Chapter 2

Alternatives

This chapter describes the process of evaluating and selecting the viable alternatives for this study. Included is an explanation of how the preliminary alternatives were developed and how they were pared down to a more manageable number of reasonable links, through an extensive evaluation and a comparative impact matrix.

Early in the process, MoDOT personnel met with officials from the Federal Highway Administration (FHWA) to form a core study team. This group was responsible for developing the criteria and guidelines necessary for a consistent, comprehensive, and comparative evaluation of alternatives within the project corridor.

The alternatives were evaluated in three stages: a Preliminary Range, a Reasonable Range, and the Preferred Alternative. Initially, because of the large number of preliminary links, the evaluation was divided into regional sections. Each region contained a town or community and the evaluation of the alternatives for each region focused on potential impacts to the respective communities. After this process was completed, the corridor alternatives were determined, to provide an overall sense of the totality of the potential impacts throughout the study corridor.

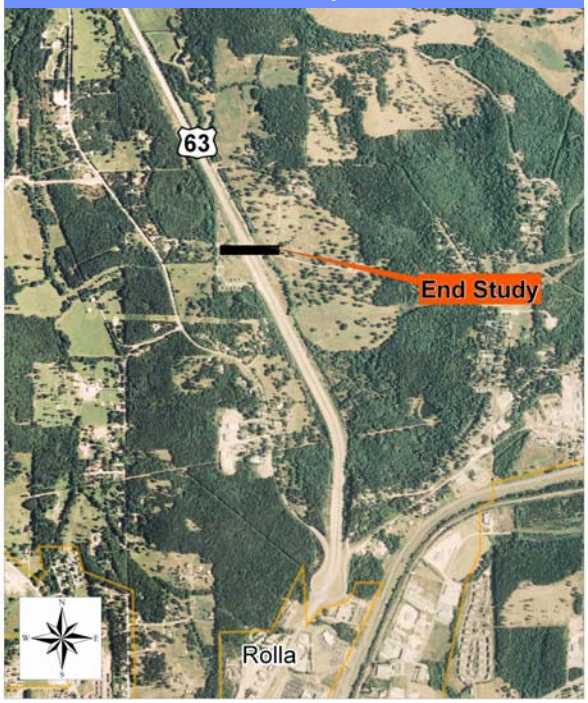
After this extensive tiered evaluation process, a Preferred Alternative was recommended. The entire Preferred Alternative is a combination of the preferred links for each individual region. Together, these regional preferred alternatives comprise the Preferred Alternative for the entire study corridor.

How were the beginning and ending points of the study developed?
The logical beginning point at the northern end of the project is where the southern portion of the Route 50/Route 63 interchange in Osage County is a four-lane divided highway (Figure 5).

The southern termini point is in Phelps County where Route 63 transitions to a four-lane divided highway just north of Rolla (Figure 6).

Figure 5. Logical Beginning Point at the North End of the Study Corridor

Figure 6. Logical Ending Point at the South End of the Study Corridor



What highway improvements have been made within the study area?
Once the beginning and ending points were established, the study team determined there were sections of Route 63 with recent improvements that could be used as part of a new highway corridor. Taxpayer dollars were spent on these improvements, and it was felt the most prudent and feasible plan would be to use as much of the improved highway as possible.

There are three upgraded sections of Route 63 that have right of way available for a future four-lane divided highway and one section that has been recently widened with improved intersections. The improved sections include better sight distance, smoother curves, wider lanes and shoulders, climbing lanes, and right of way for future improvements. Some of the preliminary alternatives were located to possibly incorporate these upgraded sections.

Sight Distance: the distance required for a driver to control the operation of their vehicle to avoid striking an unexpected object in the highway.

As shown in Figure 7, the first improved section of Route 63 is just south of Westphalia. In 1985, a 164-foot bridge over the Maries River overflow and a 324-foot bridge over the Maries River were constructed with a 44-foot wide two-lane roadway and an additional 12-foot wide climbing lane south of the Maries River Bridge. Right of way was purchased for this improvement and for a future expansion to a four-lane divided highway on the east side of the existing route.

Also shown in Figure 7 is the second improved section of Route 63 located south of Vienna that was constructed in the early 1980s. This 6.7-mile improvement included a new 995-foot bridge across the Gasconade River as well as a new and improved two-lane 44-foot wide highway with three intermittent sections of 12-foot wide climbing lanes. Additional right of way was purchased for this new improvement for future expansion to a four-lane divided highway. These improvements were constructed on a new location resulting in an improved alignment.

Figure 7. Existing Improvements to Route 63

Super 2: a term used to designate an improved highway with two 12-foot wide lanes and 8 to 10-foot wide paved shoulders.

In 2007, a 6.5-mile 'Super-2' project was completed on Route 63, from north of the Route 28 intersection, to the Phelps County line. This section was widened to provide two 12-foot lanes and 7.5 to 10-foot paved shoulders with a curb-and-gutter section through Vichy (Figure 7).

In addition to the widening, intersection improvements were made to the Route 28 intersection, and the Route 68 intersection was relocated to improve safety. No additional right of way was purchased for a future four-lane divided highway.

Figure 7 highlights a two-lane section of Route 63 that was constructed in 1983 from the Maries/Phelps County line to Rolla. This project included two 12-foot lanes, 10-foot aggregate shoulders and new right of way. Additional right of way was purchased on the west side of the highway for future expansion to a four-lane divided highway. This section would have also been considered a "Super 2" if the shoulders had been paved.

What steps were taken to involve the public as well as federal, state, and local agencies in the study process prior to developing alternatives?

As the lead federal agency, FHWA initiated correspondence to state and federal agencies asking if they would like to be cooperating and/or participating agencies. FHWA also sent notification letters to various Native American Indian Tribes seeking their input on the proposed project. An agency scoping meeting was held with state and federal agencies, including the Missouri Department of Natural Resources (MDNR), Missouri Department of Conservation (MDC), and U.S. Army Corps of Engineers (USACE), to initiate the development of the Route 63 Draft Environmental Impact Statement (DEIS).

MoDOT also met with the Osage, Maries and Phelps County Commissions to discuss the study and gain input on the Purpose and Need of the improvements to Route 63. Based upon recommendations from the County Commissioners and the Meramec Regional Planning Commission, MoDOT developed the Route 63 Advisory Committee. MoDOT met with the new advisory committee before the first open-house public meeting.

The advisory committee meeting was an opportunity for the committee members to learn about the environmental study process, get to know the study area and its Purpose and Need, and to review the displays MoDOT had prepared for the first round of public meetings. It also provided an opportunity for MoDOT to gather feedback from the committee about the information presented to them. As a result, a few additional displays were created to address questions regarding highway options and the costs associated with each, the growth in traffic volumes, and the percentage of truck traffic.

The first open-house public meeting was held during the fall of 2006. This meeting was an opportunity for the public to receive information and to discuss the purpose of the study and help determine what actions, if any, were needed to best serve the transportation needs along the 47-mile stretch of Route 63. The public was able to share their ideas and actually draw lines on a map indicating where they thought the future Route 63 should be constructed. The meeting also allowed the study team to obtain additional information regarding the area's resources, businesses, and sensitive environmental and cultural resource constraints.

Traffic growth, crashes, prior location studies, and the use of the existing alignment were some of the issues resulting from the initial meeting. Most comments from the public indicated a positive response to the study and requested some action be taken to address Route 63. About sixty percent of the participants suggested expanding at least a portion of the highway to four lanes. Others suggested adding turn lanes or passing lanes in various locations or realigning the highway around communities in the area. Comments from the initial public meeting can be found in Appendix B.

Why was the No-Build Alternative considered throughout the study? How was it considered?

The National Environmental Policy Act (NEPA) requires the consideration of the No-Build Alternative throughout the entire process as a comparison against other alternatives.

NEPA requires integration of environmental values into federal agency decision-making processes by considering the environmental impacts of the proposed actions and reasonable alternatives to those actions.

The No-Build Alternative would leave existing Route 63 in its present state without additional upgrades or improvements. This alternative is used as a comparison to other alternatives and to justify the improvements needed to existing Route 63. As funding becomes available, spot improvements could be made to locations with a high crash history.

The No-Build Alternative **does not:**

- Reduce the number and severity of crashes along the existing highway.
- Reduce access issues. There are numerous residential and commercial entrances along Route 63 often causing abrupt and unexpected changes in traffic speed resulting in rear-end crashes, as seen in the crash analysis maps. This situation is especially hazardous with a 16 percent volume of truck traffic that requires longer distances to stop.
- Improve traffic flow. Traffic studies show some segments of the route already have problematic traffic congestion reflected by a measurably poor Level of Service and by 2037 there will be additional segments reaching poor Levels of Service (Table 1).
- Provide north/south four-lane design continuity. Numerous sections of Route 63 have been improved throughout the state. This stretch of Route 63 needs improvement to continue the process of corridor continuity throughout the state.

- Improve roadway deficiencies such as narrow shoulders, poor sight distance, steep hills and sharp curves. A good example is "Paydown Curve" in Maries County where county road entrances are located near curves and hills with limited sight distance.

Table 1. Level of Service (LOS) Comparison

Route 63 Segment	2007 LOS	2037 LOS (No-Build)	2037 LOS (Preferred Alternative)
US 50 to Rte. 133	D	D	A
Rte. 133 to Rte. T	D	D	A
Rte. T to Rte. E	C	D	A
Rte. E to Rte. JJ	C	D	A
Rte. JJ to Rte. P	D	E	A
Rte. P to Rte. AA	C	D	A
Rte. AA to Rte. 42	E	E	A
Rte. 42 to Rte. 28 (Spur)	E	E	A
Rte. 28 (Spur) to MO 28 S. Jct.	C	D	A
MO 28 S. Jct. to Rte. A	C	D	A
Rte. A to MO 28 N. Jct.	D	D	A
MO 28 N. to Jct. FF	D	D	A
Jct. FF to MO 68	C	D	A
MO 68 to Rte. P	C	D	A
Rte. P to Log 205	C	D	A

Level Of Service (LOS)

A characterization of the performance of the highway relating to speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. A level of service of 'A' means the highway is least congested, whereas an "F" is the most congested. An appropriate LOS for this type of highway with rolling terrain is 'B'. (*American Association of State Highway and Transportation Officials Geometric Design of Highways and Streets – 2004*, Chapter 2 Design Controls and Criteria)

Build Alternatives

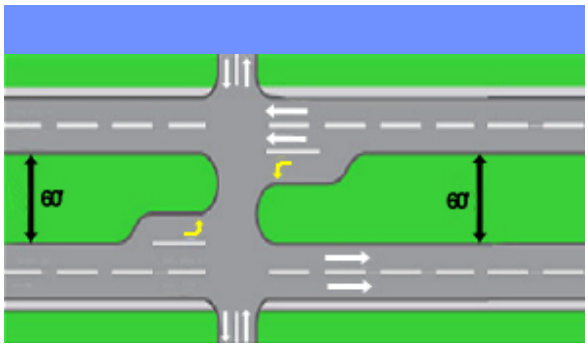
How was the Preliminary Range of Alternatives developed?
MoDOT and FHWA partnered with government agencies, stakeholders, and the public to develop and analyze the various alternatives for improvements to Route 63. The study team began the development of the Preliminary Range of Alternatives by collecting technical and environmental data for the study area.

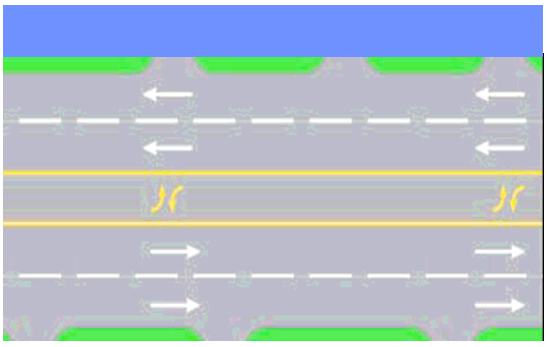
"Rolling Terrain" is typical throughout Osage, Maries and Phelps Counties.

MoDOT specialists performed an initial environmental and cultural resource survey along a corridor following existing Route 63. The total width of the study corridor was from one to two miles wide. Environmental and cultural resource constraints included, but were not limited to, cemeteries, historic places, sensitive biological species, public water systems, sensitive streams, potential wetlands, MDC properties, 100-year floodplain areas, and other resources.

An additional step in laying out the Preliminary Range of Alternatives was to determine the design criteria to be used. These criteria are fundamental roadway design elements adhering to the American Association of State Highway and Transportation Officials (AASHTO) guidelines, *A Policy on Geometric Design of Highways and Streets-2004*. The rolling terrain in the study area has an effect on the design parameters used. All design criteria and design parameters are recommended guidelines. Practical design and value engineering principles will be employed in the design process to provide the needed transportation solution in the most efficient manner.

The development and evaluation of the Preliminary Range of Alternatives assumed a four-lane divided highway configuration on new alignment and a five-lane section through the communities (Figures 8 and 9).





Three-dimensional (3-D) topographic maps were used to evaluate existing terrain and to layout possible alternatives in strategic areas such as along ridgelines, valleys or in areas of less abrupt ground elevation changes. With rolling terrain, however, it is not possible to avoid some large cuts and fills.

Cut and Fill: terms used to describe the excavation of earth and material on high spots and the placement of rock and this material in low spots to level the ground and create a flatter platform for a new highway.

Aerial photography was also used to locate alignments away from visible structures such as homes or farm buildings and environmentally sensitive constraints found during the initial environmental screening.

Tax assessment maps were used to locate approximate property lines so corridors could be set to minimize dividing large farms and properties. Once alignments were placed on the maps, field checks were conducted to ensure the corridors would intersect existing state routes and public roads in locations providing good sight distance and improved safety.

What is the Preliminary Range of Alternatives?

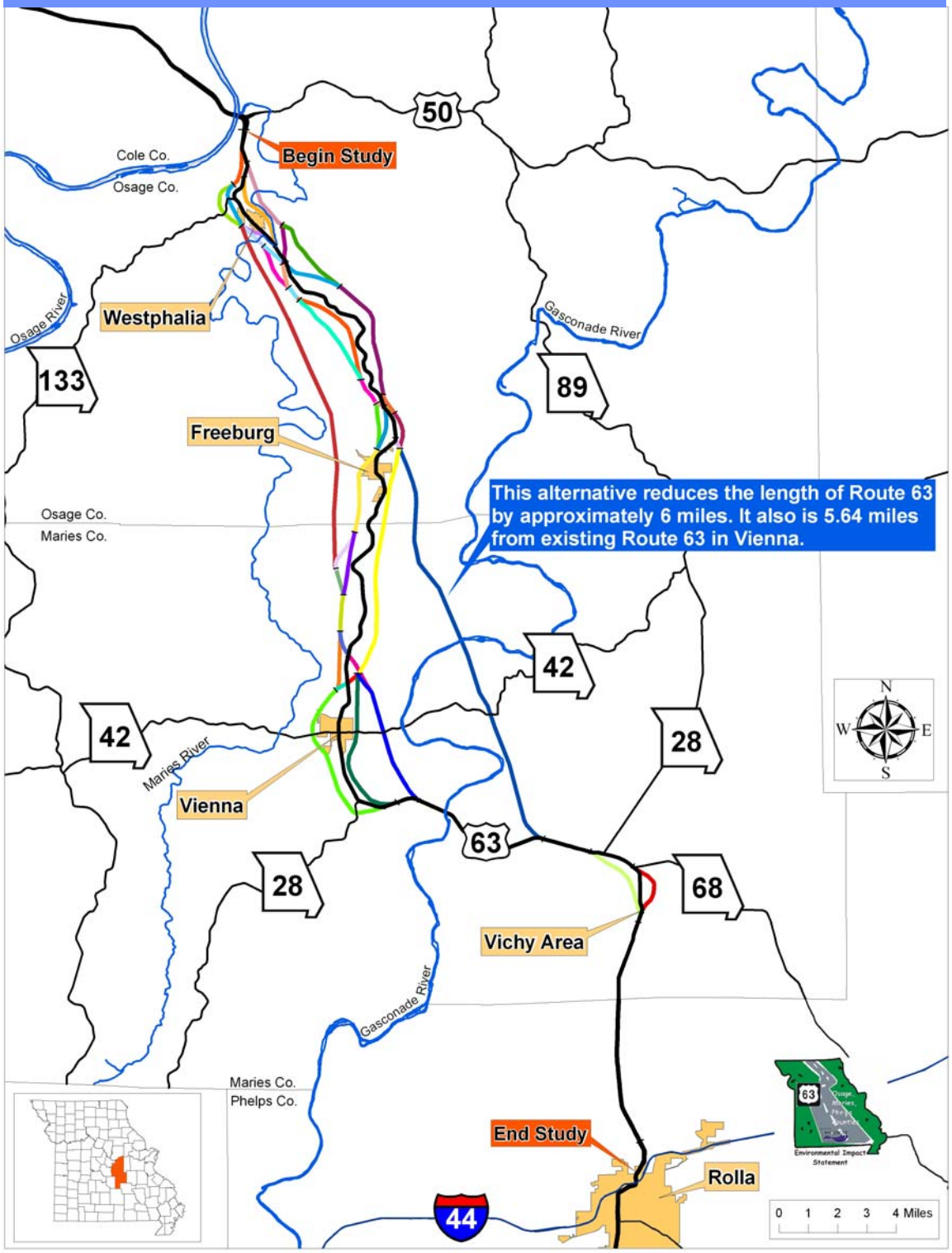
Figure 10 shows the Preliminary Range of Alternatives consisting of 61 links. Each link is colored and can be combined with a number of other links to get from one end of the study area to the other. Existing Route 63 is shown below in black within the study limits. Some links on the east side can combine with links on the west side by using a connector link.

The Preliminary Range of Alternatives was located to the east, west, and along the existing Route 63. A 750-foot corridor width was used for new alignments because it was expected to provide adequate width to accommodate a four-lane divided highway. A 300-foot corridor width was used for alternatives falling along the existing route because less land is required for roadway improvements. Detailed maps showing the Preliminary Range of Alternatives can be found in Appendix C.

In May 2007, the study team presented the public with the Preliminary Range of Alternatives to address the Draft Purpose and Need of the Route 63 Environmental and Location study. Nearly 450 people attended the public meetings to view the information, ask questions, and provide comments (Appendix B, Public Involvement and Meetings).

Public meeting in Vienna

Figure 10. Preliminary Range of Alternatives



How was the Reasonable Range of Alternatives developed?
Based on evaluation of the input received from the public, as well as technical, environmental, and cultural resource data gathered so far, the study team narrowed the Preliminary Range of Alternatives to the reasonable range. As the study progressed, additional traffic data was gathered to help make determinations about the future location of the highway. Further environmental and cultural resource surveys were also used to help screen the preliminary alternatives to the reasonable range. Federal, state, and local agencies were consulted for input at the preliminary alternative screening point as well.

Widening along the entire Route 63 roadway (improving the existing facility) was eliminated as an overall alternative early in the study. The existing roadway has curves and hills that do not meet current roadway design guidelines, resulting in poor sight distance for several entrances and public roads. Constructing an additional set of lanes along the existing route would require extensive reconstruction of the existing lanes to fix the hills and curves.

The entire corridor is also lined with homes and business that would be adversely affected by widening the existing route. The additional construction to handle traffic during the roadway improvements would impact several of these residences and commercial buildings. In addition, the access points at these locations would continue to impede travel flow along the existing corridor as well as introduce potential accident 'conflict' points, which are locations where collisions could occur. Although widening along the existing was eliminated as an overall alternative, the study team tried to utilize as much of the existing roadway as possible without compromising the safety of the traveling public.

A Preliminary Alternatives Matrix, which included engineering, right of way, environmental, and cultural resource considerations, was used to evaluate each link in the Preliminary Range of Alternatives. A matrix, a tool used in most environmental studies and modified for use in the Route 63 EIS, was developed by the study team to screen the Preliminary Range of Alternatives to the reasonable range. For definitions and data in the matrix, see Appendix C. Below is a list of the considerations included in the matrix.

Some public comments showed concern about routing traffic around the communities and losing general tax revenue from the businesses. As a result of these comments, MoDOT partnered with the Missouri Department of Economic Development to conduct a Community and Business Impact Study. The purpose of the study was to evaluate what impact, if any; an improved highway would have on area businesses. A license plate survey was conducted at a variety of businesses in each community to determine where the customers lived.

The results of the survey indicated the majority of customers frequenting these businesses resided in the same county where the businesses were located. From the report it was determined that the alternatives bypassing the towns were viable alternatives to consider and carry forward to the Reasonable Range of Alternatives. The report can be found in Appendix D.

Public Input
Comments Submitted from Public
Coordination with Local, State and Federal Agencies

Engineering Considerations
New Alignment Length
Number of Creek/Stream Crossings
Travel Time
Number of Bridges/River Crossings
Accident Rating
Ruggedness of Terrain Rating
Constructability Rating
Local Road Access Points

Right of Way Impacts
Parcels Impacted
Relocations
New Right of Way
Commercial Impacts
Existing Right of Way

Environmental Impacts
Impact to Communities Recreational Use Facilities, Privately Owned Parklands
Threatened and Endangered Species
Wetlands
Hazardous Waste Locations
Floodplains
Other Publicly Noted (Potential) Environmental Constraints
Airports

Cultural Resources Impacts
Cemeteries
Registered Historic Properties
Other Publicly Noted (Potential) Cultural Constraints

Which alternatives were considered, but not carried forward, and why?
After all the data was placed in the Preliminary Alternatives Matrix, the study team collaborated on which alternatives to drop because of potential negative impacts to the criteria set forth in the matrix. Figures 11 through 15 illustrate which links were not carried forward for further consideration and the reasons why.

Figure 11. Links Not Carried Forward for Further Consideration

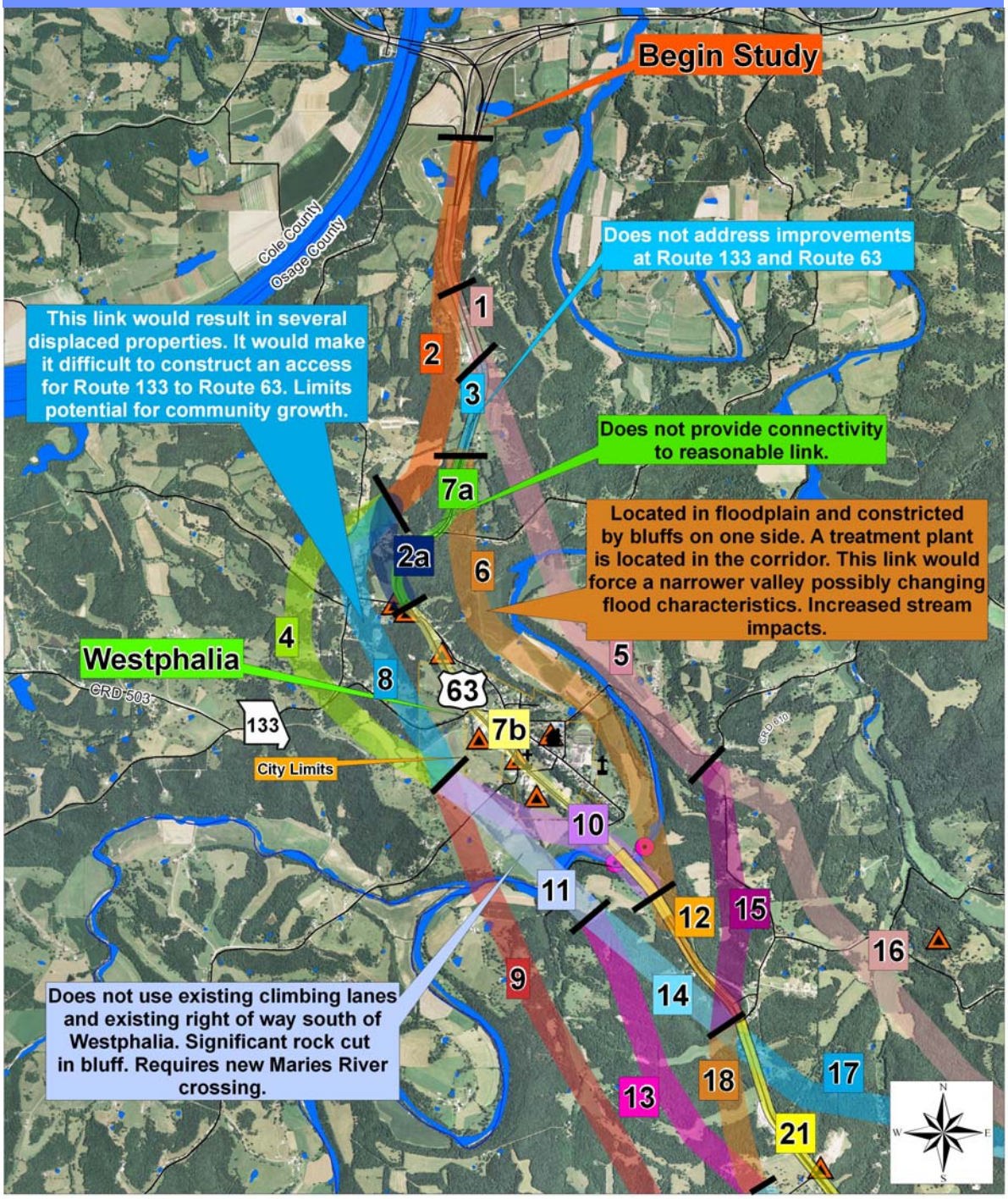


Figure 12. Links Not Carried Forward for Further Consideration

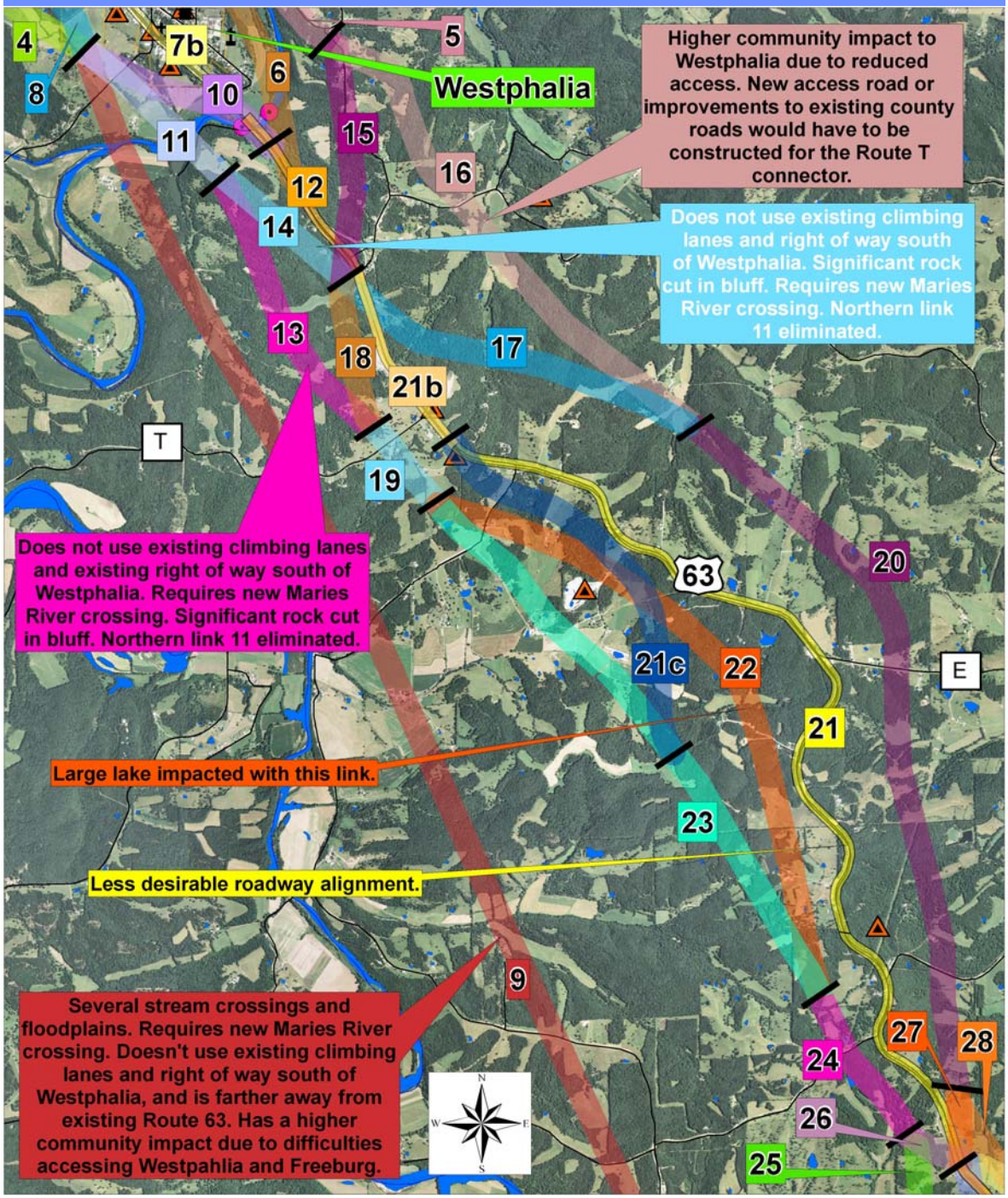


Figure 13. Links Not Carried Forward for Further Consideration

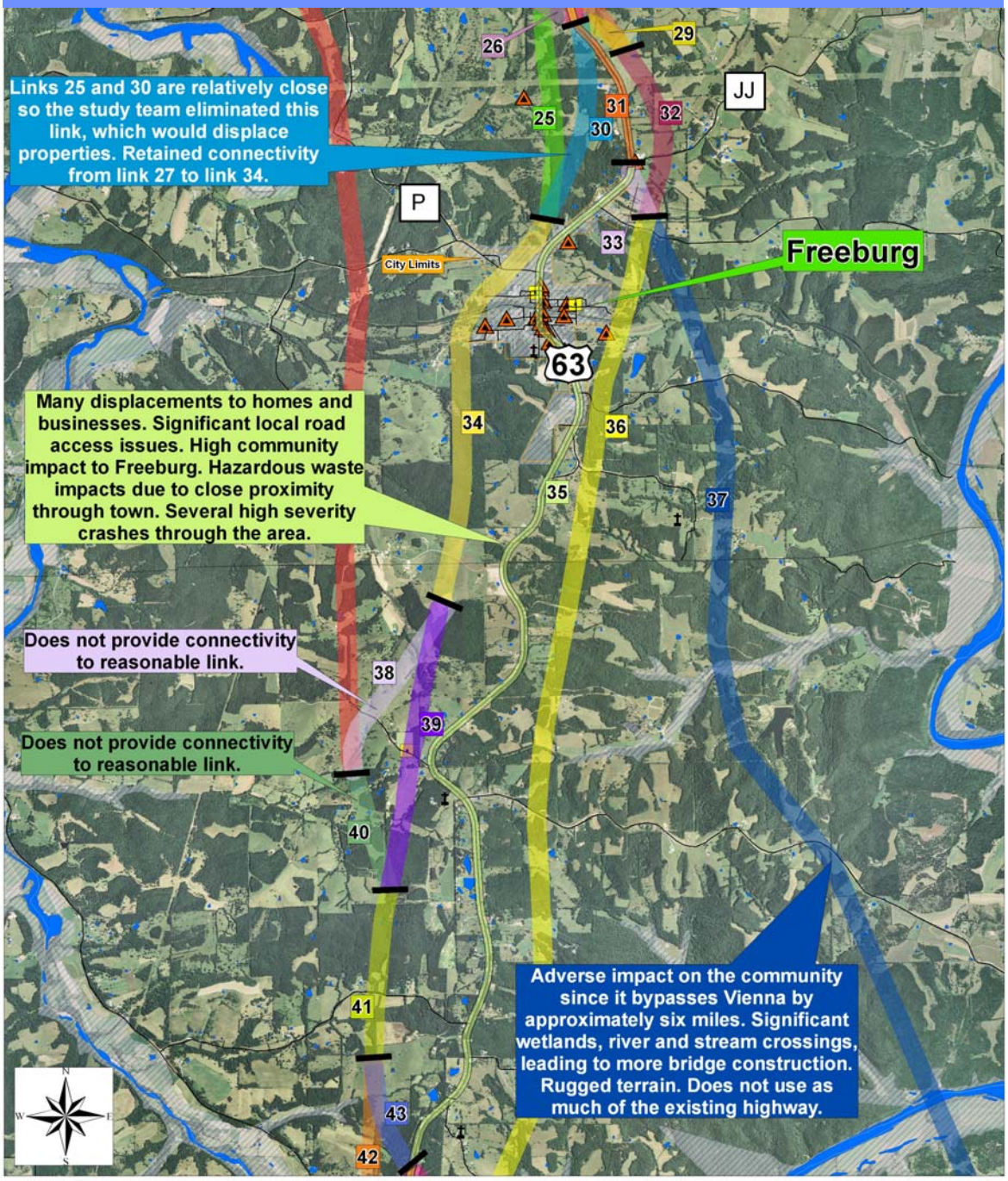


Figure 14. Links Not Carried Forward for Further Consideration

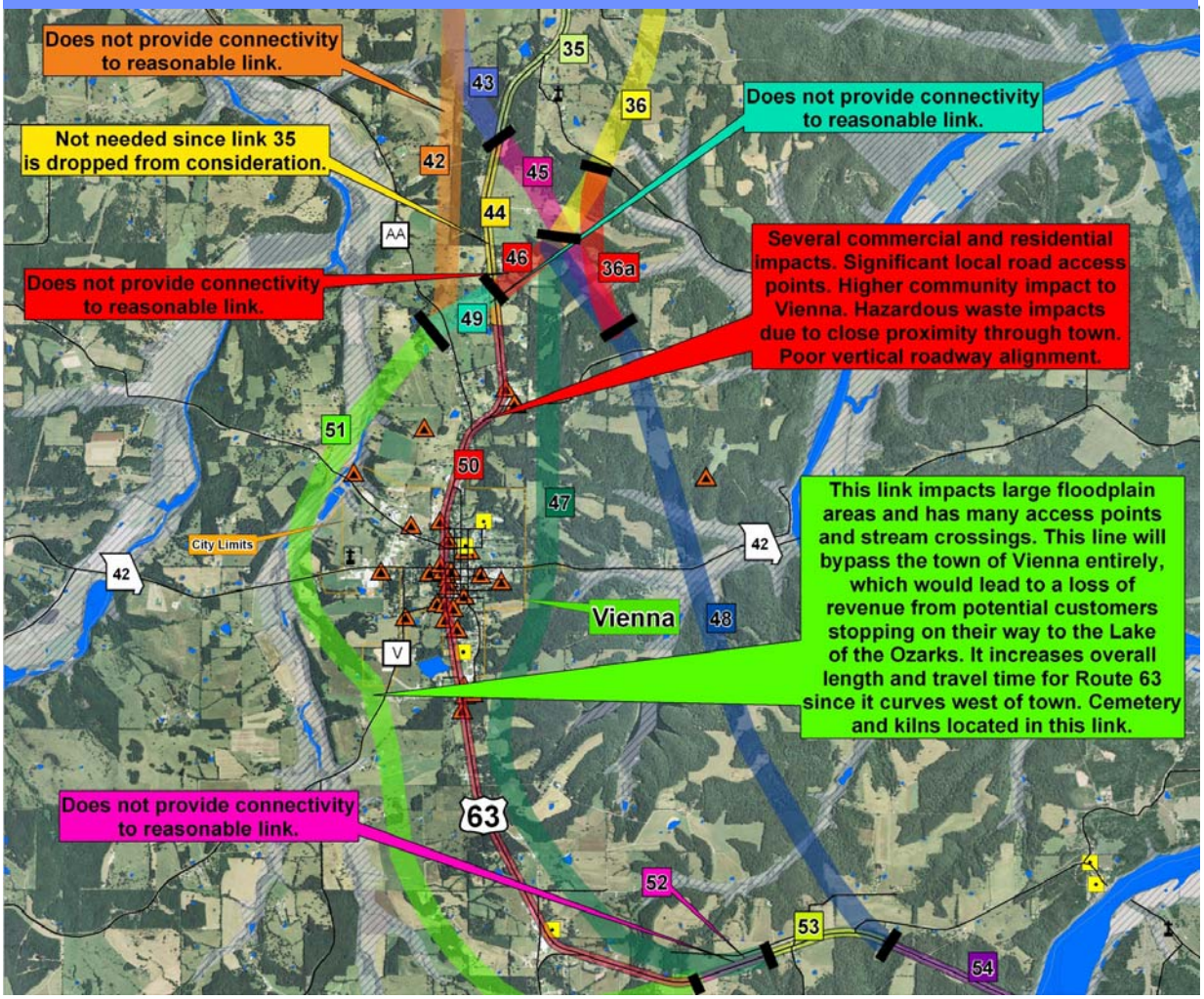
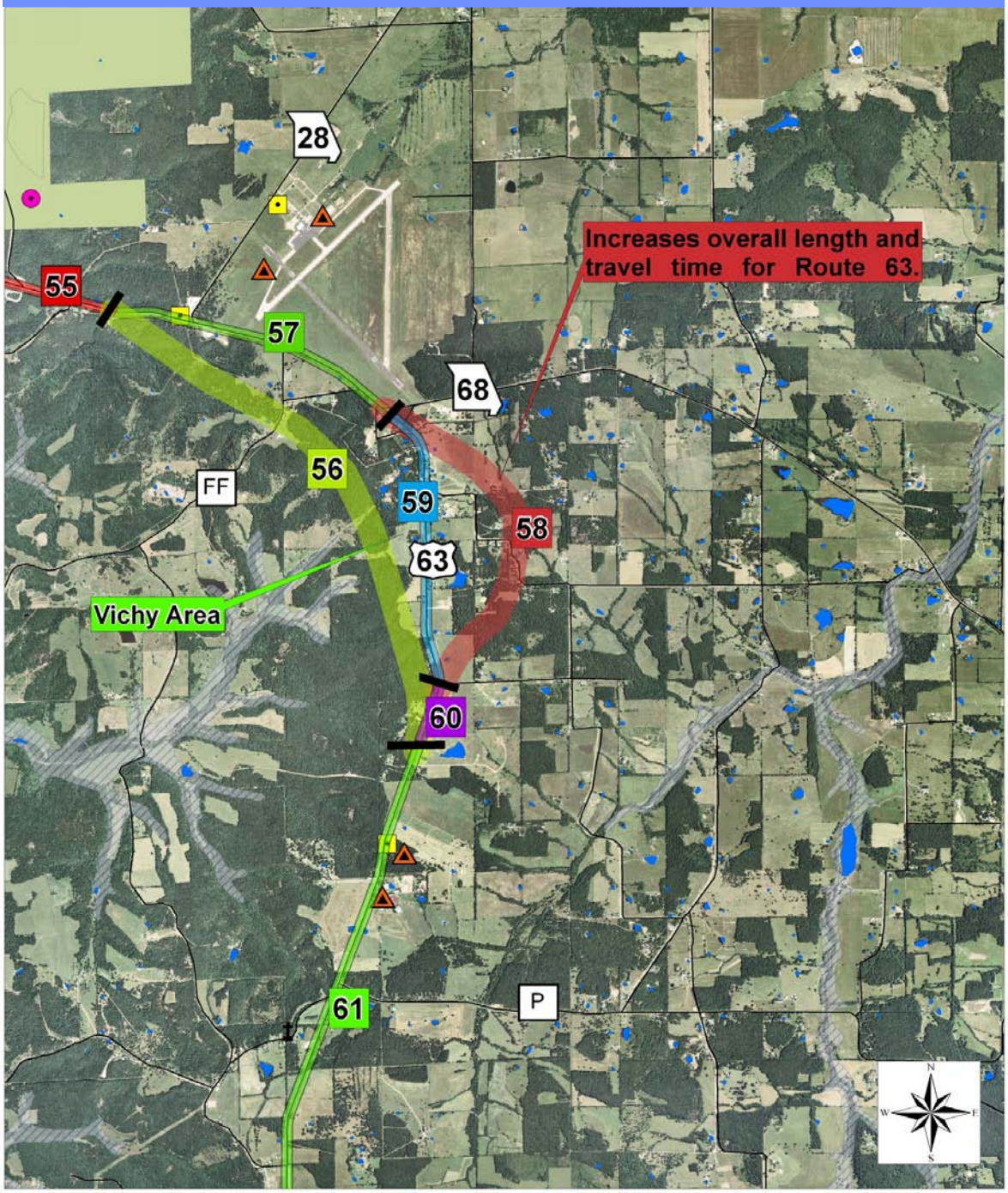


Figure 15. Links Not Carried Forward for Further Consideration



What is the Reasonable Range of Alternatives?
Once the study team completed their evaluation of the links and decided which ones were not being carried forward for further consideration, the remaining links were connected to form larger segments and named the Reasonable Range of Alternatives.

Beginning and ending points were assigned to groups of links or segments where they converged to a common point. Sections were created along the corridor corresponding to their geographical location and called the Westphalia Section, South of Westphalia Section, Freeburg Section, Vienna Section, and Vichy Section. The point-to-point segments and their corresponding sections are used as a point of reference in the evaluation of the Reasonable Range of Alternatives.

The Reasonable Range of Alternatives includes the No-Build Alternative along with several build alternatives. The configuration consists of a four-lane roadway divided by a grassed median on new alignments. There are also sections within the reasonable range where the existing roadway can be utilized and widened to a four-lane divided highway with a grassed median (Figures 8 and 9, page 15). The configuration through the communities of Westphalia and Vichy consists of a five-lane roadway.

Prior to the public meetings to present the Reasonable Range of Alternatives, an advisory committee meeting was held to share a summary of the screening process, including how segments were eliminated and the information on the remaining thirty-seven links in the reasonable range. The advisory committee functioned as a "sounding board" for the study team throughout the development of the alternatives. In addition to general guidance from the committee regarding the displays for the upcoming public meetings, the following comments were made regarding the alternatives:

- The Purpose and Need of the study is defeated if the Preferred Alternative goes through towns. Studies have shown that bypasses close to towns will not significantly impact the businesses.
- Use improved sections of existing Route 63.
- Address access issues.

When the Reasonable Range of Alternatives was finalized, the alternatives were presented to the public. In Westphalia, 258 people attended the meeting, and 176 people attended the meeting in Vienna. In addition to the Reasonable Range of Alternatives displays on aerial and topographic maps, the Economic Development study and displays representing Route 63 being widened to five lanes through each town were depicted. Comments from each public meeting are located in Appendix B-Public Involvement and Meetings.

Public meeting in Westphalia

What criteria were used to proceed from the Reasonable Range of Alternatives to a Preferred Alternative?

The Preliminary Range of Alternatives Matrix used for moving alternatives forward from the preliminary range to the reasonable range was further modified and renamed the Reasonable Range of Alternatives Matrix (Appendix C*)*. Stream mitigation and right of way costs were added. Ruggedness of terrain and constructability ratings were combined and translated into construction costs.

Route 50 in Moniteau County: an example of "light grading"

The construction costs were derived from MoDOT's Engineering Policy Guide Section 104.7 (www.modot.org.). The *Cost Estimate Guide for Rural Preliminary Design* includes costs per mile for various grading types (Appendix C).

Two recently bid four-lane divided highway projects in the central district area were used for cost comparison because they had current construction and material costs and similar terrain as in the Route 63 corridor area. One project was located through Cole and Moniteau counties on Route 50 and the other was located in Camden County on Route 5.

The Route 50 project west of Jefferson City, Missouri, had gently rolling hills and relatively flat farmland that required light grading. A lower cost per mile for the Route 63 study was assigned to areas of similar terrain.

Route 5 in Camden County: an example of "heavy grading"

In comparison, Route 5 in Camden County, Missouri, had continuous rolling terrain with heavy grading.
A high cost per mile was used for the Route 63 study on areas with similar terrain. The segments were evaluated, initially assuming a grading type for a whole segment.

After reviewing the construction costs, the segments were re-evaluated to get a more accurate cost, because longer segments could possibly have both light grading and heavy grading along their lengths.

The right of way costs were derived from a cost per mile based on a project with similar right of way impacts, i.e. Route 50 west of Jefferson City, Missouri. Homes, farms and business buildings were located by counting rooftops from aerial maps. Field observations were made to check for accuracy.

Public comments received from the public meetings on the Reasonable Range of Alternatives were considered. Most of the comments throughout the study were divided equally between the east and west alternatives. (Comments from the public meeting can be found in Appendix B.)

When data collection for the Reasonable Range of Alternatives Matrix was completed, the Route 63 EIS study team met to evaluate the new information and determine which links should move forward for further consideration. Collaboration from the study team led to the development of the Preferred Alternative. This resulted in reducing the Reasonable Range of Alternatives from thirty-seven to twenty-one links.

General comments from the study team regarding the selection of the Preferred Alternative are mentioned below. The study team compared the various alternatives in each section.

Westphalia Section

Widening the existing highway through Westphalia was not selected as the Preferred Alternative for the following reasons:

- An abundance of access points along the existing highway through Westphalia can lead to increased crashes.
- Westphalia has the second highest number of crashes in the study area following the City of Vienna.
- Westphalia has the highest traffic volume in the study area.
- There are several public facilities resulting in additional traffic: one public school, one Catholic school, public hall with soccer fields, baseball field, and a retirement center.
- Widening the existing highway to a five-lane section would potentially impact portions of thirteen commercial properties and six residential properties.
- Utilizing the existing highway through Westphalia would not allow for improvements to the steep hill on the north end of town.

The east alternative was not selected as the Preferred Alternative for the following reasons:

- The east alignment requires the removal and replacement of large amounts of earthen material.
- Requires two large bridges in the river valley.
- Does not use existing climbing lanes and right of way on the south end of town.
- Requires the community of Westphalia to use the existing highway instead of the new alignment, unless expensive connections were to be built.
- Construction costs would be higher than the other alternatives.
- Potential impact to historic properties.

South of Westphalia Section
The east alternative was not selected as the Preferred Alternative for the following reasons:

- The longest alternative, thus resulting in more costs.
- Less direct route.

The existing route and connector to the west was not selected as a Preferred Alternative for the following reasons:

- Impacts commercial and residential properties the most.
- Less desirable alignment.
- More costs than far west.

Freeburg Section
The east alternative was not selected as the Preferred Alternative for the following reasons:

- There are more potential historic properties than the west alternative.
- The longest alternative, thus resulting in more costs.
- More access points including public roads.
- Relatively close to the city wastewater treatment plant.

Vienna Section
The near-east alternative was not selected as the Preferred Alternative for the following reasons:

- More relocations than the far-east alternative.
- More length resulting in additional costs.
- Less direct route.
- Less desirable alignment.
- Close proximity to school.

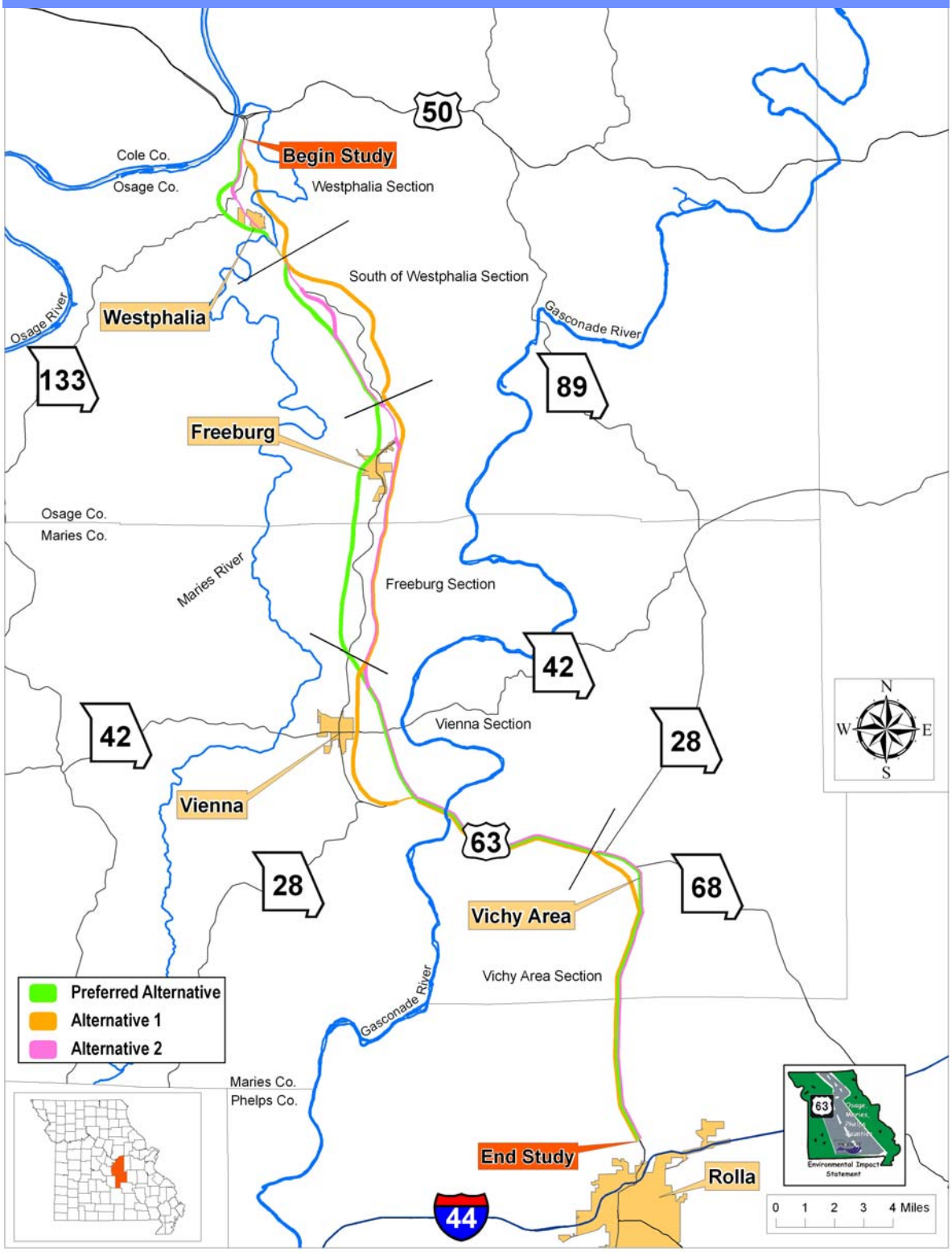
Vichy Section
The west alternative was not selected as the Preferred Alternative for the following reasons:

- Does not utilize recent improvements made along existing alignment through town.
- Does not utilize intersection improvements at Route 68 and Route 63.
- Requires the removal and replacement of large amounts of earthen material.
- Significantly more costs than widening along the existing route.

After the study team compared the various alternatives in the Westphalia Section, South of Westphalia Section, Freeburg Section, Vienna Section and Vichy Section, the preferred links from each section were connected together to form the Preferred Alternative for the entire 47 mile length of the study.

The remaining links were then connected together to form Alternative 1 and Alternative 2. Alternative 1 is the combined reasonable alternatives making up an eastern alignment and Alternative 2 is a combination of all links along the existing route that were considered reasonable. Some of the reasonable links along the existing route were combined with links of the Preferred Alternative to form a continuous alternative. Figure 16 illustrates the Reasonable Range of Alternatives. (Detailed maps can be found in Appendix C.)

Figure 16. Reasonable Range of Alternatives



Once the alignments reflecting the Preferred Alternative and Alternatives 1 and 2 were determined, the matrix (Table 2) was finalized to show the total impacts to the Preferred Alternative as well as to the Alternative 1 and Alternative 2 alignments.

When comparing the totals in the matrix:

- The Preferred Alternative total cost is slightly more than Alternative 2 but less than Alternative 1.
- The Preferred Alternative had fewer negative impacts as a whole than either Alternative 1 or Alternative 2, but slightly more stream length and wetland impacts.
- The Preferred Alternative had more parcels impacted than Alternative 1 but less than Alternative 2, had less residential relocations than both alternatives, had more commercial relocations than Alternative 1 but had much less than Alternative 2.
- The Preferred Alternative had less right of way costs than Alternative 2, but more than Alternative 1.

Table 2. Total Impacts of Each Alternative				
	Units	Preferred	Alternative 1	Alternative 2
Engineering Considerations				
New Alignment Length	Miles	44.6	45.6	44.0
Traffic Flow (Travel Time)	Min.	41.7	42.0	41.7
Bridges	No.	2	3	2
Stream Mitigation Cost (millions)	$	13	10	10
Construction Costs (millions)	$	145.5	188.8	137.7
Access Points	No.	166	143	189
Right of Way Impacts				
Parcels Impacted	No.	306	298	320
Residential Relocations	No.	27	28	38
Commercial Relocations	No.	15	2	33
Right of Way Costs Est. (Millions)	2008 $	29.0	28.4	37.3
Right of Way – New Acres	Acres	2,796	2,961	2,468
Right of Way – Existing Acres	Acres	226	194	292
Environmental Impacts				
Potential Section 4(f) Parklands	No.	0	0	0
Creek/Stream/River Crossings	No.	70	79	66
Stream Length Impact	Feet	64,811	54,831	51,389
Wetlands (total)*	Acres	30.27	32.80	28.15
Palustrine Emergent Wetland	Acres	0.7	0.8	4.9
Palustrine Forested Wetland	Acres	19.60	22.60	19.60
Palustrine Scrub Shrub Wetland	Acres	0	0	0
Palustrine Unconsolidated Wetland	Acres	13.28	9.00	7.85
Riverine Wetland	Acres	0	.04	0
Farmland				
Open Farmland	Acres	1,432	1,533	1,317
Forested Farmland	Acres	1,475	1,686	1,402
Floodplain	Acres	174.8	100.8	149.8
Threatened and Endangered Species	Yes/No	Yes	Yes	Yes
Potential Hazardous Waste Locations	No.	11	5	21
Airports	No.	1	1	1
Cultural Resource Impacts				
Cemeteries	No.	0	0	1
Potential Historic/ 4(f) Properties*	No.	0	4	7
Archaeological Sites**	No.	63	0	0
Total Costs (millions, rounded to the nearest $)	$	187.5	227.2	185

*Totals after corridor modifications and field surveys.
**Only the Preferred Alternative was surveyed for Archaeological Sites.

The Preferred Alternative impacts were not always less than the other two alternatives. Each alternative had its own set of positive and negative aspects and many of those impacts were very similar in quantity. There was not an alternative that stood out as having all positive aspects. Alternative 2 stood out as having many more negative impacts than the Preferred Alternative or Alternative 1.

As further evaluations take place in the corridor of the preferred alignment, additional evaluations of the Preferred Alternative may be necessary. The selection of a Preferred Alternative was the result of collaboration among engineers and environmental specialists to produce a corridor for a future highway facility that both meets the project's Purpose and Need and minimizes impacts to the natural and human environments within the project area.

Were any new options developed as the study analysis continued?
As a result of public comments, and as part of the effort to continue to improve the alternatives to minimize impacts, adjustments and new alignments emerged at four locations. These emerging options, which led to improved alignments and avoided potential historic properties, were considered to be a part of the reasonable alternatives.

A "drop-in" open house was held on April 10, 2008, in the centrally located town of Freeburg to discuss these emerging options with the public. Figure 17 shows the locations where additional adjustments were made. Details on the "drop-in" open house meeting can be found in Chapter 4-Public Involvement.

Figure 17. Emerging Options

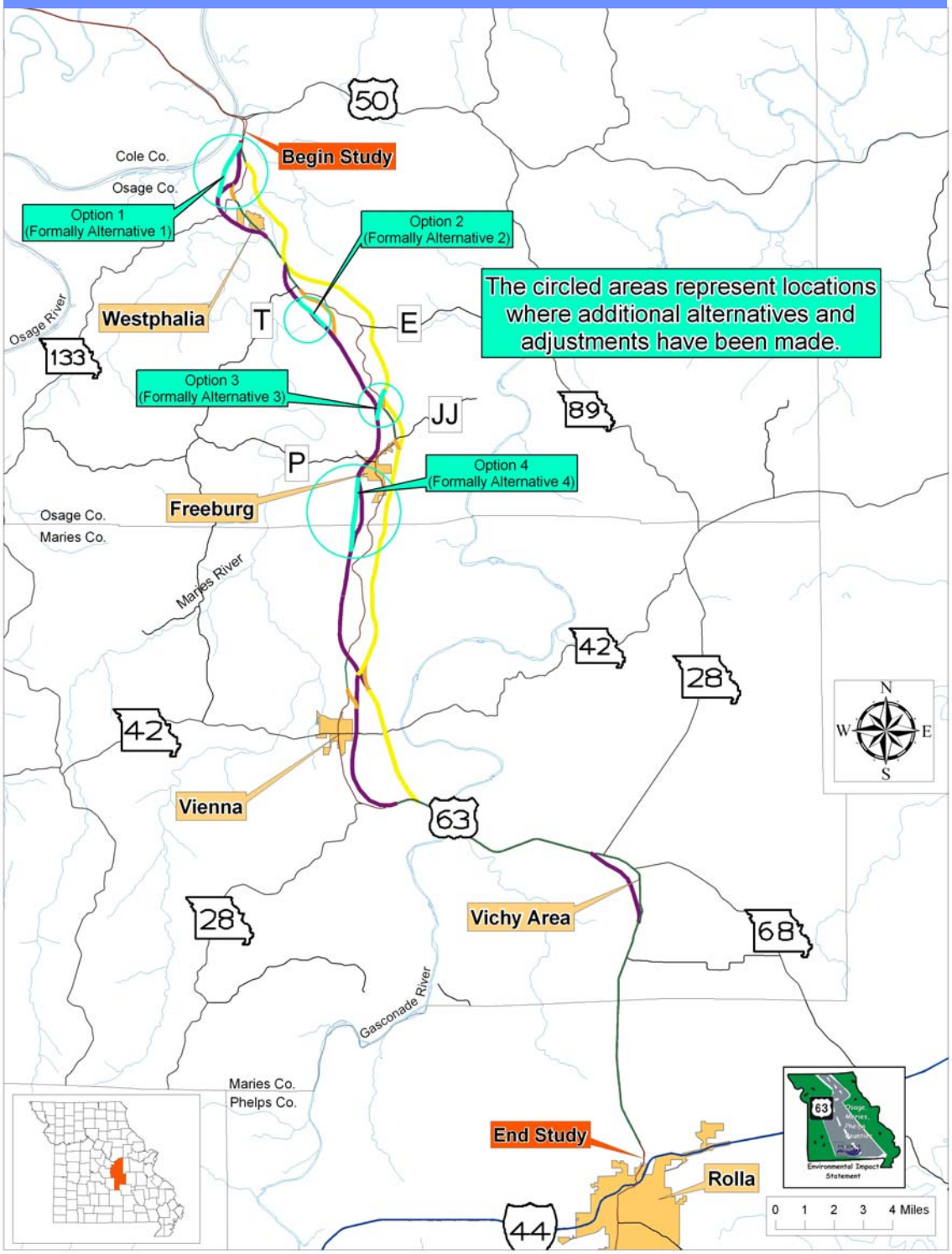
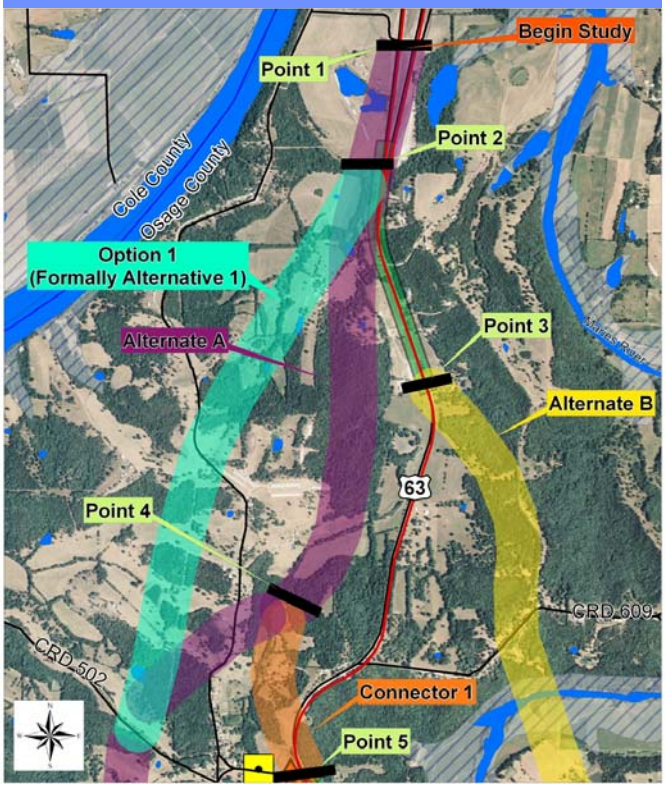


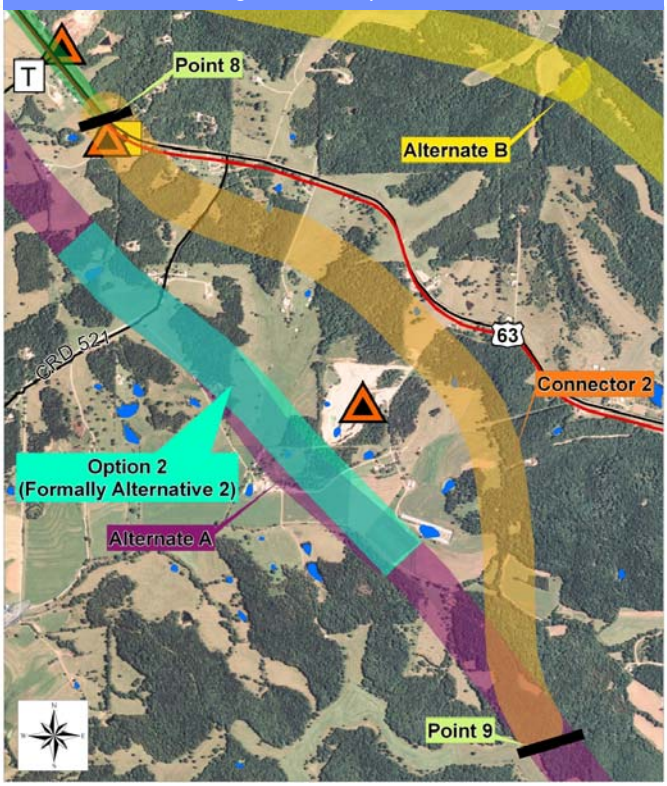
Figure 18. Option 1



Why was Option 1 added?
Compared to Alternate A, shown in Figure 18, Option 1 resulted in:

- Slightly less construction costs
- An improved alignment

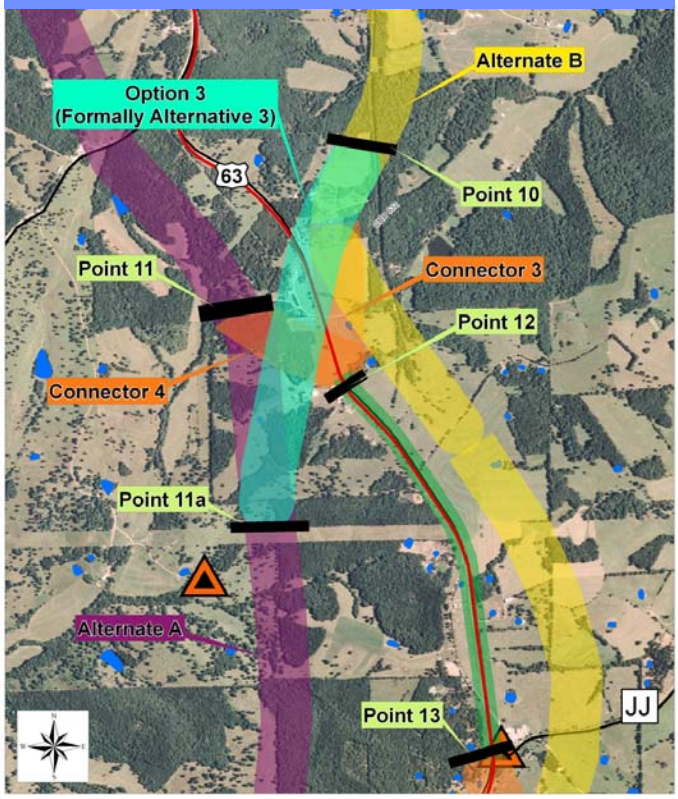
Figure 19. Option 2



Why was Option 2 added?
Option 2, shown in Figure 19, was added south of Westphalia near the Osage Quarry. This slight adjustment to the east was made to avoid relocations and a potential historic property.

Why was Option 3 added?
Option 3 was an east to west connector link just north of Freeburg. This was added to ensure we cleared a footprint to allow for an alternative to go from the east of existing Route 63 to the west. (Figure 20)

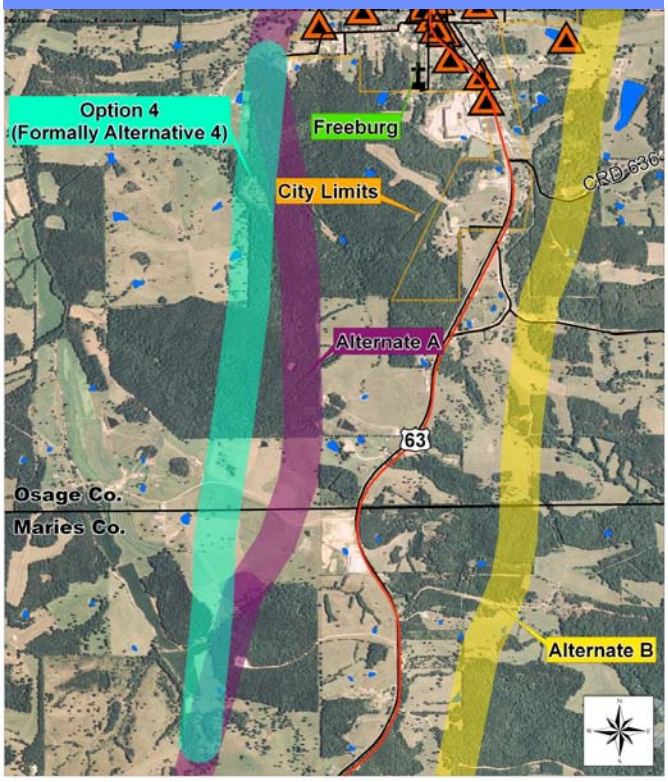
Figure 20. Option 3



Why was Option 4 added?
Compared to Alternate A, shown in Figure 21, Option 4 resulted in:

- Less construction and right of way costs
- Shorter length
- An improved alignment
- Less relocations

Figure 21. Option 4



What resulted from the drop-in open house meeting?
The study team continued their analysis of Option 1 and 4 and evaluated the comments received from the public. Option 2 and 3 were slight adjustments that did not require further analysis in order to proceed to the recommendation of a preferred alternative.

As a result of the drop-in meeting, property owners being impacted by the reasonable alternatives northwest of Westphalia requested to meet with representatives from MoDOT. The property owners suggested using the existing lanes through Westphalia for northbound traffic and constructing new lanes just west of the existing route for southbound traffic. This concept was evaluated by the design team and was not considered as a reasonable alternative because of the following:

- Does not address:
  - Sharp curve at Route 63 and MO 133,
  - Steep hills just north of Westphalia,
  - Abundance of entrances along the existing corridor.
  - Converting the existing two-lane roadway to northbound lanes will lead to confusion for motorists and unsafe driving conditions with the potential for head-on crashes. MO 13 was sited as an example of a route where the existing lanes were converted to northbound lanes and the southbound lanes were realigned. This route has experienced several crashes and is being re-designed now to address the safety concerns.
  - This suggested alternative has several constructability issues requiring significant amounts of material to be moved.

Which reasonable alternative north of Westphalia should move forward as the preferred alternative?
As noted earlier, the recommended preferred alternative north of Westphalia was west of existing Route 63, however, the study team had to determine if Option 1 or Alternate A (see Figure 18) should move forward as the preferred.

When comparing Option 1 and Alternate A (see Figure 18), Option 1 resulted in:

- 1,300 linear feet more stream impacts, 0.1 acre less pond impacts and 0.11 less acres of wetland impacts,
- The same number of residential (2) and commercial (1) displacements,
- Slightly less construction costs,
- Approximately thirty-five acres less forested area being impacted.

Based upon public input and no significant difference between impacts to each reasonable alternative, the study team recommended the alignment closest to existing Route 63 move forward as the preferred alternative.

Which reasonable alternative south of Freeburg should move forward as the Preferred Alternative?

When comparing Option 4 and Alternate A (see Figure 21), Option 4 resulted in:

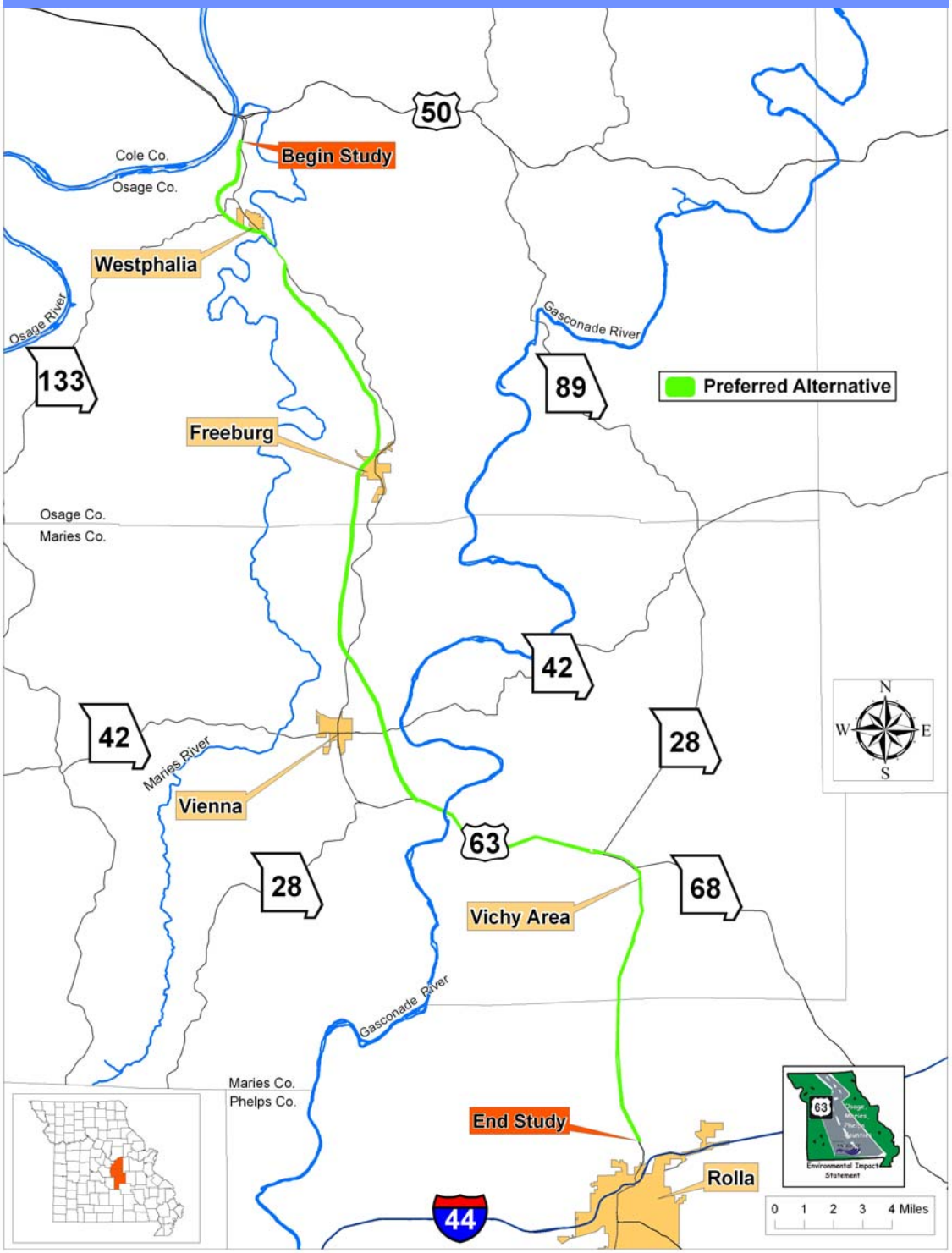
- 722 linear feet less stream impacts and 0.66 acres more pond impacts,
- One less displacement resulting in less right of way costs,
- An improved alignment resulting in slightly less construction costs,
- 24 acres less forested area being impacted.

Based upon all resources being impacted less, with the exception of slightly more pond impacts, the study team recommended Option 4 move forward as the preferred alternative.

What is the Preferred Alternative?

The FHWA and MoDOT refer to the alternative that best meets the proposed project's Purpose and Need, as well as minimizes potential impacts to the human and natural environments as the Preferred Alternative (Figure 22).

Figure 22. Preferred Alternative



What were some of the general comments from the study team regarding the selection of the Preferred Alternative?
The Preferred Alternative in the Westphalia Section routes traffic around the town of Westphalia without adversely impacting businesses in and around the community. This alternative meets the Purpose and Need of the study better than the other alternatives. The Westphalia section also uses as much of the existing upgraded alignment as possible, adding only one additional bridge over the Maries River.

The South of Westphalia Section avoids impacting businesses along the existing route, shortens the length and travel time, and has less curvature in the alignment than the other alternatives.

The Freeburg Section is a straight section with good alignment and minimal access points. The Freeburg Section routes traffic around Freeburg and allows for uninterrupted traffic flow to and from the county roads leading to public and private Gasconade River access facilities, as well as farms and homes east of the existing highway.

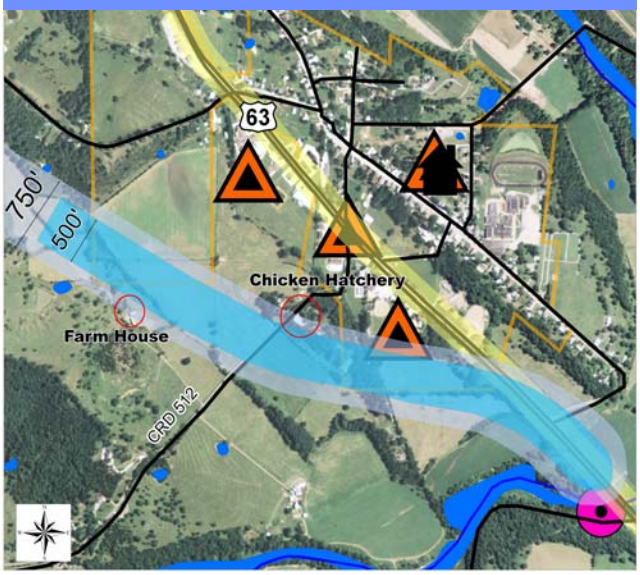
The Vienna Section routes traffic around the community of Vienna and allows for the use of existing Route 63 as a business route for lake traffic and a connector to Route 28. The Preferred Alternative is shorter than the near-east alternative resulting in less travel time and costs.

The Vichy Section uses the recently upgraded segment through Vichy. The existing alignment through Vichy is relatively flat and can be widened to the west for a five-lane section, making this segment less costly. From the Maries/Phelps County line, the existing alignment and roadway can be used and expanded to the west within existing right of way with no additional impacts.

As part of the analysis of the Preferred Alternative, additional engineering, environmental, and cultural resource studies were conducted. The engineering focused on adding more design details to alternatives to determine the feasibility of minimizing impacts at various locations.

The buffer shown in Figure 23 was decreased from 750 feet to 500 feet to avoid two potential historic properties, one containing a chicken hatchery and the other a barn. The hatchery and barn are circled in red in Figure 23. This alternative is located west of existing Route 63 in Westphalia.

Figure 23. Modifications



To avoid two Section 4(f) properties through Vichy, the study team conducted an analysis and determined the existing highway should be widened to the west. To avoid a county-owned park, the new alignment can be adjusted within existing right of way.

Section 4(f)

This section of the Department of Transportation Act of 1966 states that a transportation project requiring the use of publicly owned land of a public park, recreation area, wildlife and waterfowl refuge, or a historic site may be approved only if:

1. There is no prudent and feasible alternative to using that land, and
2. The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use. (Additional data can be found in Appendix G.)

How and where will motorists have access to the new highway?

Highways serve dual purposes of providing both efficient movement of traffic and access to adjacent property. A higher level of access management is necessary on major roads so that traffic can move safely and efficiently with minimal interruptions from entering and exiting traffic. Decisions regarding the spacing and design of public road intersections and driveways must reflect a balance of access to homes and businesses with sound traffic engineering principles.

An informal analysis using traffic volumes and level of service was completed and used (Table 1), along with general design guidance, to determine the location and type of corridor access for a four-lane divided highway at locations along the proposed Route 63. Access types selected are various types of at-grade intersections. An at-grade intersection is an area where two or more roadways join or cross at the same elevation. It also includes the roadside facilities for traffic movement within the area. Each intersection involves through or cross-traffic movements on one or more roadways and may involve turning movements between these roadways. The main objective of the intersection is to facilitate the convenience, ease, and comfort of people traversing the intersection while enhancing the safe and efficient movement of motor vehicles. To accomplish this task, the intersection must have the capacity to handle the volume of traffic flowing through it.

There are five basic elements to be considered in the design and operation of an intersection

- Human factors - comfort, convenience and ease of the driver to manuever through an intersection
- Traffic and safety considerations – sight distance, crossroad traffic volumes
- Physical elements - hills, curves, environmental surroundings
- Economic factors - construction and right of way costs
- Functional intersection area - amount of area available for the type of intersection

Based upon an analysis of future traffic projections, traffic volumes were not high enough to require a full interchange at any location where access points were chosen.

Although most of the access points chosen were located at state routes or county roads, additional access points were placed at locations where traffic along existing Route 63 could gain direct access to the new highway by way of an at-grade intersection. Property owners that do not have access to a county road will likely be given an entrance to the new highway. Private entrances will be limited to right-in/right-out access.

Recommendations

The final alternative as identified in this document and as shown in Figure 22 is the Preferred Alternative. The final selection of an alternative, however, will not be made until after consideration of impacts, agency comments, and a location public hearing, following approval of the final EIS. The Preferred Alternative would ultimately be a four-lane divided highway that is located on the west side of Westphalia and reconnects to existing Route 63 just north of the Maries River. At that point a new bridge would be required over the Maries River, with the Preferred Alternative following a path that adds two lanes to the existing facility for approximately one mile. At that juncture, near County Road 611, the Preferred Alternative would veer west of existing Route 63 on new location. This section would also be a four-lane divided roadway that would stay west of Freeburg and would eventually connect with existing Route 63 at a point approximately 1.5 to 2.0 miles north of Vienna.

The Preferred Alternative would then be a four-lane divided roadway east of Vienna and connect with existing Route 63 near County Road 325, in Maries County. At that point the Preferred Alternative follows existing Route 63 by adding two additional lanes on the west side of the road. The Preferred Alternative would be a five-lane undivided facility through the town of Vichy. South of Vichy the Preferred Alternative would follow existing Route 63 with two additional lanes added to the west side, to the end of the study area. Part of the area on the west side of Route 63, south of Vichy, is existing MoDOT right of way that was purchased in association with a previous project.

What would happen to the existing highway once construction of the new highway is complete?

After construction, the undisturbed sections of Route 63 would be used as business routes through each town as connectors to the new Route 63 alignment and would be retained by the state; or, if agreements can be reached, would be transferred to the corresponding county authorities. A few sections may be obliterated if they are no longer needed for access.