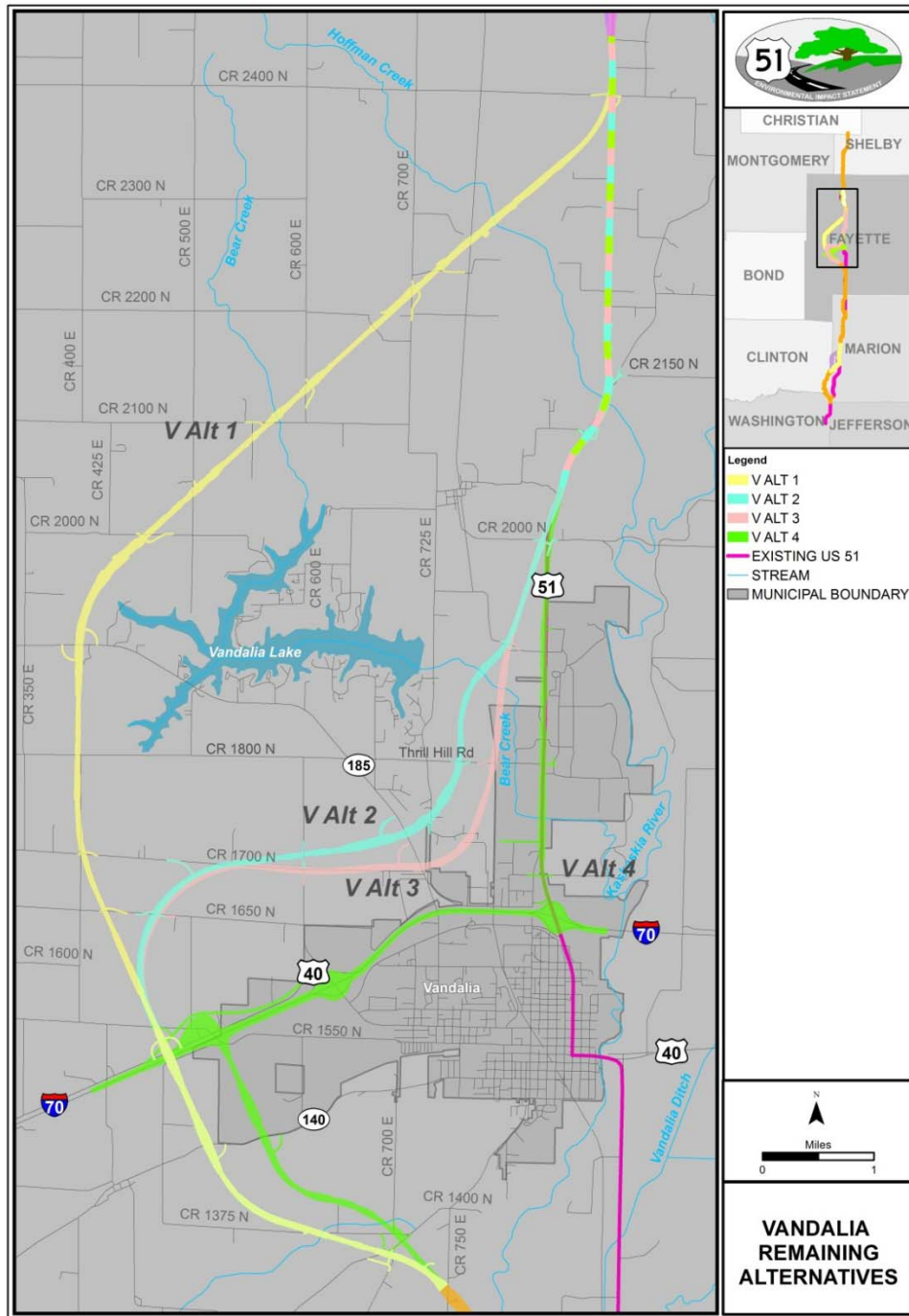
<sup>1</sup>Includes existing ROW

<sup>2</sup>Includes farm residences

Vandalia Alternatives

The four remaining alternatives in Vandalia are shown in Figure 2.4-3. The design characteristics and the resources that are impacted by the Vandalia alternatives to different magnitudes are listed in Table 2.4-2. The impacts will be considered when evaluating the alternatives in Vandalia.

**Figure 2.4-3: Remaining Alternatives in Vandalia**



**Table 2.4-2: Vandalia Alternatives Design Characteristics and Resource Impacts**

Design Characteristics and Environmental Resources Affected	Remaining Alternatives			
	V ALT 1	V ALT 2	V ALT 3	V ALT 4
<b>Design Characteristics</b>				
Length of Roadway (miles)	14.6	14.3	14.8	14.3
Right-of-Way Required for Construction (acres)	541.6	541.8	541.8	686.9
Interchanges (number)	0	0	0	2
New Impervious Area (acres)	153.5	140.0	139.0	138.6
Estimated Cost (millions)	\$180.9	\$192.2	\$185.0	\$215.9
<b>Social/Economic Resources</b>				
Total Residences Displaced (number)	9	25	29	38
Businesses Displaced (number)	0	1	1	2
<b>Agricultural Resources</b>				
Farm Residences Displaced (number)	9	20	14	144
Agricultural Soils (acres)	500	433	408	279
Farm Severances (by tract)	39	29	26	14
Affected Farms (number)	78	84	84	67
Total Adverse Travel between Split Farm Parcels, Based on One Round Trip for each Operator (miles)	30.6	4.8	3.3	1.4
Prime Farmland (acres)	351	284	294	210
Statewide and Local Important Farmland (acres)	120	127	97	49
<b>Noise Impacts</b>				
Residences, Classrooms, or Churches with Noise Impacts (number)	0	0	0	1
<b>Natural Resources</b>				
Forest Impacts (acres)	92	34	32	39
Large Forest Stands Impacted (acres)	30.77	0.77	0.77	0.77
Protected Species Potentially Affected (number)	2	2	2	2
<b>Special and Protected Lands</b>				
Illinois Natural Areas Inventory Sites Affected (number/acres)	0	1/ 11.5	0	0
<b>Water Resources/Quality</b>				
Surface Water Crossings (number)	19	10	10	7
Private Water Wells Displaced / Within 200 feet (number)	4/1	4/13	7/17	6/10
<b>Floodplains</b>				
Floodplain Crossed along New Crossing (feet)	0	1,715	6,400	0
Floodplain Crossed along Existing Crossing (feet)	0	700	1,350	9,410
Floodplain Crossed (number)	0	2	2	2
<b>Wetlands</b>				
Wetland Impact (acres)	1.3	2.61	15.2	4.6
Wetland Impact (number)	5	9	11	14
<b>Special Waste Sites</b>				
Special Waste Sites Affected (number)	4	3	3	17

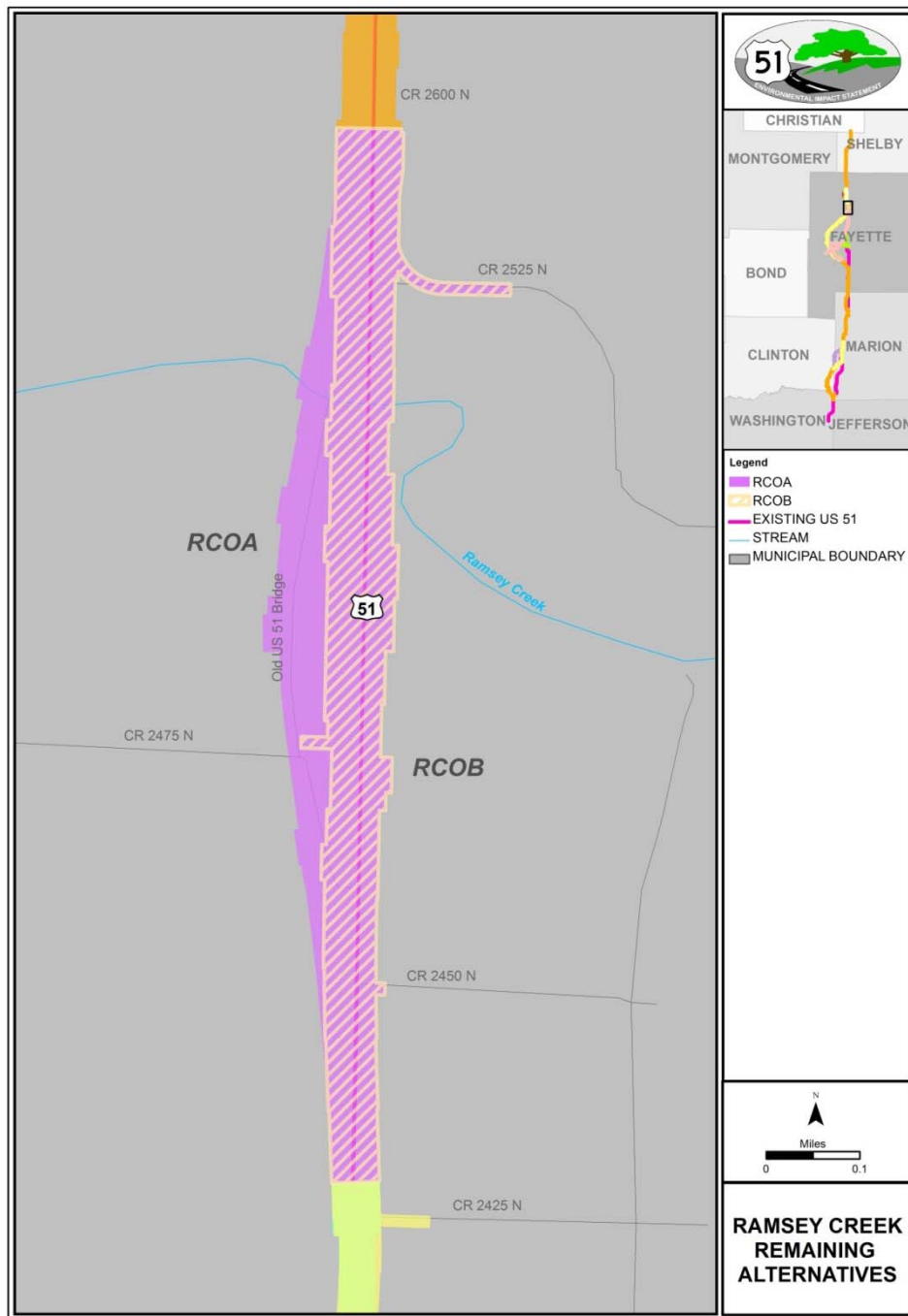
<sup>1</sup>Includes existing ROW

<sup>2</sup>Includes farm residences

Ramsey Creek Alternatives

The two remaining alternatives near Ramsey Creek are shown in Figure 2.4-4. The design characteristics and resources impacts that differed between the two Ramsey Creek alternatives are listed in Table 2.4-3. The resource impacts will be considered when identifying a Preferred Alternative.

**Figure 2.4-4: Remaining Alternatives near Ramsey Creek**



**Table 2.4-3: Ramsey Creek Alternative Design Characteristics and Resource Impacts**

Design Characteristics and Environmental Resources Affected	Remaining Alternatives	
	RCOA	RCOB
<b>Design Characteristics</b>		
Length of Roadway (miles)	1.1	1.1
Right-of-Way required for Construction (acres) <sup>1</sup>	64.9	46.6
New Impervious Area (acres)	7.5	8.6
Estimated Cost (millions)	\$14.8	\$16.2
<b>Social/Economic Resources</b>		
Businesses (non-agricultural) displaced (number)	1	1
<b>Agricultural Resources</b>		
Agricultural Soils (acres)	22	13
Farm Severances (by tract)	1	1
Affected Farms (number)	9	8
Prime Farmland (acres)	10	6
Statewide and Local Important Farmland (acres)	8.2	7
<b>Natural Resources</b>		
Forest Impacts (acres)	29	17
Large Forest Stands (acres)	11.57	4.52
Protected Species Potentially Affected (number)	2	2
<b>Special and Protected Lands</b>		
Illinois Natural Areas Inventory Sites Affected (number/acres)	1/0.29	1/0.16
<b>Water Resources/Quality</b>		
Surface Water Crossings (number)	1	1
Private Water Wells Displaced / Within 200 feet (number)	0/1	0/1
<b>Floodplains</b>		
Floodplain Crossed along Existing Crossing (feet)	1,445	1,000
Floodplains Crossed (Number)	1	1
<b>Wetlands</b>		
Wetland Impact (acres)	0.2	0.1
Wetland Impact (number)	3	2

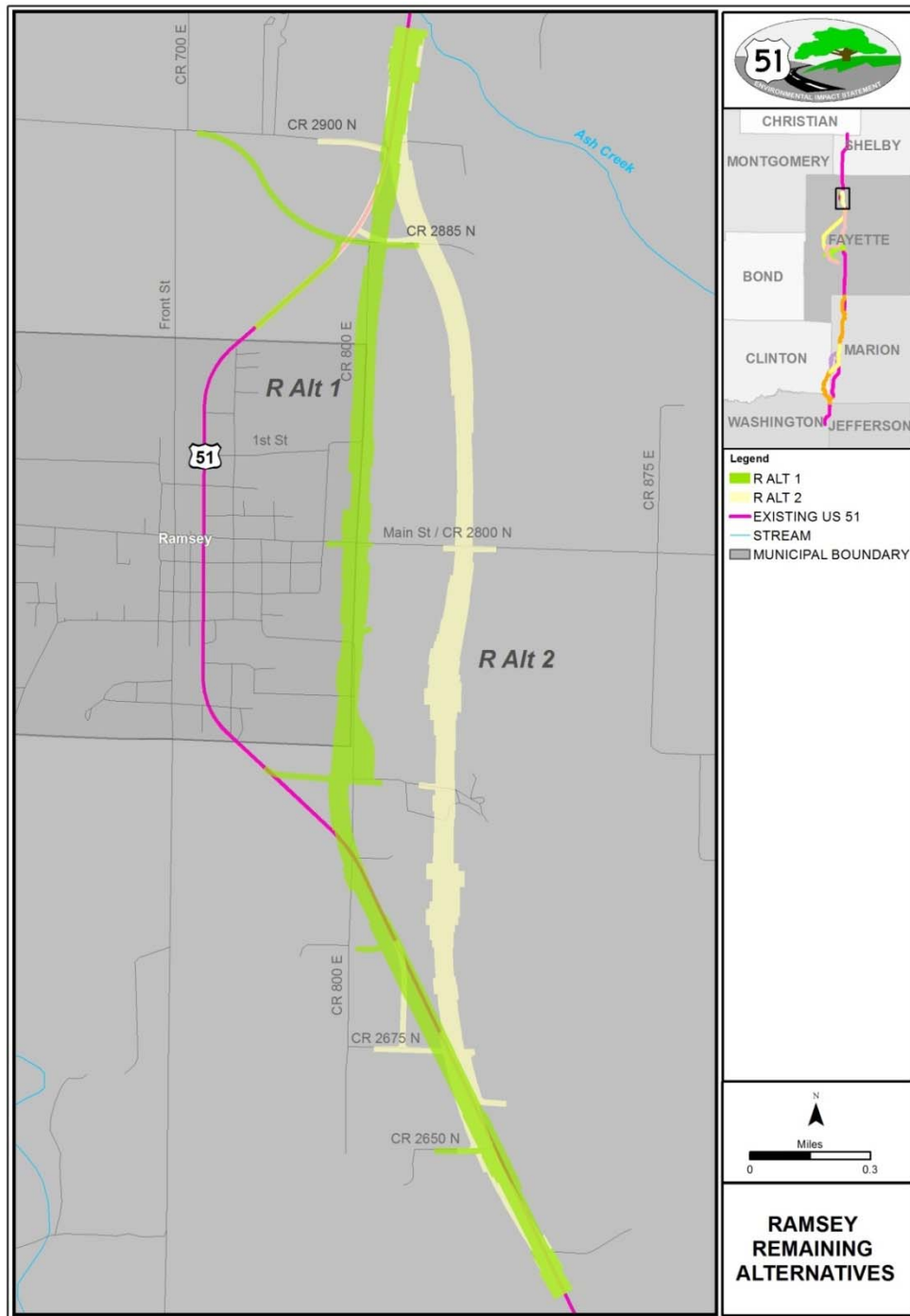
<sup>1</sup>Includes existing ROW



Ramsey Alternatives

The remaining alternatives in Ramsey are shown in Figure 2.4-5. The design characteristics and resources impacts that differed between the two Ramsey alternatives are listed in Table 2.4-4. The resource impacts will be considered when identifying a Preferred Alternative.

**Figure 2.4-5: Remaining Alternatives in Ramsey**



**Table 2.4-4: Ramsey Alternatives Design Characteristics and Resource Impacts**

Design Characteristics and Environmental Resources Affected	Remaining Alternatives	
	R ALT 1	R ALT 2
<b>Design Characteristics</b>		
Length of Roadway (miles)	3.3	3.3
Right-of-Way Required for Construction (acres) <sup>1</sup>	124.1	124.1
New Impervious Area (acres)	35.5	36.0
Estimated Cost (millions)	\$32.3	\$31.1
<b>Social/Economic Resources</b>		
Total Residences Displaced (number) <sup>2</sup>	15	6
Businesses Displaced (number)	1	0
<b>Agricultural Resources</b>		
Farm Residences Displaced (number)	2	3
Agricultural Soils (acres)	68	94
Farm Severances (by tract)	7	5
Affected Farms (number)	21	15
Total Adverse Travel between Split Farm Parcels, Based on One Round Trip (miles) for each Operator	0.6	0.9
Prime Farmland (acres)	56	61
Statewide and Local Important Farmland (acres)	11	20
<b>Natural Resources</b>		
Forest Impacts (acres)	8	13
Protected Species Potentially Affected (number)	2	2
<b>Water Resources/Quality</b>		
Surface Water Crossings (number)	3	3
Private Water Wells Displaced /Within 200 feet (number)	3/3	1/2
<b>Wetlands</b>		
Wetland Impact (acres)	0.2	0.6
Wetland Impact (number)	4	3
<b>Special Waste Sites</b>		
Special Waste Sites Affected (number)	7	5

<sup>1</sup>Includes existing ROW

<sup>2</sup>Includes farm residences

Summary

The Preferred Alternative in each community will be selected based on the environmental resource impacts and stakeholder input received after the Advisory Group meetings which were held in summer 2013, and the Public Hearing which will be held in spring of 2014. Environmental Resource Agency input will also be considered when selecting the Preferred Alternative.

