



# 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

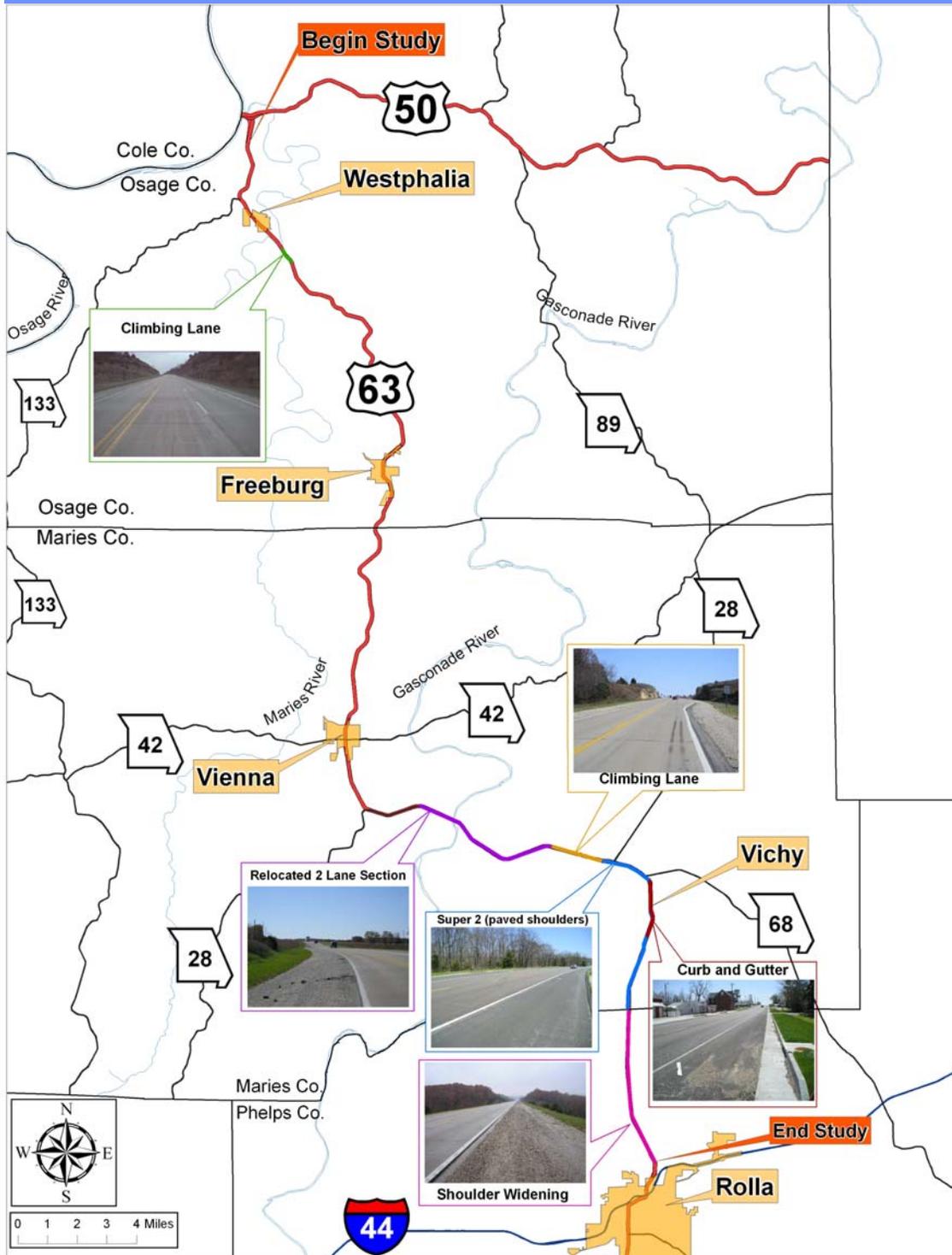
curves, wider lanes and shoulders, climbing lanes, and right of way for future improvements. Some of the preliminary alternatives were located to possibly incorporate these upgraded sections.

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.

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

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
US 50 to Rte. 133	D	D
Rte. 133 to Rte. T	D	D
Rte. T to Rte. E	C	D
Rte. E to Rte. JJ	C	D
Rte. JJ to Rte. P	D	E
Rte. P to Rte. AA	C	D
Rte. AA to Rte. 42	E	E
Rte. 42 to Rte. 28 (Spur)	E	E
Rte. 28 (Spur) to MO 28 S. Jct.	C	D
MO 28 S. Jct. to Rte. A	C	D
Rte. A to MO 28 N. Jct.	D	D
MO 28 N. to Jct. FF	D	D
Jct. FF to MO 68	C	D
MO 68 to Rte. P	C	D
Rte. P to Log 205	C	D

### 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.

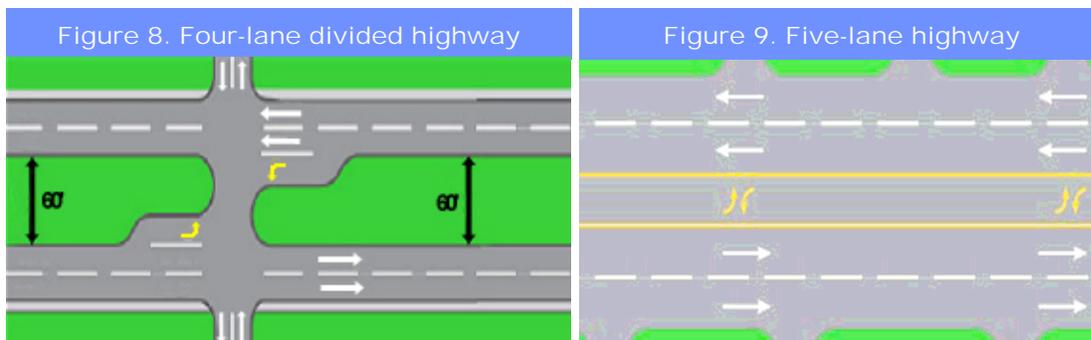


"Rolling Terrain" is typical throughout Osage, Maries and Phelps Counties.

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.

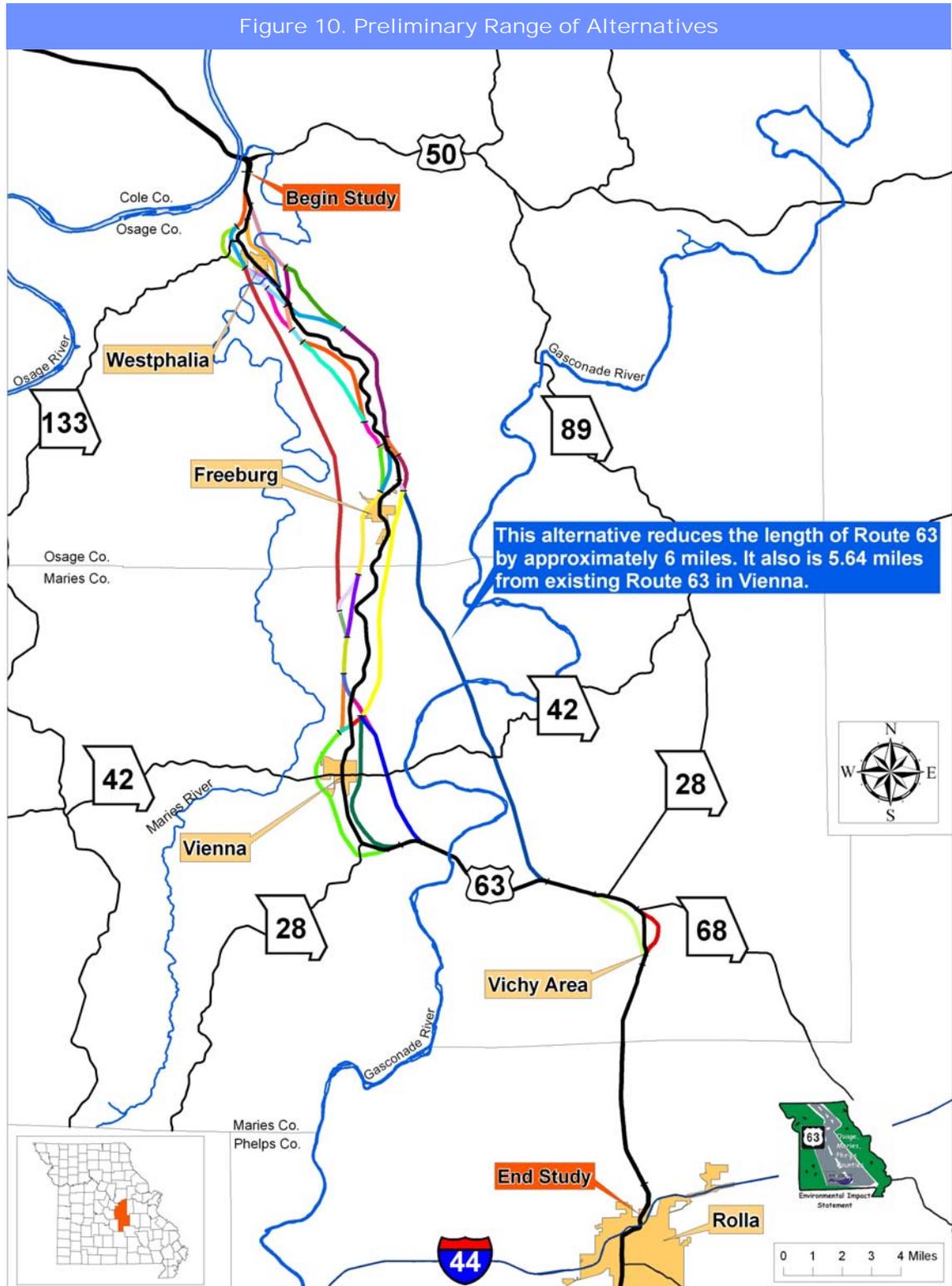
Aerial photography was also used to locate alignments away from visible structures such as homes or farm buildings and environmentally sensitive constraints found during the initial environmental screening.

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.

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.

### 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.



Public meeting in Vienna

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).

### **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. This information can be found in Appendix C. 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.

### 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

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 E.

**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.