

**I-66 CORRIDOR STUDY
WESTERN KENTUCKY TO MISSOURI
BALLARD / McCRACKEN COUNTY - ITEM # 1-23.00**

SUMMARY OF FINDINGS AND RECOMMENDATIONS

Prepared for

Kentucky Transportation Cabinet (KYTC) – Division of Planning

Kentucky Transportation Cabinet (KYTC) – District 1



Missouri Department of Transportation (MoDOT)



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ES EXECUTIVE SUMMARY

The Kentucky Transportation Cabinet (KYTC), and the Missouri Department of Transportation (MoDOT), with the financial support of the Federal Highway Administration (FHWA), undertook the I-66 Corridor Planning Study. The I-66 project was identified in the KYTC's 2001–2006 Six-Year Highway Plan and this study is part of the on-going project development process to examine a feasible corridor for the portion of I-66 in western Kentucky.

The I-66 study area is located in Western Kentucky and southeastern Missouri. The study area includes portions of Marshall, McCracken, Ballard, Carlisle, and Graves counties in Kentucky as well as Scott, Mississippi, and Cape Girardeau Counties in Missouri. Sections of Southern Illinois including portions of Alexander, Pulaski, and Massac counties were also included as a corridor was analyzed in Illinois despite the limited participation of the Illinois Department of Transportation during the initial stages of the study. The project involved identifying and analyzing several possible corridors between Western Kentucky and Southeastern Missouri, including corridors through Southern Illinois. The purpose of this planning study was to identify a recommended corridor or corridors for a new Interstate I-66 to serve as a basis for identifying future alternatives in the NEPA process.

Project Goals

The project began in the fall of 2001 with a presentation to the Purchase Area Development District (PADD). Also in the fall of 2001, there was a meeting with local officials in Missouri. Both meetings were designed to introduce the project as a whole to respective political stakeholders in each state. Subsequent public workshops and Project Work Group meetings were held in the spring of 2002 to define the study goals. Those goals were:

- Support Completion of I-66 Across Southern Kentucky, Providing System Continuity from West Virginia to Missouri
- Reduce Traffic Congestion
- Improve Accessibility and Connectivity
- Enhance Roadway Safety
- Support Economic Development and Community Growth
- Capitalize on Existing and Planned Investments
- Improve Community Character / Quality of Life

As corridors were identified and evaluated, these goals were used as the basic criteria for either setting a corridor aside from further consideration or for carrying it forward in the study process.

Corridor Development

Corridors were developed through an interactive process involving the public, KYTC, MoDOT, FHWA, the Project Work Group, and the consultant staff. After the first round of meetings with these groups, 22 corridors were identified. These corridors were approximately 2,000 feet wide and generally started at I-24 near Paducah, Kentucky heading westward into Missouri and/or Illinois. All but one corridor included a new river crossing over the Ohio River or the Mississippi River.

Public Involvement

Public Involvement was a vital part of the study. There were four sets of public workshops (total of eight (8) meetings) held in both Kentucky and Missouri at each of the project's milestones.

Meetings were held in open-house workshop format. Comment forms were available at all meetings and great efforts were made to solicit public comments at each meeting. Those in attendance generally included members of the public, resource/regulatory agency staff, members of the Project Work Group, representatives from the KYTC, MoDOT, and the FHWA, as well as the consultant staff. Key issues identified during the public involvement process included the following:

- People living in the region are very supportive of the idea of a limited access highway linking western Kentucky and Missouri.
- Economic development is important to the region. Increased and improved access is a key to future economic success in this area.
- The proposed project and any other improvements would help relieve other facilities that are perceived as inadequate.
- The residents of the region are proud of the local historic and natural resources and want to protect them along with their quality of life.
- Resource agencies have identified issues related to floodway encroachment on the Birds Point – New Madrid Floodway in Missouri, navigation issues on the Mississippi River, issues associated with structures in the floodplain/floodway and potential impacts of a corridor and/or structures to the wildlife management areas in Northwest Ballard County (Kentucky).

Corridor Analysis

The corridor analysis was a three-tiered process. Level One screening was an initial qualitative based analysis focusing on general feasibility and resulted in 14 of the original 22 corridors, as well as a No-Build Option being recommended for further

screening in Level Two. Because a number of the 14 corridors were similar, they were combined into seven corridors, and a No-Build Option, which were advanced to Level Two screening. During the Level Two screening, the seven corridors and the No-Build Option were subjected to a higher level of qualitative and quantitative screening. This Level Two screening focused on:

- Transportation operations (traffic)
- Documented support for or against the corridor
- Known and potential environmental and community issues
- Estimated order of magnitude capital costs.

Five corridors, including the No-Build Option, were then advanced to the Level Three screening. They included:

1. No-Build Option – only existing and committed projects in KYTC’s 2001 – 2006 Six-Year Highway Plan and MoDOT improvement program.
2. Corridor 8 – the same as Corridor 11 in/along existing KY 286, US 60 or US 62 corridors to a point north and east of Wickliffe, proceeding north west on new route across the Ohio River on a new bridge to I-57 in Illinois.
3. Corridor 8B – US 60 improvements from Paducah to Wickliffe with a new Mississippi River crossing.
4. Corridor 11/12/13/14/15 & 21 – new controlled access corridor parallel to US 62 and KY 286 with a new Mississippi River crossing.
5. Corridor 20 – unspecified corridor connecting I-24 north of Paducah to I-55 near Cape Girardeau, Missouri with no new river crossing over the Mississippi or Ohio Rivers.

Further Corridor Analysis and Recommendations

The Level 3 Screening represented the most detailed analysis. The corridors were further refined and more details were provided in the following categories

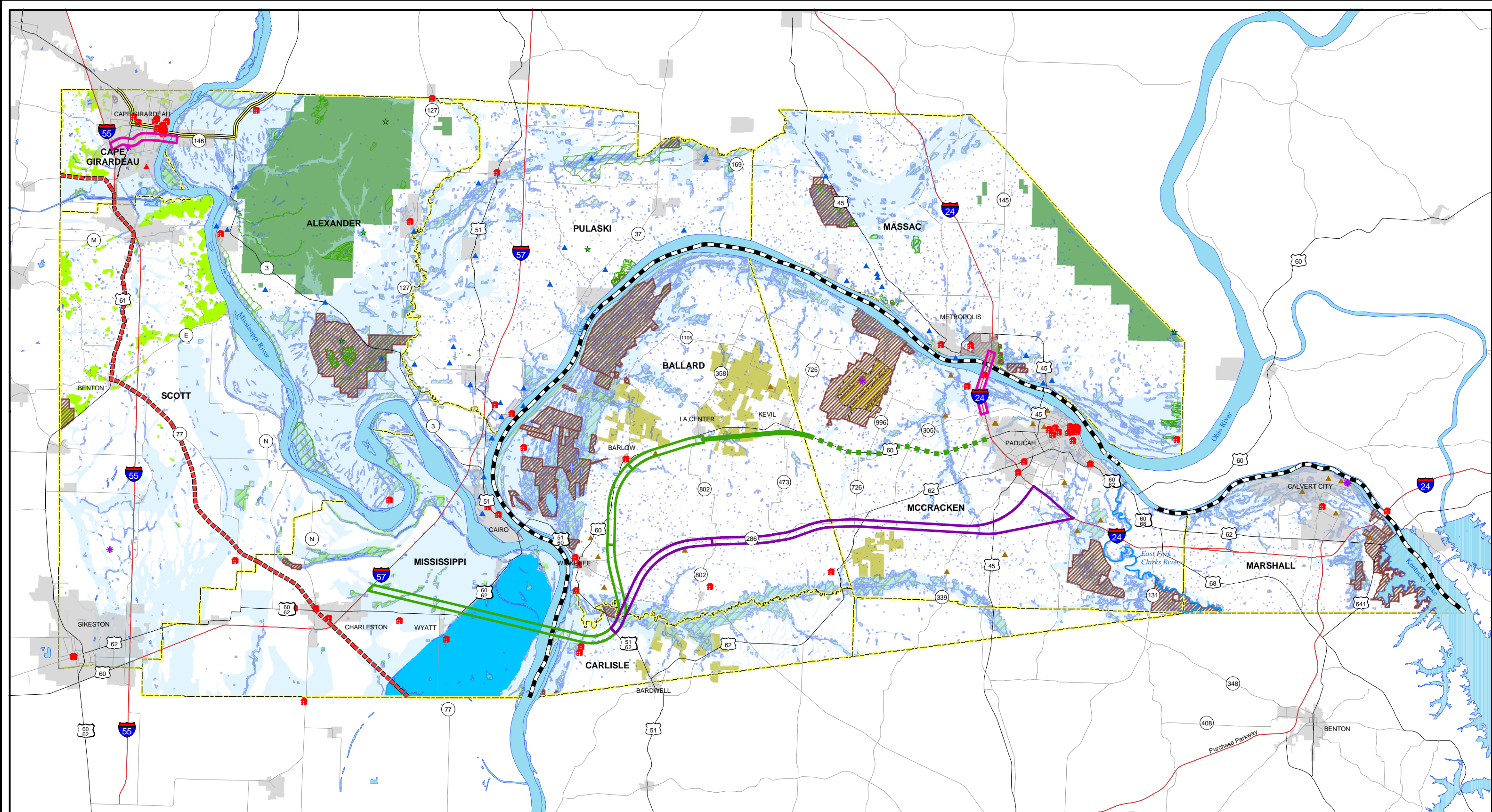
- Transportation operations (traffic) – to include revised model runs with some manual adjustments, including vehicle miles of travel (VMT) and vehicle hours of travel (VHT)
- Documented support for or against the corridor – including all comments / support received to date
- Known and potential environmental and community impacts – including quantification of impacts to community by type as well as property impacts
- Estimated order of magnitude capital costs – refined to include separate costs for right-of-way, utilities, design, construction costs and contingencies

The following summary represents the results of the technical analysis from the most detailed screening, the Level 3 Analysis:

- The No-Build Option is sufficient to meet the needs of the region in the near future but not in the project's horizon year of 2030. It narrowly and minimally addresses the study's goals, objectives, and issues and has minimal support. Therefore, although the No-Build Option will likely meet the needs of the region in the short term, it is not sufficient for longer-term needs.
- Corridor 8 can meet the needs of the project and address some of the goals, objectives, and issues of the study. It does provide a new route and a river crossing. However, the potential impacts caused by this corridor to sensitive natural resource and wildlife management areas are extremely detrimental. These adverse potential impacts, coupled with the fact that there are other corridors with fewer potential impacts, render Corridor 8 fatally flawed from an environmental standpoint. Therefore, Corridor 8 is not recommended to proceed into the next stage(s) of project development by the KYTC.
- Corridor 8B can meet the needs of the project, address the goals, objectives and issues of the study and provide a new upgraded US 60 (partially controlled access facility) in the long term with a new bridge crossing the Mississippi River south of Wickliffe, Kentucky, (no further north than Lower Mississippi River Mile Marker 949), capitalizing on improvements already made to US 60. Corridor 8B is a viable option for satisfying the short and long-term transportation needs of western Kentucky.
- Corridor 11/12/13/14/15/ and 21, can also meet the needs of the project, address the goals, objectives, and issues of the study, and provide a long-term new limited access highway with a new bridge crossing the Mississippi River near Wickliffe, Kentucky. However, given the need for additional right-of-way and the higher costs of this corridor, it is unlikely to be funded for construction in the time horizon of the study.
- Corridor 20, although unspecified as to the route through southern Illinois, does meet the needs of the project, address some of the goals, objectives, and issues of the study, and provides a new highway through southern Illinois. Further, it would satisfy the Congressional designation of a route for I-66 in this region. However, it does not address the transportation needs of western Kentucky

A project of this magnitude requires a significant level of Federal and State funding. There is currently no additional federally designated funding for this project. With the current version of the KYTC Six-Year Highway Plan significantly over-programmed and the aforementioned situation, KYTC is unable at this time to pursue a build option. If the stated conditions change, this decision does not preclude future project development activities from taking place for a limited access highway in Western Kentucky.

Independent of this decision, KYTC, MoDOT, or IDOT can restart the project development activities in their respective states using this study. In this case, the corridors from this I-66 study that should be included in a next phase of project development are Corridors 8B, 11, and 20. In addition, other corridors may be developed at a future date. (See the full project report and the various technical appendices for more details regarding this study.)



- | | | |
|--------------------------------|---------------------------------|--|
| Alternative Corridors | National Historic Register Site | Agricultural District |
| Existing 60 Improved | Illinois Natural Area Location | Wildlife Preserve/Conservation Area/Park |
| Improvements Programmed | NPL Sites | Forested Area (MO) |
| 8b | Active/Permitted Landfills (MO) | Shawnee National Forest |
| 11 | Landfills (KY) | Wetland |
| 20 | Landfills (IL) | 100 Year Floodplain |
| Trail of Tears - Auto route | New Madrid Floodway | Superfund Site (KY) |
| Trail of Tears - Bengé's Route | Trail of Tears - Water Route | PROJECT STUDY AREA |

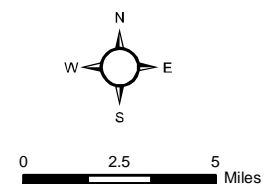
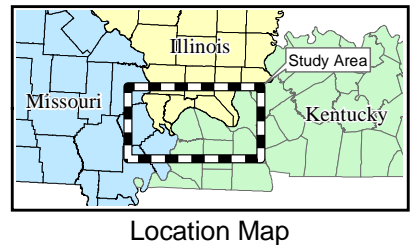


Figure 14
LEVEL 3
ALTERNATIVES
 I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00



**I-66 Corridor Study
Western Kentucky to Missouri
Final Level 3 Screening Summary**

Alt. / Corridor No.	Description	Length of Route - Total Miles / New Roadway	Traffic Operations ¹											
			Screen Line #1: Paducah			Screen Line #2: W. McCracken Co.			Screen Line #3: Ballard County			Screen Line #4: Mississippi River		
			Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service
0	No Build (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	0 mi / 0 mi	43,000 (US 60)	3,400 (8%)	E (4 lanes)	17,000 (US 60)	1,500 (9%)	A-B (4 lanes)	10,000 (US 60)	1,100 (11%)	E (2 lanes)	11,000 (Bridge Over Ohio River)	1,800 (16%)	E (2 lanes)
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	33.33 mi / 33.33 mi	31,000	3,700 (12%)	C	16,000	2,400 (15%)	A-B	See Note 5 Below					
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	38.50 mi / 15 mi	40,000 (US 60)	2,800 (7%)	E (4 lanes)	12,000 (US 60)	800 (7%)	A (4 lanes)	5,000 (US 60)	300 (6%)	A (4 lanes)	7,000	1,000 (14%)	A (4 lanes)
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	40.93 mi / 40.93 mi	30,000	4,000 (13%)	C	14,000	2,500 (18%)	A-B	11,000	2,700 (25%)	A	9,000	2,200 (20%)	A
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	48.32 mi / 48.32 mi	16,000	1,800 (11%)	A	16,000	1,800 (11%)	A	17,000	1,900 (11%)	A	27,000	2,100 (8%)	A-B

(1) Future Year = 2030 (2) Due to conditions near Cape Girardeau, MO (3) Based on Environmental Constraints Map (4) In Millions of 2003 Constant Dollars (5) Limited Traffic Operations Analysis Were Performed Due To Environmental Constraints

**I-66 Corridor Study
Western Kentucky to Missouri
Final Level 3 Screening Summary**

Alt. / Corridor No.	Description	Traffic Operations ¹						Support	
		Total Vehicle Miles of Travel (VMT in Millions)	Total Vehicle Hours of Travel (VHT in Millions)	Travel Time in Minutes Paducah to Sikeston (Savings from No-Build)	Travel Time in Minutes Paducah to Cape Girardeau (Savings from No-Build)	Safety / Security	Connectivity / Access	Corridor	Issues
0	No Build (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	938.5	18.72	76.5 mins	93.6 mins	Improves US 60 in place improvements largely to safety, little for security	Keeps existing connectivity and access	There is minimal support for continuing with current plans. Especially noted are the plans to improve Hwy 60.	Impacts to adjacent development on US 60
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	See Note 5 Below				Provides improvement - connects I-24 to I-57 in Illinois	Provides new river crossing location over Ohio River	There has been no vocal support for Alternative 8 during public workshops	Wetland, floodplain and potential wildlife refuge impacts, Corps of Engineers preferred river crossing
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	942.5	18.76	72.7 mins (3.8 mins)	94.8 mins (N/A)	Provides some level of improvement - New bridge over Mississippi River	Keeps existing connectivity and access, provides for new river crossing	Support exists for US 60 improvements and support has been expressed for a new bridge near Wickliffe, KY	Impacts to adjacent development on US 60 plus wetland and floodplain impacts at preferred river crossing
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	942.6	18.76	57.9 mins (18.6 mins)	84.0 mins (9.6 mins)	Provides improvement - New bridge over Mississippi River	Provides new river crossing location over Mississippi River	Support is strong for Alternative 11/12/13/14/15/21.	Farmland impacts, uses least favorable river crossing
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	942.4	18.75	76.1 mins (0.4 mins)	68.1 mins (25.5 mins)	Provides improvement - New roadway connecting I-24 and I-55 / I-57	Good connections for southern Illinois, little benefit for KY	There has been strong support for Alternative 20 in Illinois. Likewise, there is no support for Alternative 20 from residents of Kentucky.	Some economic benefits to southern Illinois, little economic benefit for KY, impacts to Shawnee National Forest, use of Bill Emerson bridge

(1) Future Year = 2030 (2) Due to conditions near Cape Girardeau, MO (3) Based on Environmental Constraints Map (4) In Millions of 2003 Constant Dollars (5) Limited Traffic Operations Analysis Were Performed Due To Environmental Constraints

**I-66 Corridor Study
Western Kentucky to Missouri
Final Level 3 Screening Summary**

Alt. / Corridor No.	Description	Community Impacts					
		Farmland (miles/acres)	Kentucky Agriculture Districts (miles/acres)	State / Federal Forest - Parks / Recreation (miles/acres)	Urban (miles/acres)	Probable Environmental Justice Impacts	Property Impacts (in acres)
0	No Build (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	Community impacts documented in US 60 improvement project - no additional impacts anticipated					
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	21 mi/7,222 ac	1.3 mi/343 ac	0 mi/0 ac	1 mi/135 ac	Medium	2,113
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	30.54 mi/10,665 ac	2.58 mi/623 ac	0 mi/0 ac	1.88 mi/468 ac	Low	1,100
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	28.87 mi/8,324 ac	2.30 mi/670 ac	0 mi/0 ac	0.17 mi/74 ac	Low	2,325
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	35.23 mi/8,511 ac	N/A	8.67 mi/2,102 ac	3.88 mi/504 ac	High ²	2,930

(1) Future Year = 2030 (2) Due to conditions near Cape Girardeau, MO (3) Based on Environmental Constraints Map (4) In Millions of 2003 Constant Dollars (5) Limited Traffic Operations Analysis Were Performed Due To Environmental Constraints

**I-66 Corridor Study
Western Kentucky to Missouri
Final Level 3 Screening Summary**

Alt. / Corridor No.	Description	Environmental Impacts ³						Capital Costs ⁴				
		No. of Listed Natl. Historic Registry Sites	Nature / Wildlife Preserves / Conservation Lands (miles/acres)	No. of Stream Crossings	Bird's Point - New Madrid Floodway (miles/acres)	Floodplain / Floodway (miles/acres)	Wetlands (miles/acres)	Roadway	Bridge	Right-of-Way / Utilities	Contingency / Engineering / Mobil. / Demobil.	Total
0	No Build (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	Community impacts documented in US 60 improvement project - no additional impacts anticipated						No incremental capital costs anticipated over those programmed in 6 Year Plan Total Costs in 6 Year Plan are \$26.3 million				
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	1 (0.4 miles of Trail of Tears NHT)	2 mi/455 ac	49	None	7.20 mi / 1,001 ac	4.0 mi/1,001ac	\$265	\$266	\$128	\$108	\$767
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	1 (0.4 mi of Trail of Tears)	0 mi/0 ac	82	3 mi/723 ac	11.74 mi/2,970 ac	1.56 mi/441 ac	\$254	\$297	\$29	\$111	\$691
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	1 (0.4 mi of Trail of Tears)	0 mi/0 ac	87	3 mi/723 ac	12.38 mi/3,323 ac	1.17 mi/509 ac	\$328	\$292	\$151	\$124	\$895
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	2 (2.9 mi of Trail of Tears)	0.03 mi/64 ac	51	0 mi/ 0 ac	12.78 mi/3,113 ac	2.78 mi/843 ac	\$363	\$18	\$128	\$77	\$586

(1) Future Year = 2030 (2) Due to conditions near Cape Girardeau, MO (3) Based on Environmental Constraints Map (4) In Millions of 2003 Constant Dollars (5) Limited Traffic Operations Analysis Were Performed Due To Environmental Constraints

1.0 INTRODUCTION

The Kentucky Transportation Cabinet (KYTC) is pursuing project development activities related to Interstate 66 (I-66) throughout the state. Previous work at the state level identified I-66 as feasible in Kentucky, identified, and prioritized segments for the roadway. These segments were then programmed into KYTC's long range planning documents. This study focused on a new route for a limited access highway facility for the western Kentucky segment, roughly from I-24 near Paducah westward to either I-55 or I-57 in Missouri or Illinois, which was prioritized by previous work as the 4th of four planned I-66 segments. .

1.1 Study Participants

This study was a cooperative undertaking of the public, the KYTC and Missouri Department of Transportation (MoDOT), with financial support and assistance of the Federal Highway Administration (FHWA). Parsons Brinckerhoff, a Louisville, Kentucky based consulting engineering and planning firm assisted the public, KYTC, MoDOT and the FHWA by providing technical assistance.

At the beginning of the study in the fall of 2001, the state of Illinois and the Illinois Department of Transportation (IDOT) were not a part of the study. Due to a change in gubernatorial administrations and new appointees at high levels of the DOT, Illinois subsequently did participate in the project. This participation began in the Spring of 2003. During that time, IDOT held one public workshop in Ullin, Illinois on June 17, 2003 at the request of KYTC, and provided KYTC and MoDOT with summary materials from that meeting. IDOT also participated in some discussions related to the Level 3 Screening of Corridors.

The Project Work Group, composed of elected officials, representatives of state and regional regulatory agencies, citizens, and representatives from the KYTC, MoDOT and FHWA, acted as an advisory body for the study. (See Appendix 1 – Public Involvement Summary for a list of study Work Group Members.) This group met periodically throughout the course of the study – usually at major milestones and provided advisory input to study goals and objectives, study issues, Level 1, Level 2, and Level 3 screening decisions, and other major project milestones.

In addition, the Project Team also briefed locally elected officials in both Kentucky and Missouri during the early stages of the project. The project also maintained a web site and routinely accepted and responded to comments from the public generated at meetings, from the web site, and through other types of outreach.

1.2 Study Goals and Objectives

The study accomplished the following purposes, which were collaboratively developed by the study participants, including the Project Team and the general public:

1. Defined the purpose and need for a proposed new highway facility (I-66)
2. Sought input from the public, elected officials, public agencies and other stakeholders
3. Gathered/developed data
4. Developed corridors for the proposed project, including the no-build corridor
5. Analyzed and evaluated the technical feasibility of all the corridors
6. Made recommendations regarding future project development

The purposes above helped define the mechanics of the study and speak to its execution rather than the need for specific project elements.

1.3 Project Issues

Issues discussed during the initial stages of the study were also important as they helped focus the development of the project corridors and detailed what study participants were most concerned about and what they looked for the corridors to solve. Issues also helped identify measures to evaluate the corridors and to frame initial important background information that needed to be gathered about the study region.

Issues were identified during the initial workshops held in both Kentucky and Missouri during the early stages of the study in May 2002. Participants at the workshops were encouraged to write their issues on a series of flip charts that were provided. Project Team staff were available to discuss the issues with the participants and the outcomes were recorded. Similarly, participants were also invited to detail their comments on specially designed forms or to deliver recorded comments. During the second set of project workshops, in August 2002, participants were presented with a summary of what they had previously developed. They were asked to comment on the draft issues and given an opportunity to modify and/or change them. After this second round of discussions, the issues were considered finalized and they were used throughout the remainder of the project in the manner described above. The project issues included:

- Environmental sensitivity – Citizens are proud of the region and its abundance of natural, cultural, and historic resources. They enjoy them and feel that they are important to the region and that they should be protected.
- Travel times – Citizens would like new corridors that connect them to regional and inter-state destinations. Many citizens drive long distances on a daily basis for routine business, to go to work, for shopping trips, or for other purposes.

They would like to have new, higher-speed highway corridors developed that reduce existing and future travel times.

- **Accessibility** – The study area is somewhat remote and isolated by the existing transportation system. There is a lack of roadways in the region beyond county roads and US routes, especially for east – west travel. Likewise, there are only a handful of existing river crossings and they are in fixed locations that often serve as pinch points during peak demand times. Improvements to the system would enhance overall accessibility for the region.
- **Safety** – The study area is dominated mostly by two-lane county roads and US routes. Often these roads have some limitations in terms of design (limited passing distance, limited sight distance, lack of adequate shoulders, etc.), especially given the current volumes of traffic that the facilities carry. Some of these problems are magnified when trucks or other larger vehicles, such as farm equipment, are present.
- **System connectivity / system redundancy** – The current system is constrained in that there are limited other options for travel in the area from a highway perspective. There are not many east – west roadways and there are few river crossings. If something were to happen to the existing bridges at Cairo, Illinois and Wickliffe, Kentucky for instance, the nearest bridge in the region is on I-24. Using that facility would add significantly to travel times and cause residents to use a circuitous route.
- **Improve security** – The area is home to the Gaseous Diffusion Plant in Paducah, Kentucky, an important and strategic facility for our nation’s defense. The accessibility and security of existing and future (alternate) routes to this facility are important. Likewise, the region is in reasonably close proximity to other strategic assets including military installations, power plants, dams, hospitals and other facilities important to continued safety and security of the region and our nation. Good accessibility to these facilities over multiple routes is and will continue to be important.
- **Truck traffic** – Truck traffic in the region is a sizeable percentage of existing traffic. Moreover, that percentage is only destined to grow as more and more raw materials and finished goods are placed on “rolling warehouses” to accommodate just in time manufacturing and other processes. The large percentage of truck traffic is compounded and often magnified when the narrow two lane roadways are taken into account.
- **Low incomes and high unemployment** – The study area and the western Kentucky, southeastern Missouri, and southern Illinois areas are all part of the Delta Region in the US. This area has historically suffered from economic troubles. The region is tied to agriculture and lacks a true base of solid,

widespread employment that would lead to higher wages and economic mobility options for the residents.

- Economic development – The region is making progress and some gains in furthering economic development objectives, but needs investments in infrastructure, including the highway system to continue to support their initiatives and to sustain current activities. The region has been able to diversify somewhat away from agriculture and more traditional pursuits, and is starting to attract other industries – the new business park in southern Graves County is an example. However, it needs improved transportation as a continuing catalyst to attract and sustain this new growth.
- Recreational issues – The abundance of outdoor recreational opportunities (hunting, fishing, hiking, boating, etc.) is important to the region. It is part of the culture and heritage and is large part of what makes the region attractive for residents and special and unique for visitors. There are irreplaceable local resources of significant caliber that should be protected.
- Seismic activity – The region sits in close proximity to the New Madrid Fault. As such the area is essentially “ground zero” when a seismic event related to the fault happens. The last event shook church bells thousands of miles away and had devastating consequences. A similar outcome is expected during the next event. Not surprisingly, having multiple routes – roadways, bridges, etc., for evacuation and for distributing food, supplies, medicine, etc., during relief and recovery efforts is of critical importance.
- Floodplains and floodways – The area has numerous floodplains and floodways in and around it. These areas serve as temporary and long-term storage for floodwaters from the river systems helping protect lives and property. They also serve as habitat areas for waterfowl and other aquatic and terrestrial species, some of which are threatened and/or endangered. In addition, the Birds Point – New Madrid Floodway is in the study area. This facility serves to mitigate large floods and would be called upon in that instance. Any corridor that encroaches upon it would need to be carefully designed and studied to be consistent with its operational plan and other governance.

1.4 Projects Goals

Similarly, goals of the project, which speak more toward what the outcome(s) of the project, were also developed through close collaboration with the general public, the Project Work Group, and the Project Team. These goals, which closely relate to project issues and in some instances succinctly combine them, were also presented and discussed at the initial public workshops held in Kentucky and Missouri in May 2002. They were subsequently agreed upon during the second series of public workshops

held in August of 2002. They were used to guide decision making throughout the course of the project. The specific goals included:

- Support Completion of I-66 Across Southern Kentucky, Providing System Continuity from West Virginia to Missouri
- Reduce Traffic Congestion
- Improve Accessibility and Connectivity
- Enhance Roadway Safety
- Support Economic Development and Community Growth
- Capitalize on Existing and Planned Investments
- Improve Community Character / Quality of Life

1.5 Project Documentation

While this study is not to the level of an environmental document, such as an Environmental Impact Statement (EIS), it nevertheless is compatible with the procedures for that type of a document. Similarly, the project sponsors have taken great strides to be complete and inclusive in many project respects: public involvement, development and analysis of corridors, cooperation and coordination with resource agencies, development and use of multiple analysis criteria, etc., so that existing project work may lead to continued projected development, perhaps including an eventual environmental document. While the project has developed some specific project issues and some specific project goals, there were close to, but not quite developed to the level of a full EIS-related Purpose and Need statement. Rather, they served as explained above, and are important in the context of setting the stage for future project development and documentation as the project's purpose and need – “little p and little n”. As such, they were and will be critical to future project development with regard to I-66 in western Kentucky.

1.6 Study Process

The study was executed in a highly collaborative environment with a strong public involvement component. Many opportunities for public and stakeholder involvement and comment were provided. Chief among them were four (4) sets of public workshops (one each in Missouri and Kentucky for a total of eight (8)) that were conducted to coincide with major project milestones:

- Define Issues – May 2002
- Identify Possible Corridors – August 2002
- Study Possible Corridors – December 2002
- Discuss Recommendation(s) – May 2003

In addition, the Project Team and the Project Work Group met five times throughout the duration of the study to discuss particular aspects of the project at each of the milestones. The project also involved the Illinois DOT and members of the Project

Team attended their sole public workshop once their participation in the project came to fruition.

1.7 Study Area Characteristics

The study area encompasses portions of three states: (1) western Kentucky, (2) southern Illinois, and (3) southeastern Missouri. The study area is roughly rectangular, approximately 70 miles long and 30 miles wide. It begins west of Kentucky Lake in northern Marshall County, Kentucky and extends westward past Paducah to just west of I-55 in Missouri. The study area in Kentucky includes; northern Marshall County, all of McCracken and Ballard counties, and a small section of far northern Graves and northwestern Carlisle counties respectively. In Missouri, the study area includes portions of Mississippi, Scott and Cape Girardeau counties. The study area also encompasses sections of southern Illinois including Massac, Pulaski, and Alexander counties.

The area is primarily rural in nature with some pockets of development, especially near Paducah, Kentucky, Cape Girardeau, Sikeston, and Charleston, Missouri, and Cairo, Illinois. Agriculture, manufacturing, and some other industrial applications dominate the employment sectors. The national unemployment rate for the year 2000 was approximately 4.0% according to the US Department of Labor. Each of the counties in the study area had higher than US average unemployment rates, although Marshall and Ballard counties only exceeded the national average by .2% or two-tenths of one percent. Of the five Kentucky counties in the study area, only McCracken and Carlisle counties exceeded the Kentucky state unemployment rate. In Missouri, each of the three counties in the study area had a higher rate of unemployment than the statewide average. (Data for Illinois was not produced since that state was not participating in the study during that stage of the analysis.) Large employers included local school boards, hospitals, the Paducah Gaseous Diffusion Plant, Westvaco Paper and other regional employers.

The U.S. median household income according to the 2000 Census was reported at \$42,148 annually. McCracken, Marshall, and Cape Girardeau counties were above this threshold. Ballard, Carlisle, Graves, Scott, and Mississippi counties were below the national average. The national poverty rate was 11.3% in 2000; McCracken, Graves Mississippi, and Scott counties were all above this national average. As compared to statewide data, McCracken, Marshall, and Ballard counties were well above the Kentucky median household income, while Carlisle and Graves counties fell below the statewide average. In terms of poverty, only Carlisle County exceeded the statewide average for percentage of households in poverty. In Missouri, the statewide median household income was exceeded by both Scott and Cape Girardeau counties. Similarly, there were more households in poverty (as compared to the statewide average) in both Mississippi and Scott counties.

Commuting patterns gleaned from the most recent Census data revealed that single occupant vehicle (SOV) travel to work was by far the dominant mode of travel in the study area. This was true of many places throughout the US and is indicative of the dominant mode of auto travel and the fact that land uses, especially in rural / agricultural areas, tend to be spread out. In the study area, travel by auto was perhaps even more important as there are very limited opportunities for travel to work by other modes such as carpool and transit. It also indicated that the majority of workers are in positions / an industry where commuting via others modes is not a feasible option.

In terms of natural resources and beauty, the area has a rich abundance of farmlands and natural resource areas including numerous wildlife refuges, wildlife management areas, a large national forest, and other small habitat areas. Agricultural land use exists place extensively throughout the study area. Substantial farming operations with significant on-farm investments were evident throughout the region and the study area.

Data from the 1997 Census of Agriculture also demonstrated the magnitude of agricultural activities in the study area. For example, the average farm size in Ballard County in 1997 was 246 acres, while in Carlisle, Graves, Marshall and McCracken counties the average sizes were 279, 173, 133 and 146 acres respectively. These same counties also account for over 3,000 farms and more than 500,000 acres of production. In 1997, the five counties in the study area in Kentucky produced a variety of crops including corn, soybeans, wheat, grain sorghum, tobacco, and hay.

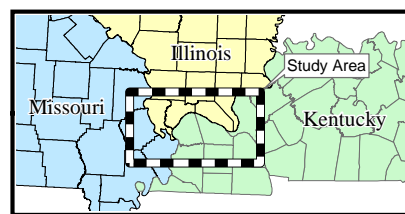
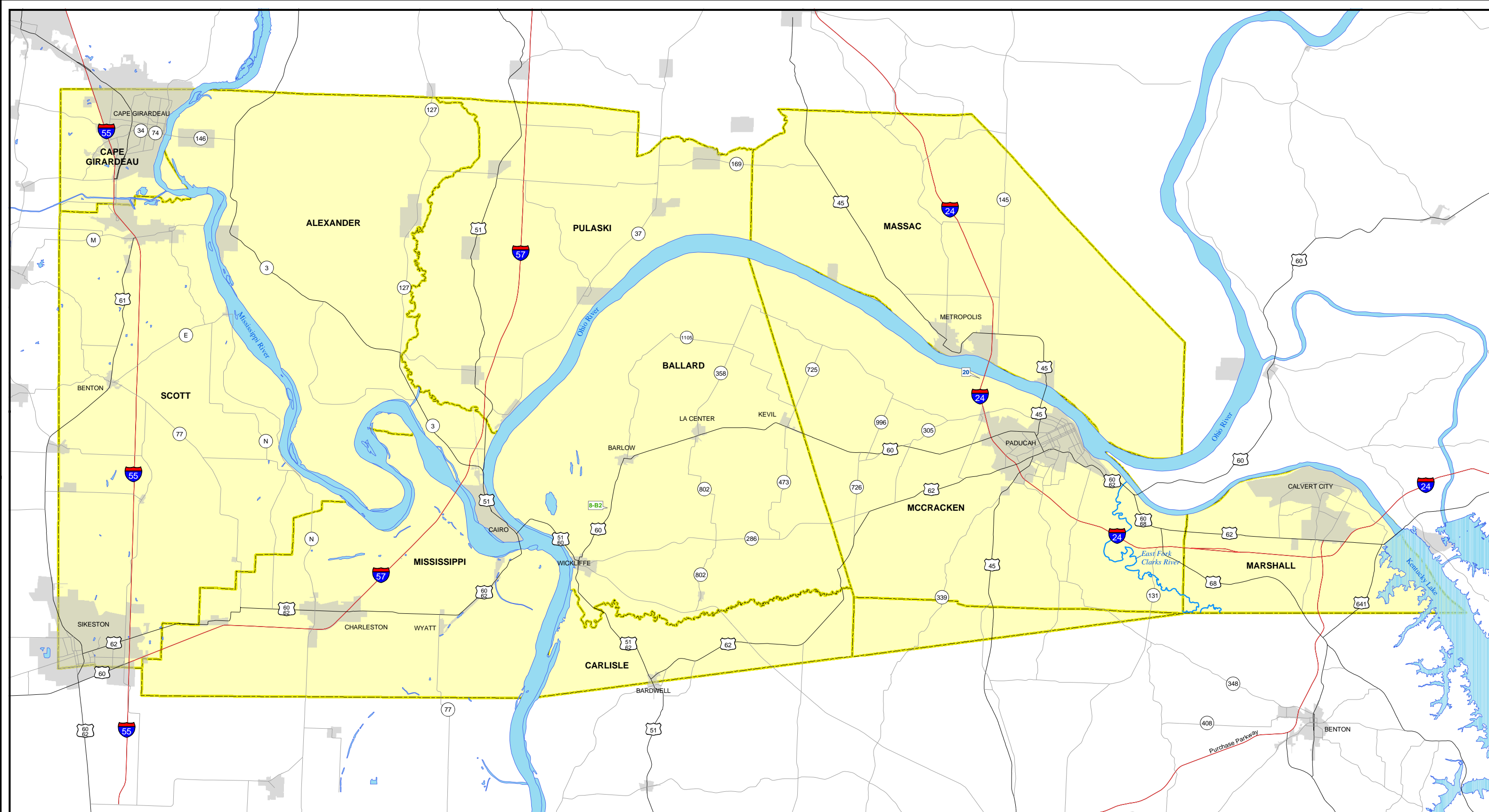
According to the 1997 Census of Agriculture conducted by the USDA, the state of Missouri ranked second only to Texas in the total number of farms in the state. Mississippi County alone had over 250,000 acres of farmland, with an average farm size of approximately 760 acres. Likewise, in Scott County there were over 240,000 acres of farmland with an average size of 375 acres. In Cape Girardeau County there were over 1,000 farms and approximately 270,000 acres of production. Farms in the three counties produced a variety of crops including; corn, sorghum, wheat and cotton.

The prevalence of agricultural activities in the region may be in part attributable to the availability of fertile soils in the Mississippi River valley. The fact that the study area also encompasses an area that includes the confluence of both the Mississippi and the Ohio Rivers also contributed to the fact that the region is conducive to agriculture. Not surprisingly, a large portion of the land in the study area is considered prime and unique farmland.

The examination of the study area for environmental justice (EJ) populations, specifically low income individuals, minorities and elderly, revealed that there are small pockets of EJ communities to be concerned about. On a large scale basis, the percentages of low income individuals, minorities, and/or elderly populations is similar on a county - wide basis to state wide averages for each of the populations. However, on a corridor - wide level, pockets of high concentrations of all three populations were evident near Cape Girardeau, Missouri. Additionally, there are sections of Missouri,

Southern Illinois, and some sections of Kentucky where percentages of one or two EJ categories exceeded those of the statewide averages. (Elderly populations - age 62 or above in this analysis - are not specifically recognized as an Environmental Justice community based on the legal definition. However, the U.S. DOT specifically encourages the early examination of potential elderly populations in studies.) From an analysis standpoint, the presence of one or more EJ populations relative to the corridor(s) should not pose an issue for future project development.

(See Appendix 2, Existing Conditions Summary for more detailed information about the project study area and the Environmental Justice Analysis in Appendix 3 which also provides additional details of the corridors.)



Location Map

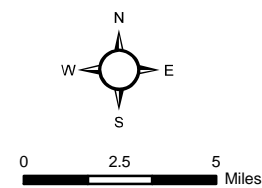


Figure 1
STUDY AREA
 I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00



PROJECT STUDY AREA

2.0 ROADWAY AND TRANSPORTATION CHARACTERISTICS

2.1 Study Area Roadways and Bridges

Generally, the existing interstate highways in the region traverse north-to-south; while the existing US and state highways are narrow, two-lane roads running east-to-west. The major Ohio River bridge crossings occur in the vicinity of Paducah, Kentucky and westward with bridges on I-24, US 45, and US 51/US 60 respectively. Mississippi River bridge crossings are also located near Cairo, Illinois on US 60 / US 62, at I-57, northwest of Cairo, and at Cape Girardeau, Missouri on Missouri 34 / Illinois 146 via the new Bill Emerson Bridge. There is also a US 60-bridge crossing of the Tennessee River near Paducah, Kentucky

Roadways within the study area are listed below with the states traversed indicated. Tables on the following pages indicate other pertinent data. Table 2-1 - Existing Roadway Information, highlights major roadway characteristics, features, and classifications as obtained from the Kentucky Transportation Cabinet (KYTC) Highway Information System (HIS) database, the Missouri Department of Transportation (MoDOT), and the Illinois Department of Transportation (IDOT).

- I-24 (IL, KY)
- I-55 (MO)
- I-57 (IL, MO)
- US-45 (IL, KY)
- US-51 (KY, IL)
- US-60 (KY, IL, MO)
- US-61 (MO)
- US-62 (KY, MO)
- US-68 (KY)
- US-641 (KY)
- KY 286
- IL 3
- IL 37
- IL 127
- IL 145
- IL 146
- IL 169

The interstate highways (I-24, I-55, and I-57) are four-lane roadways. All the major east-west roadways between I-24 and I-57 are narrow, two-lane roads, except for a recently improved 10-mile section of US 60 in McCracken County. These east-west roadways have many sections that do not meet current design guidelines, and terrain in the study area are classified as “rolling” for virtually all the roadways. Figure 2 Existing Roadways, indicates roadway sections with lane and shoulder widths less than the current design guidelines of 12-foot wide driving lanes and 10-foot wide shoulders. Notable roadway deficiencies occur on US 60, US 62, and KY 286. About 64 percent of US 60 have narrow driving lane widths, and 67 percent has substandard shoulder widths. Similar conditions exist on US 62, where 82 percent of the driving lanes and 79 percent of the shoulders have inadequate widths; and KY 286 where substandard lane and shoulder widths encompass its entire length.

The four major bridges in the study area cross either the Ohio or Mississippi Rivers. Their major characteristics appear in Table 2 – 2 Existing Bridge Information. All four

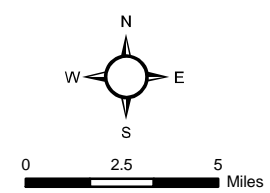
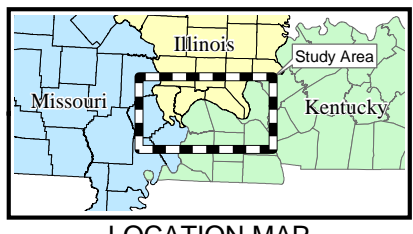
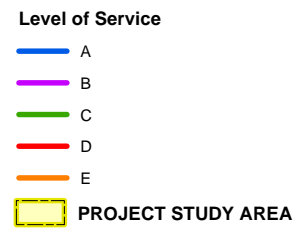
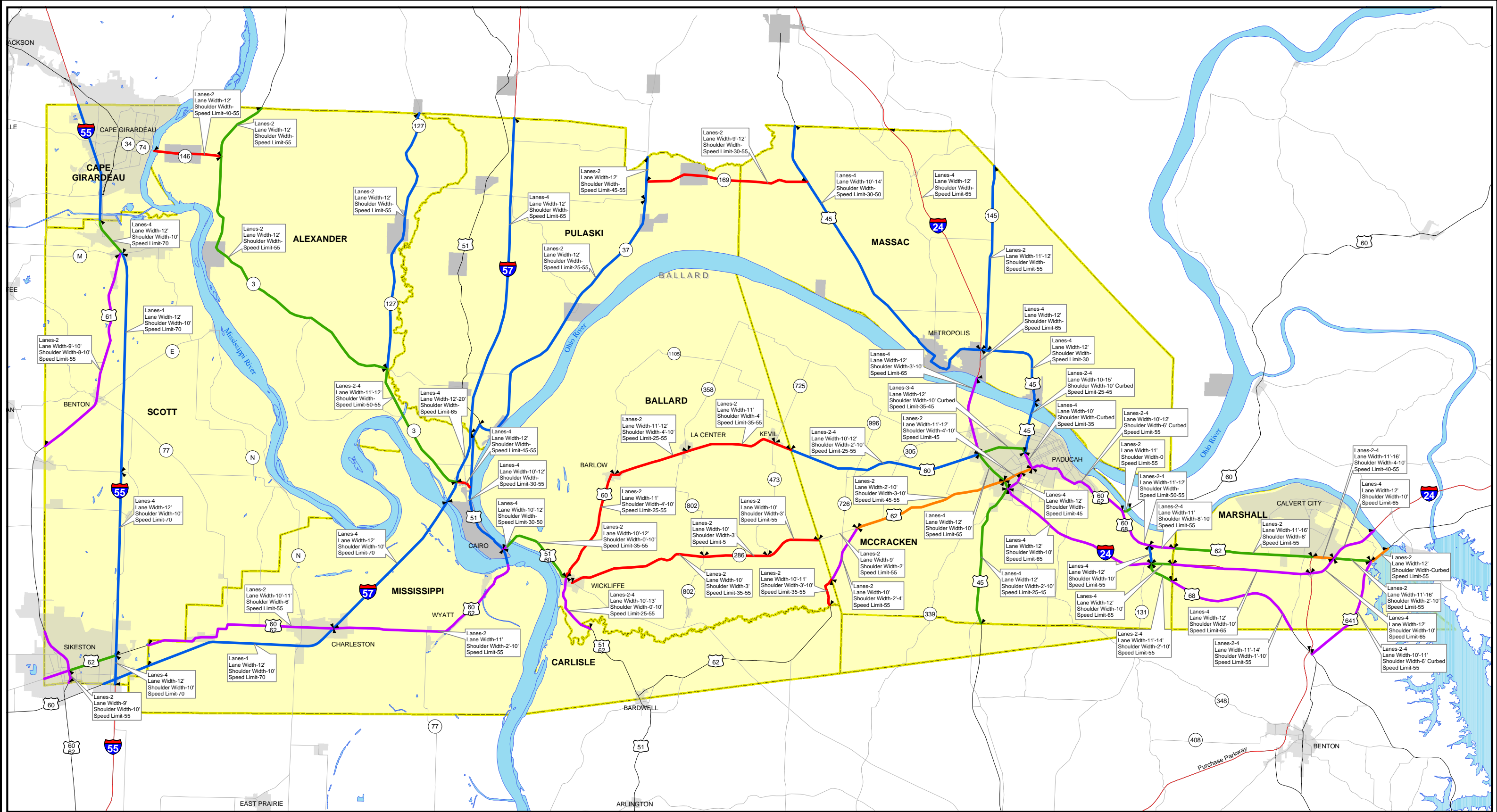


Figure 2
EXISTING ROADWAYS
 I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00



**Table 2-1
Existing Roadway Information**

I 24

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
McCracken, KY	Illinois S/L to US 60	4.3	4	12'	3'-10'	65	350'-440'	n/a	Rural/Urban Interstate
	US 60 to US 62	1.9	4	12'	10'	65	350'	n/a	Urban Interstate
	US 62 to US 45	0.4	4	12'	10'	65	350'	n/a	Urban Interstate
	US 45 to US 68	9.3	4	12'	10'	65	350'	n/a	Rural/Urban Interstate
	US 68 to Marshall C/L	1	4	12'	10'	65	350'	n/a	Rural Interstate
Marshall, KY	McCracken C/L to JMC Pkwy ³	7.7	4	12'	10'	65	300'-999'	n/a	Rural Interstate
	JMC Pkwy to US 62	1.7	4	12'	10'	65	300'	n/a	Rural Interstate
	US 62 to Livingston C/L	2.7	4	12'	10'	65	300'	n/a	Rural Interstate

US 45

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
McCracken, KY	Graves C/L to I 24	8	4	12'	2'-10'	25-45	53'-330'	n/a	Rural/Urban Principal Arterial
	I 24 to US 62	1	4	12'	2'	45	79'-90'	n/a	Urban Principal Arterial
	US 62 to US 60	0.6	4	10'	curbed	35	66'-79'	n/a	Urban Principal Arterial
	US 60 to Illinois S/L	3.9	2, 4	10'-15'	curbed-10'	25-45	60'-999'	0-23%	Urban Minor Arterial St/Rural Major Collector

US 51

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Ballard, KY	Carlisle C/L to US 60	3.6	2-4	10'-13'	0'-10'	25-55	70'-175'	0-100%	Rural Principal Arterial
	US 60 to Illinois S/L	4.7	2	10'-12'	0'-10'	35-55	60'-270'	0-100%	Rural Principal Arterial

US 60

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Ballard, KY	US 51 to McCracken C/L	16.8	2	11', 12'	4'-10'	25-55	45'-170'	42-67%	Rural Principal Arterial
McCracken, KY	Ballard C/L to I 24	10.6	2-4	10'-12'	2'-10'	25-55	66'-160'	14-100%	Rural/Urban Principal Arterial
	I 24 to US 45	2.7	3, 4	12'	curbed-10'	35-45	160'-240'	n/a	Urban Principal Arterial
	US 45 to US 62	6.2	4	12'	curbed-10'	35-55	85'-999'	n/a	Urban Principal Arterial
	US 62 to Livingston C/L	0.3	2	11'	0'	55	100'	0%	Rural Principal Arterial

**Table 2-1
Existing Roadway Information, Cont.**

I 55

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Scott, Mo	I 57 to US 62	1.5	4	12'	10'	70	n/a	n/a	Interstate
	US 62 to US 61	22.3	4	12'	10'	70	n/a	n/a	Interstate
	US 61 to Cape Girardeau C/L	2.3	4	12'	10'	70	n/a	n/a	Interstate

I 57

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Mississippi, MO	Scott CL to US 62	9.7	4	12'	10'	70	n/a	n/a	Interstate
	US 62 to Illinois S/L	10.4	4	12'	10'	70	n/a	n/a	Interstate

US 60

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Mississippi, MO	I 57 to Illinois S/L	22.3	2	11'	2'-10'	55	n/a	n/a	Minor Arterial

US 61

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Scott, MO	New Madrid C/L to US 62	0.7	2	9'	10'	55	n/a	n/a	Principal Arterial
	US 62 to I 55	25.3	2	9'-10'	8'-10'	55	n/a	n/a	Principal Arterial

US 62

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Mississippi, MO	Scott C/L to I 57		2	10'-11'	6	55	n/a	n/a	Major Collector

**Table 2-1
Existing Roadway Information, Cont.**

US 62

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
Ballard, KY	Carlisle C/L to McCracken C/L	1.7	2	10'-11'	3'-10'	35-55	60'-490'	20%-100%	Rural Major Collector
McCracken, KY	Ballard C/L to KY 286	3.3	2	10'	2'-4'	55	60'	29%	Rural Major Collector
	KY 286 to I 24	8.6	2	9'-10'	2'-10'	45-55	60'-175'	11-100%	Rural Major Collector/Urban Minor Arterial St
	I 24 to US 45/60	1	2	11'-12'	4'-10'	35-45	60'-175'	100%	Urban Minor Arterial St
	US 45/60 to US 68	2.6	2, 4	10'-12'	curbed-6'	55	85'-245'	n/a	Urban Principal Arterial
	US 68 to Marshall C/L	1.4	2, 4	11'	8'-10'	55	200'	55-77%	Urban Minor Arterial St/Rural Major Collector
Marshall, KY	McCracken C/L to JMC Pkwy	7.6	2	11'-16'	8'	55	200'	70%	Rural Major Collector
	JMC Pkwy to I 24	1.2	2, 4	11'-16'	4'-10'	45-55	200'	66%	Rural Major Collector
	I 24 to US 641	2.2	2	11'-16'	2'-10'	55	200'	30-100%	Rural Minor Arterial
	US 641 to Livingston C/L	1.1	2	12'	curbed	35	200'	80-100%	Rural Minor Arterial

US 68

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
McCracken, KY	US 62 to I 24	1	4	12'	10'	55	200'	n/a	Rural/Urban Principal Arterial
	I 24 to Marshall C/L	1.7	2, 4	11'-14'	2'-10'	55	62'-200'	35%	Rural Principal Arterial
Marshall, KY	McCracken C/L to JMC Pkwy	9.4	2, 4	11'-14'	1'-10'	55	60'	34%	Rural Principal Arterial

US 641

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
Marshall, KY	US 68 to US 62	6.4	2, 4	10'-11'	curbed-6'	55	150'	14-56%	Rural Minor/Principal Arterial

KY 286

	Description	Length	Number of Lanes	Lane Width	Shoulder Width	Speed Limit	Average ROW	% PSD ²	Functional Class
Ballard, KY	KY 121 to McCracken C/L	14.3	2	10'	3'	35-55	70'	39%	Rural Major Collector
McCracken, KY	Ballard C/L to US 62	2.3	2	9'	2'	55	60'	70%	Rural Major Collector

**Table 2-1
Existing Roadway Information, Cont.**

I 57

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
Alexander, IL	Missouri S/L to Pulaski C/L	4.3	4	12'-20'	n/a	65	n/a	n/a	Interstate
Pulaski, IL	Alexander C/L to Union C/L	17.7	4	12'	n/a	65	n/a	n/a	Interstate

I 24

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
Massac, IL	Kentucky S/L to US 45	1.6	4	12'	n/a	65	n/a	n/a	Interstate
	US 45 to Johnson C/L	13.5	4	12'	n/a	65	n/a	n/a	Interstate

US 45

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
Massac, IL	Kentucky S/L to I 24	5.1	4	12'	n/a	30	n/a	n/a	Minor Urban Arterial
	I 24 to Johnson C/L	17.8	4	10'-14'	n/a	30-55	n/a	n/a	Major Collector

US 51

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
Alexander, IL	Kentucky S/L to US 60	0.7	4	10'-12'	n/a	30-50	n/a	n/a	Principal Arterial
	US 60 to Pulaski C/L	7.1	4	10'-12'	n/a	30-50	n/a	n/a	Principal Arterial

US 60

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
Alexander, IL	Missouri S/L to US 51	0.7	2	10'-14'	n/a	55	n/a	n/a	Major Collector

IL 3

	Description	Length	Number of Lanes	Lane Width ¹	Shoulder Width ¹	Speed Limit	Average ROW	% PSD ²	Functional Class
Alexander, IL	US 51 to I 57	0.8	4	12'	n/a	45-50	n/a	n/a	Principal Arterial
	I 57 to IL 127	7.7	2-4	11'-12'	n/a	50-55	n/a	n/a	Principal Arterial
	IL 127 to IL 146	18.2	2	12'	n/a	55	n/a	n/a	Principal Arterial
	IL 146 to Union C/L	3.7	2	12'	n/a	55	n/a	n/a	Principal Arterial

**Table 2-1
Existing Roadway Information, Cont.**

IL 37

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Pulaski, IL	US 51 to IL 169	18.2	2	12'	n/a	25-55	n/a	n/a	Minor Arterial
	IL 169 to Johnson C/L	1.7	2	12'	n/a	45-55	n/a	n/a	Minor Arterial

IL 127

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Alexander, IL	IL 3 to Union C/L	14.8	2	12'	n/a	55	n/a	n/a	Major Collector

IL 145

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Massac, IL	US 45 to Pope C/L	10.1	2	11'-12'	n/a	55	n/a	n/a	Minor Arterial

IL 146

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Alexander, C/L	Cape Girardeau C/L to IL 3	3.8	2	12'	n/a	40-55	n/a	n/a	Principal Arterial

IL 169

	Description	Length	Number of Lanes	Lane Width¹	Shoulder Width¹	Speed Limit	Average ROW	% PSD²	Functional Class
Pulaski, IL	IL 37 to US 45	5.3	2	9'-12'	n/a	30-55	n/a	n/a	Major Collector

Sources: Kentucky Transportation Cabinet (KYTC) Highway Information System (HIS)
 Illinois Department of Transportation (IDOT)
 Missouri Department of Transportation (MoDOT)

¹ Lane and shoulder widths that do not meet current design standards (i.e., less than 12-foot-wide driving lanes and 10-foot-wide shoulders) are shaded.

² Percent Passing Sight Distance - the percent of segment length (estimated to the nearest 10%) which has available passing sight distance (as measured from the driver's eye to the road surface) of at least 1,500 feet. This information is only available for Kentucky maintained roads classified as State Primary or State Secondary.

bridges have the “thru truss” design, and were built either in the 1930s, or the mid-1970s. The two older bridges (*i.e.*, US 51 and US 60) have narrow lane widths and low federal sufficiency ratings. The US 51 bridge was built in 1937, crosses the Ohio River with two driving lanes, having a curb-to-curb width of 22.5 feet, and a sufficiency rating of 24.2.

(Sufficiency rating is a “the numerical rating [from 0 to 100] of a bridge based on its structural adequacy [i.e., load bearing capacity] and safety, essentially for public use, and its serviceability and functional obsolescence [i.e., roadway geometrics].” Generally, a sufficiency rating of 50 or less indicates the bridge is eligible for federal bridge replacement funding.)

The US 60 bridge was built in 1929, crosses the Mississippi River with two driving lanes, has a 20-foot curb-to-curb width, and sufficiency rating of 19.0. The I 24 bridge was built in 1974, crosses the Ohio River with four driving lanes, has a 65.4-foot curb-to-curb width, and sufficiency rating of 64.0. The I 57 bridge was built in 1976, crosses the Mississippi River at Cairo with four driving lanes, has a 61.5-foot curb-to-curb width, and sufficiency rating of 73.0.

In addition to the existing bridges, a new bridge at Cape Girardeau was constructed. The new bridge, the Bill Emerson Memorial Bridge, is a 100-foot wide, 4,000-foot long cable stay bridge. It links Cape Girardeau, Missouri, and East Cape Girardeau, Illinois, and spans the Mississippi River on Illinois 146 / Missouri 34.

**Table 2-2
Existing Bridge Information**

County	Route	Bridge Number	Feature Crossed	Bridge Length¹	Curb to Curb¹	Year Built	Bridge Type	Sufficiency Rating²	Type Service
Ballard, Kentucky	US 51	B00021	Ohio River	5,865	22.5	1937	Thru Truss	24.2	Highway/Railroad-Waterway
McCracken, Kentucky	I-24	B00100	Ohio River	5,634	60	1974	Thru Truss	64	Highway/Waterway
Mississippi, Missouri	I-57	A2000	Mississippi River	2,045	61.5	1976	Thru Truss	73	Highway/Waterway
Mississippi, Missouri	US 60	K0950	Mississippi River	2,589	20	1929	Thru Truss	18.8	Highway/Waterway

¹ Measured in feet

² "Sufficiency rating" is defined as "the numerical rating of a bridge based on its structural adequacy [*i.e.*, load bearing capacity] and safety, essentially for public use, and its serviceability and functional obsolescence [*i.e.*, roadway geometrics]." Sufficiency ratings range from 0 to 100. Generally, a sufficiency rating of 50 or less indicates the bridge is considered eligible for federal replacement funding.

Sources: Kentucky Transportation Cabinet (KYTC) Highway Information System (HIS)
Missouri Department of Transportation (MoDOT)

2.2 Traffic Volume Information

Traffic count information was obtained from the KYTC HIS database, MoDOT, and IDOT. Existing traffic volumes for the study area's major roadways ranged from a low of 1,150 vehicles per day (vpd) along IL 127 in Alexander County, to a high of 42,000 vpd along I-24 near Paducah. (See Table 2-3 - Existing Traffic Information, and Figure 3 - Average Daily Traffic and Truck Percentages following). These traffic volumes can be expected to increase in the future based largely upon increasing interstate and international commerce.

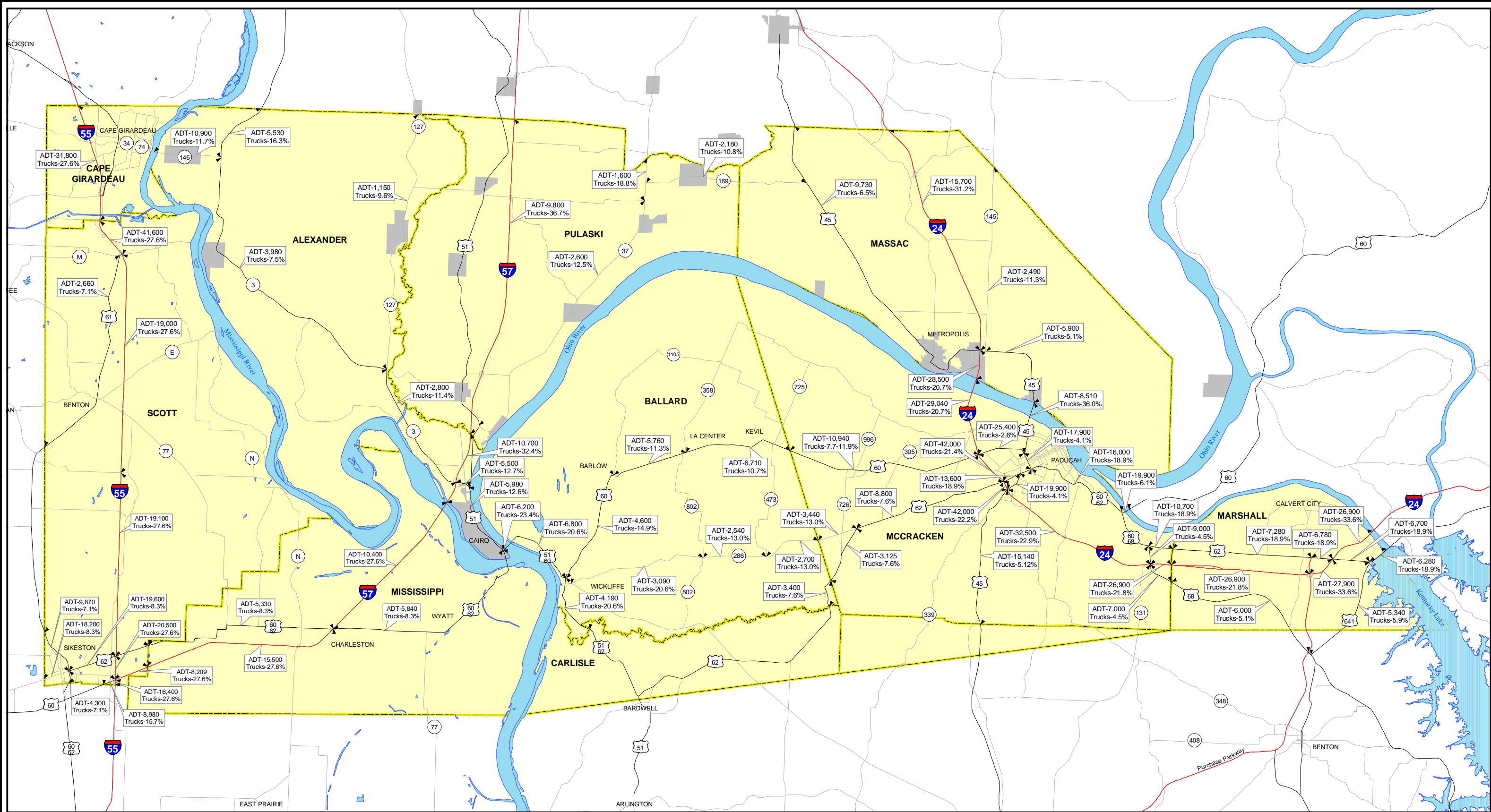
Historical traffic trends indicate that traffic volumes on the existing US and state roadways have increased roughly two percent annually since 1980, for a total increase of over 40 percent. Traffic volumes on the interstate highways have increased nearly three times as much, or about 120 percent since 1980.

2.3 Vehicle Classification Data

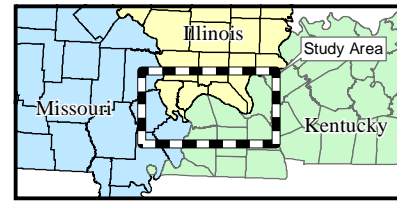
State traffic information records provided vehicle classification data. The percentage of trucks using the study area's major routes ranged from a low of 2.6 percent along US 60 near Paducah, to a high of 36.7 percent along I-57 in Pulaski County, Illinois. (See Table 2 - 3 Existing Traffic Information and Figure 3 - Average Daily Traffic and Truck Percentages following.) The three interstate highways carry most of the truck traffic, and ranged from 20.7 percent on I-24 in Illinois and Kentucky, to 36.7 percent on I-57 in Illinois.

However, the following US highways also carry significant truck percentages: in Kentucky US 45, US 51, and US 62 ranged from 19% to 36% and in Illinois US 51 and US 60 ranged from 23% to 26%. Truck traffic volumes can be expected to increase based upon the increasing interstate and international commerce patterns that are likely to occur in the future.

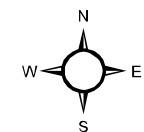
Table 2 - 4 - Commodities Shipped by Mode above and Table 2-5 - Freight Shipments by Weight / Value also above, contain data published in the US DOT's Freight Analysis Transportation Profile. Table 2-4 compares Freight Shipments by mode in the three states in the study area. As seen in this table, nearly twice as many goods by volume/weight were shipped by highway in each state as compared to rail, the next highest mode. Also, note that the shipments by all modes, but especially highway, are predicted to increase by the year 2020. Table 2- 5 shows the leading commodities shipped by each state ranked from highest to lowest, based on weight and value. The most commonly shipped commodities by ton varied from state to state as follows: Kentucky – Coal, Illinois – Farm Products, and Missouri – Non-Metallic Minerals. Transportation equipment ranked the highest for all states based on the value of commodities shipped.



PROJECT STUDY AREA



LOCATION MAP



0 2.5 5 Miles

Figure 3
**AVERAGE DAILY TRAFFIC
 AND TRUCK PERCENTAGES**

I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00

**Table 2-3
Existing Traffic Information**

I-24

	Description	ADT	Truck %	LOS
McCracken, KY	Illinois S/L to US 60	29,040	20.7%	B
	US 60 to US 62	42,000	21.4%	C
	US 62 to US 45	42,000	22.2%	C
	US 45 to US 68	32,500	22.9%	B
	US 68 to Marshall C/L	26,900	21.8%	B
Marshall, KY	McCracken C/L to JMC Pkwy*	26,900	21.8%	B
	JMC Pkwy to US 62	27,900	33.6%	B
	US 62 to Livingston C/L	26,500	33.6%	B

* Julian M Carroll Parkway, formerly known as Purchase Parkway.

US 45

	Description	ADT	Truck %	LOS
McCracken, KY	Graves C/L to I 24	15,140	5.7-12.0%	B
	I 24 to US 62	19,900	4.1%	B
	US 62 to US 60	17,900	4.1%	B
	US 60 to Illinois S/L	8,510	36.0%	A

US 51

	Description	ADT	Truck %	LOS
Ballard, KY	Carlisle C/L to US 60	4,190	20.6%	B
	US 60 to Illinois S/L	6,800	20.6%	C

US 60

	Description	ADT	Truck %	LOS ¹
Ballard, KY	US 51 to McCracken C/L	5,660	10.7-14.9%	D
McCracken, KY	Ballard C/L to I 24	10,940	7.7-11.9%	A
	I 24 to US 45	25,400	2.6%	C
	US 45 to US 62	20,000	2.6-6.1%	B
	US 62 to Livingston C/L	19,900	6.1%	E

¹ Roadway segments with LOS levels considered unacceptable for safe and efficient operation are shaded

US 62

	Description	ADT	Truck %	LOS ¹
Ballard, KY	Carlisle C/L to McCracken C/L	3,400	7.6%	D
McCracken, KY	Ballard C/L to KY 286	3,125	7.6%	B
	KY 286 to I 24	8,880	7.6%	E
	I 24 to US 45/60	13,600	18.9%	E
	US 45/60 to US 68	16,000	18.9%	B
	US 68 to Marshall C/L	10,700	18.9%	B
Marshall, KY	McCracken C/L to JMC Pkwy	7,280	18.9%	C
	JMC Pkwy to I 24	6,780	18.9%	E
	I 24 to US 641	6,700	18.9%	C
	US 641 to Livingston C/L	6,280	18.9%	E

**Table 2-3
Existing Traffic Information, Cont.**

US 68

	Description	ADT	Truck %	LOS
McCracken, KY	US 62 to I 24	9,000	4.5%	A
	I 24 to Marshall C/L	7,000	4.5%	C
Marshall, KY	McCracken C/L to JMC Pkwy	6,000	5.1%	B

US 641

	Description	ADT	Truck %	LOS
Marshall, KY	US 68 to US 62	5,340	5.9%	B

KY 286

	Description	ADT	Truck %	LOS ¹
Ballard, KY	KY 121 to McCracken C/L	2,670	13.0%	D
McCracken, KY	Ballard C/L to US 62	3,440	13.0%	D

I-55

	Description	ADT	Truck %	LOS
Scott, MO	I 57 to US 62	20,500	27.6%	A
	US 62 to US 61	19,340	27.6%	A
	US 61 to Cape Girardeau C/L	38,400	27.6%	C

I-57

	Description	ADT	Truck %	LOS
Mississippi, MO	Scott C/L to US 62	17,000	33.9%	A
	US 62 to Illinois S/L	10,400	33.9%	A

US 60

	Description	ADT	Truck %	LOS
Mississippi, MO	I 57 to Illinois S/L	4,470	15.7%	B

US 61

	Description	ADT	Truck %	LOS
Scott, MO	New Madrid C/L to US 62	4,300	7.1%	B
	US 62 to I 55	4,870	7.1%	B

**Table 2-3
Existing Traffic Information, Cont.**

US 62

	Description	ADT	Truck %	LOS
Mississippi, MO	Scott C/L to I 57	4,950	8.3%	B

I-57

	Description	ADT	Truck %	LOS
Alexander, IL	Missouri S/L to Pulaski C/L	10,700	34.2%	A
Pulaski, IL	Alexander C/L to Union C/L	9,800	36.7%	A

I-24

	Description	ADT	Truck %	LOS
Massac, IL	Kentucky S/L to US 45	28,500	20.7%	B
	US 45 to Johnson C/L	15,700	31.2%	A

US 45

	Description	ADT	Truck %	LOS
Massac, IL	Kentucky S/L to I 24	5,900	5.1%	A
	I 24 to Johnson C/L	9,725	6.5%	A

US 51

	Description	ADT	Truck %	LOS
Alexander, IL	Kentucky S/L to US 60	6,200	23.4%	A
	US 60 to Pulaski C/L	5,980	12.6%	A

US 60

	Description	ADT	Truck %	LOS
Alexander, IL	Missouri S/L to US 51	4,700	25.5%	B

IL 3

	Description	ADT	Truck %	LOS¹
Alexander, IL	US 51 to I 57	5,500	12.7%	A
	I 57 to IL 127	2,800	11.4%	C
	IL 127 to IL 146	3,980	7.5%	C
	IL 146 to Union C/L	5,530	16.3%	D

**Table 2-3
Existing Traffic Information, Cont.**

IL 37

	Description	ADT	Truck %	LOS
Pulaski, IL	US 51 to IL 169	2,600	12.5%	A
	IL 169 to Johnson C/L	1,600	18.8%	A

IL 127

	Description	ADT	Truck %	LOS
Alexander, IL	IL 3 to Union C/L	1,150	9.6%	A

IL 145

	Description	ADT	Truck %	LOS
Massac, IL	US 45 to Pope C/L	2,490	11.3%	A

IL 146

	Description	ADT	Truck %	LOS¹
Alexander, IL	Cape Girardeau C/L to IL 3	10,900	11.7%	D

IL 169

	Description	ADT	Truck %	LOS¹
Pulaski, IL	IL 37 to US 45	2,180	10.8%	D

¹ Roadway segments with LOS levels considered unacceptable for safe and efficient operation are shaded.

Sources: Kentucky Transportation Cabinet (KYTC) Highway Information System (HIS)
 Illinois Department of Transportation (IDOT)
 Missouri Department of Transportation (MoDOT)

**Table 2-4
Commodities Shipped by Mode**

Mode	Kentucky (Million Tons)		Illinois (Million Tons)		Missouri (Million Tons)	
	1998	2020	1998	2020	1998	2020
Air	1	3	2	5	<1	1
Highway	304	524	658	1119	310	542
Other	<1	<1	1	1	<1	<1
Rail	160	218	371	598	104	159
Water	93	132	118	205	38	58

Source: *Freight Analysis Profile*, US Department of Transportation

**Table 2-5
Freight Shipments By Weight / Value**

Kentucky

Rank	By Weight (Million Tons)	By Value (Billion \$)
1	Coal	Transportation Equipment
2	Non-Metallic Minerals	Secondary Traffic
3	Secondary Traffic	Mail/Contract Traffic
4	Clay/Concrete/Glass/Stone	Chemicals/Allied Products
5	Farm Products	Machinery

Illinois

Rank	By Weight (Million Tons)	By Value (Billion \$)
1	Farm Products	Transportation Equipment
2	Non-Metallic Metals	Freight All Kinds
3	Coal	Food/Kindred Products
4	Freight All Kinds	Chemicals/Allied Products
5	Food/Kindred Products	Machinery

Missouri

Rank	By Weight (Million Tons)	By Value (Billion \$)
1	Non-Metallic Minerals	Transportation Equipment
2	Farm Products	Secondary Traffic
3	Coal	Food/Kindred Products
4	Secondary Products	Chemicals/Allied Products
5	Clay/Concrete/Glass/Stone	Farm Products

Source: *Freight Analysis Profile*, US Department of Transportation

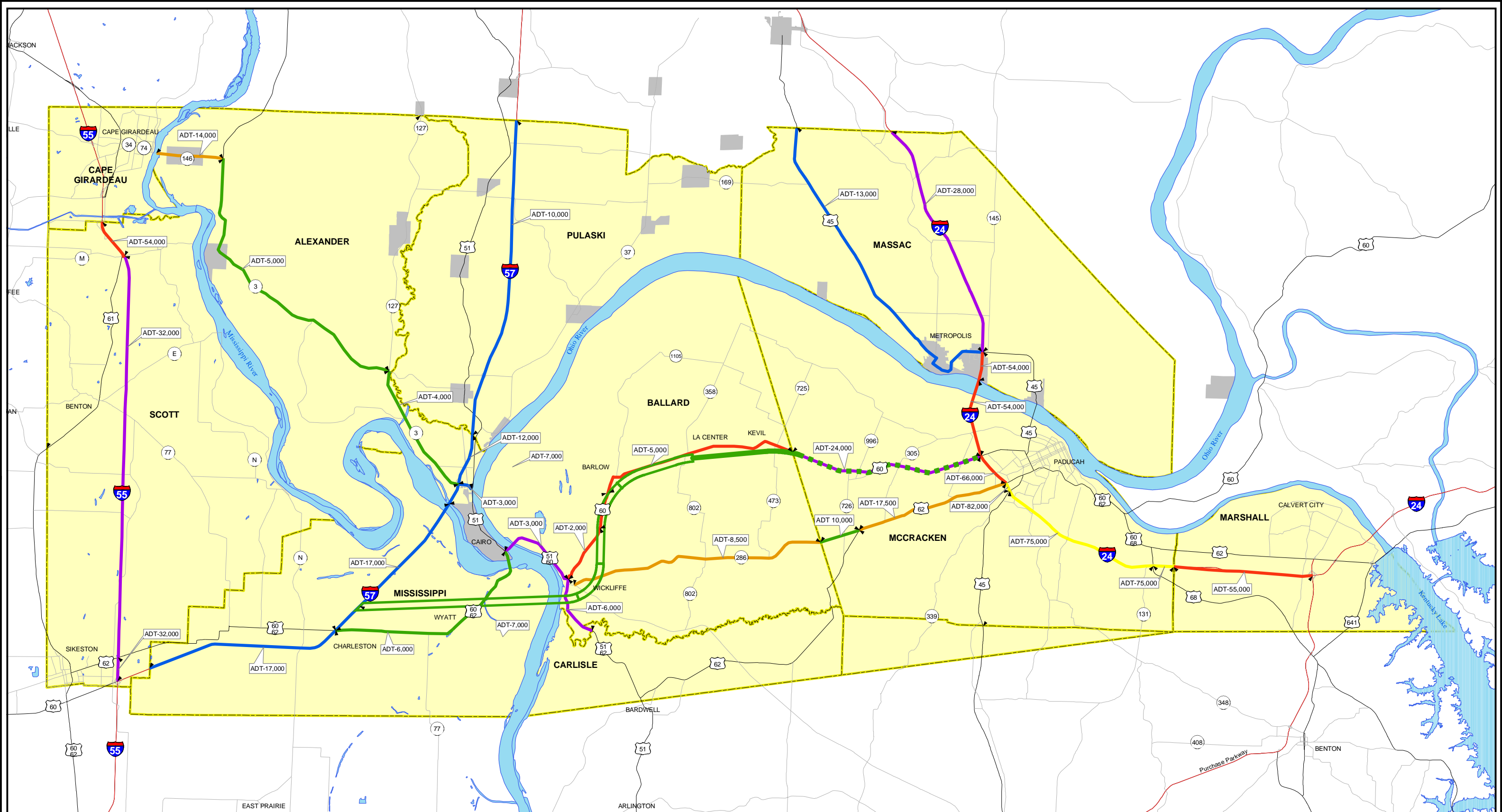
2.4 Traffic Operations

The traffic analysis methods used are based upon generally accepted engineering practices and computer models. Data sources included individual state databases, previous traffic studies, and field surveys. The study examined Level of service (LOS) which is an analysis method commonly used to evaluate roadway functions. “Level of service” is defined as a qualitative measure of operational conditions, and the motorists’ perception of those conditions. The conditions are usually defined in terms such as speed, travel time, percent following, maneuverability, and delay.

The LOS analysis performed on roadways within the study area indicated that the existing LOS ranges from A to E. The letters “A” through “F” designate the six levels of service. Level of service “A” represents the best operating conditions, while level of service “F” defines the worst. According to national standards, the lower levels of service (*i.e.*, “D,” “E”, and “F”) do not reflect safe and efficient operations. These lower levels generally involve unstable traffic flows, and offer drivers little freedom to maneuver. The American Association of State Highway and Transportation Officials (AASHTO’s) *A Policy on Geometric Design of Highways and Streets* states that the minimum desired LOS for the design of a highway in a rural area is “B”, and in an urban area is “C.” (Refer to Table 2-3 - Existing Traffic Information, found above for a detailed listing of LOS by roadway section.) While the desirable LOS rating for rural areas is B, this is often not attainable in a cost effective manner. Therefore, LOS C is more realistic and is often used as the threshold for those areas. As such, existing roadway sections not meeting the desired LOS C are shaded in Table 2-3. Note that US 60 had acceptable LOS ratings in Missouri and Illinois; however, in Kentucky about 47 percent of US 60 is rated as unacceptable (*i.e.*, LOS D, E, or F – probably due to higher levels of percent following – *i.e.* being behind a large slower farm or other type of vehicle). US 62 in Missouri had an acceptable LOS of B, but in Kentucky about 44 percent of US 62 is rated as unacceptable (again probably due to percent following). KY 286, IL 146, and IL 169 are all rated as an unacceptable LOS D for their full length (see above comments).

Analysis showed, that by 2030, without any highway improvements, the anticipated increases in traffic volumes would likely cause the design hour levels of service on some roadways in the study area to degrade. 2030 No Build, and 2030 analysis for corridors 8B, 11, and 20, traffic volumes were derived using the Kentucky Statewide Traffic Model and are shown on Figures 4 to 7 and Table 2-6 respectively. In addition, Table 2-6 shows volumes and LOS for the various roadway sections for 2030 Build and No-Build corridors. The LOS analysis performed for 2030 Build and No-Build Scenarios determined the LOS for area roadways would range from A to F for all corridors. Most area roadways showed at least a drop of one level of service with the exception of I-24 in Kentucky and Illinois where most sections had a multi-level drop in LOS. Increasing traffic volumes and lowered levels of service could eventually result in reoccurring peak

hour congestion and its associated delays in accessing businesses, along with increased driver frustration and the likelihood for higher crash rates.

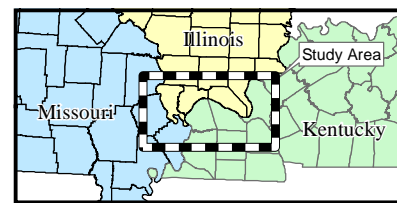


Level of Service

Blue line	A
Purple line	B
Green line	C
Red line	D
Orange line	E
Yellow line	F
Yellow shaded area	PROJECT STUDY AREA

Alternative Corridors

Green outline	8b
Dashed green line	Existing 60 Improved
Solid green line	Improvements Programmed



LOCATION MAP

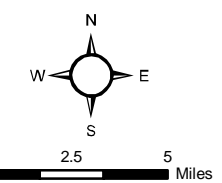
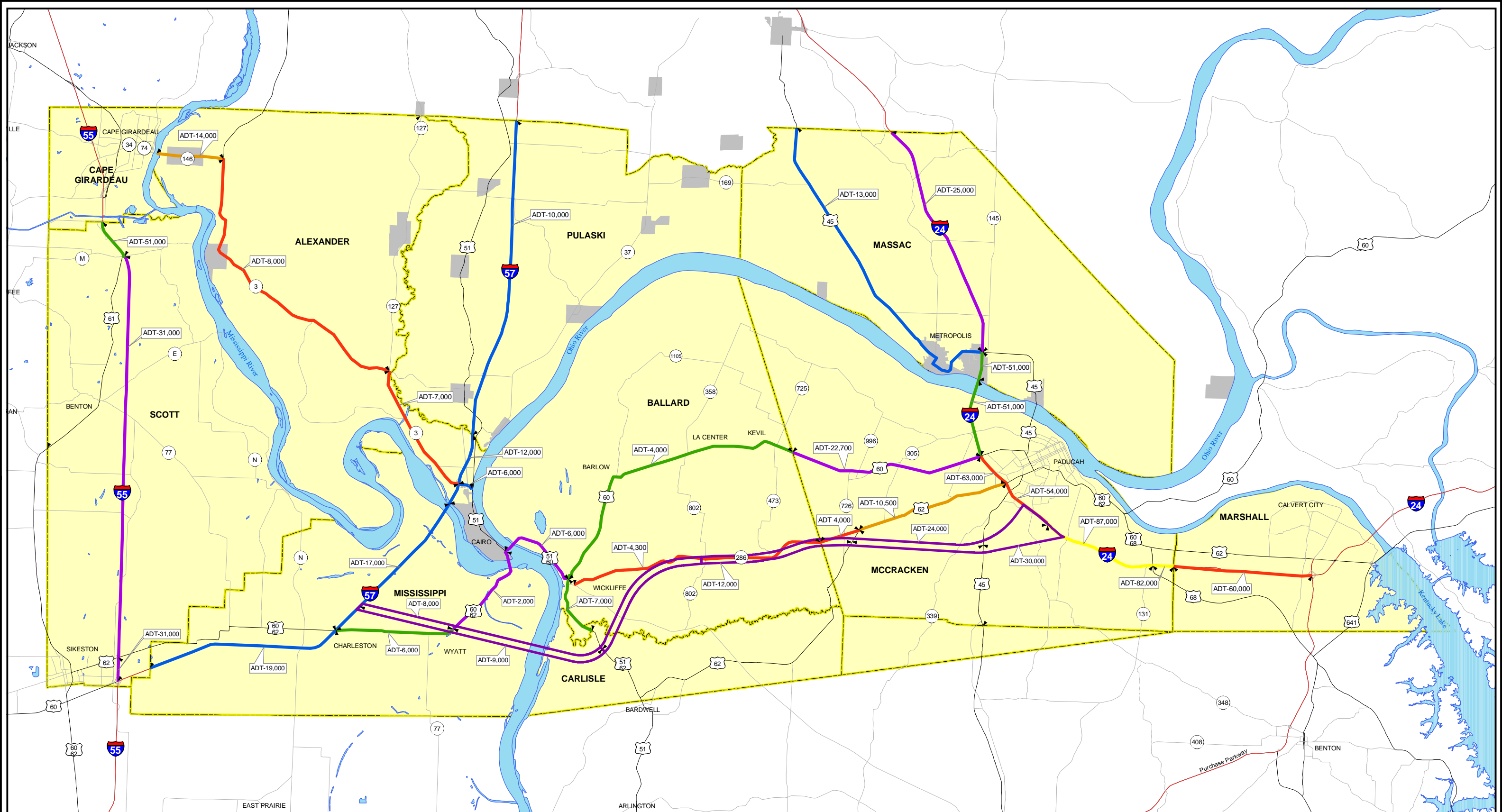
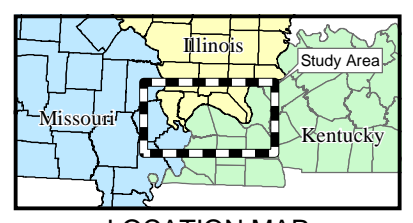


Figure 5
ALTERNATIVE 8b
2030 TRAFFIC
AND LEVEL OF SERVICE
 I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00





- | Level of Service | Alternative Corridors |
|---|---|
| — A | 11 |
| — B | PROJECT STUDY AREA |
| — C | |
| — D | |
| — E | |
| — F | |



LOCATION MAP

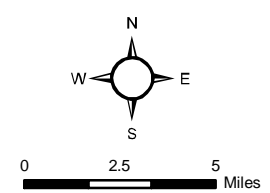
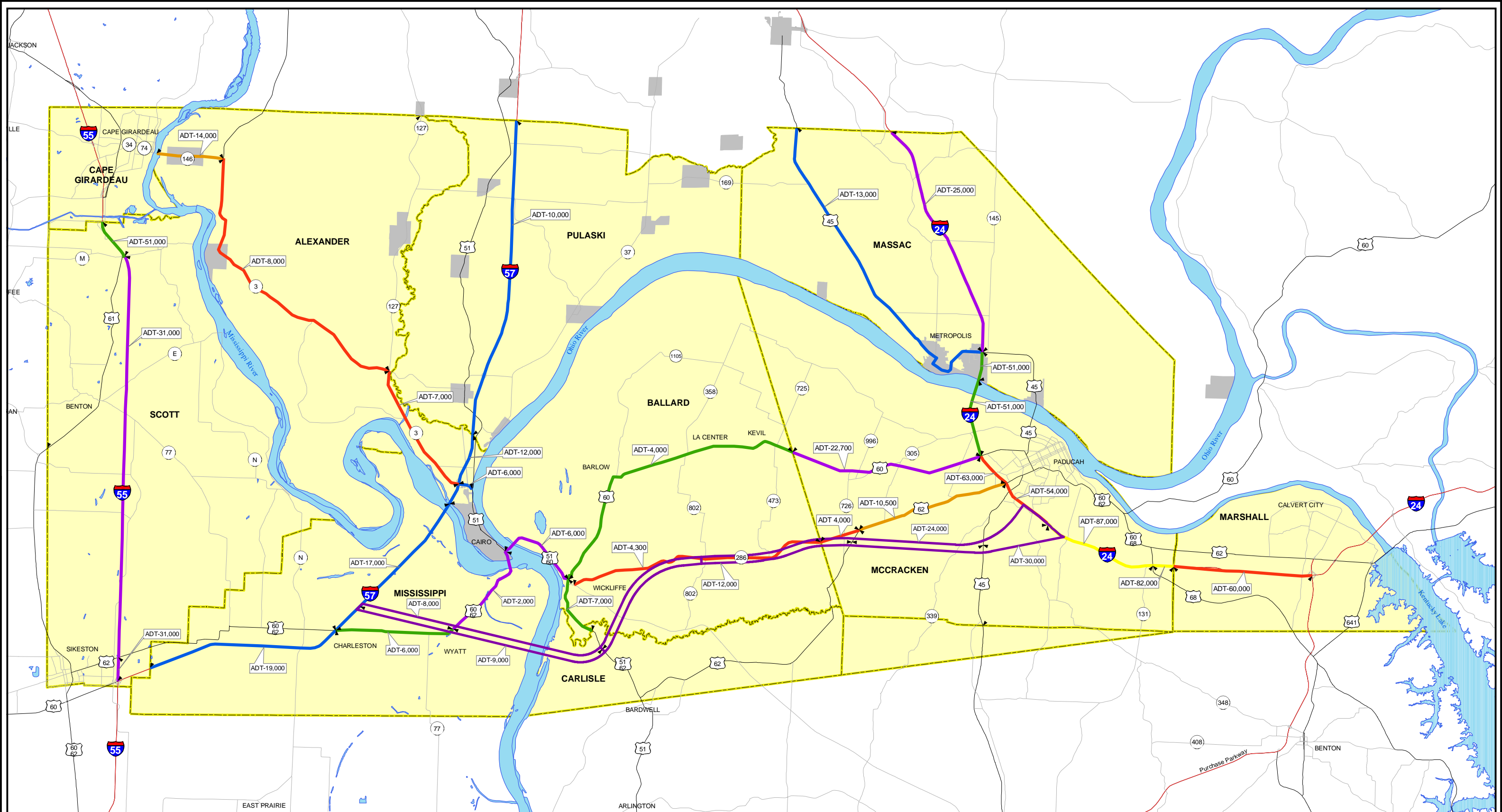


Figure 6
ALTERNATIVE 11 2030 TRAFFIC AND LEVEL OF SERVICE

I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00



- | Level of Service | Alternative Corridors |
|---|--|
| — A | 11 |
| — B | PROJECT STUDY AREA |
| — C | |
| — D | |
| — E | |
| — F | |

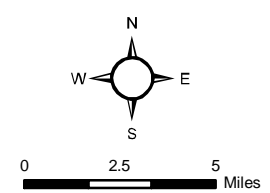
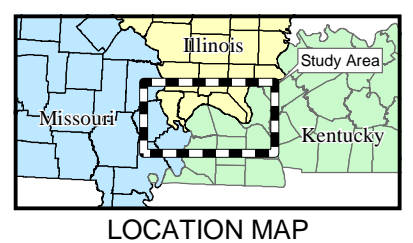


Figure 6
ALTERNATIVE 11 2030 TRAFFIC AND LEVEL OF SERVICE

I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00

**Table 2-6
Future Traffic Information**

I 24

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
McCracken, KY	Illinois S/L to US 60	49000	C	54000	D	51000	C	56000	D
	US 60 to US 62	66000	D	66000	D	63000	D	72000	E
	US 62 to US 45	75000	F	82000	F	54000	D	84000	F
	US 45 to US 68	69000	E	75000	F	87000	F	84000	F
	US 68 to Marshall C/L	69000	E	75000	F	82000	F	79000	F
Marshall, KY	McCracken C/L to JMC Pkwy	50000	C	55000	D	60000	D	57000	D

US 51

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Ballard, KY	Carlisle C/L to US 60	6000	B	6000	B	7000	C	5000	B
	US 60 to Illinois S/L	11000	D	3000	B	6000	B	8000	C

US 60

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Ballard, KY	US 51 to McCracken C/L	10000	D	5000	D	4000	C	9000	D
McCracken, KY	Ballard C/L to I 24	27300	C	24000	B	22700	B	25700	B

¹ Roadway segments with LOS levels considered unacceptable for safe and efficient operation are shaded.

US 62

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Ballard, KY	Carlisle C/L to McCracken C/L	4000	D	---	---	---	---	---	---
McCracken, KY	Ballard C/L to KY 286	4000	C	---	---	---	---	---	---
	KY 286 to I 24	15000	E	17500	E	10500	E	16000	E

KY 286

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Ballard, KY	KY 121 to McCracken C/L	4000	D	8500	E	4300	D	2000	D
McCracken, KY	Ballard C/L to US 62	6000	D	1000	C	4000	D	6000	D

I 55

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Scott, MO	I 57 to US 62	32000	B	32000	B	31000	B	32000	B
	US 62 to US 61	32000	B	32000	B	31000	B	32000	B
	US 61 to Cape Girardeau C/L	54000	D	54000	D	51000	C	52000	C

I 57

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Mississippi, MO	Scott C/L to US 62	15000	A	17000	A	19000	A	17000	A
	US 62 to Illinois S/L	17000	A	17000	A	17000	A	16000	A

**Table 2-6
Future Traffic Information continued**

US 60

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Mississippi, MO	I 57 to Illinois S/L	6500	C	6000	C	6000	C	6000	C

I 57

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Alexander, IL	Missouri S/L to Pulaski C/L	12000	A	12000	A	12000	A	11000	A
Pulaski, IL	Alexander C/L to Union C/L	10000	A	10000	A	10000	A	10000	A

I 24

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Massac, IL	Kentucky S/L to US 45	49000	C	54000	D	51000	C	56000	D
	US 45 to Johnson C/L	25000	B	28000	B	25000	B	40000	C

US 45

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
	I 24 to Johnson C/L	12000	A	13000	A	13000	A	3000	A

US 60

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Alexander, IL	Missouri S/L to US 51	4000	B	6000	B	2000	A	6000	B

IL 3

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Alexander, IL	US 51 to I 57	7000	A	3000	A	6000	A	3000	A
	I 57 to IL 127	8000	D	4000	C	7000	D	2000	C
	IL 127 to IL 146	9000	D	5000	C	8000	D	4000	C

IL 146

	Description	2030 No-Build		Alternative 8B		Alternative 11		Alternative 20	
		ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
Alexander, IL	Cape Girardeau C/L to IL 3	15000	E	14000	E	14000	E	10000	D

¹ Roadway segments with LOS levels considered unacceptable for safe and efficient operation are shaded.

Source: Kentucky Statewide Traffic Model

2.5 Crash Analysis

Crash data was used to identify roadway sections with statistically high crash rates, thus indicating a possible need for safety improvements. The crash analysis was performed on the roadways previously listed with crashes reported in the Kentucky and Missouri study area researched for a five-year period from January 1, 1996 through December 31, 2000. Information was obtained from the KYTC HIS database and MoDOT. Illinois crash data was only available for the year 2000, and was provided by IDOT. Crash data by county roadway section appears in Table 2-6 - High Crash Locations, and in Figure 8 - Existing Crashes. The crash analysis for a given section of roadway within the study area was compared to critical crash rate for similar roadways within that state to identify high crash rate roadways.

A Critical Rate Factor Analysis was performed for the various roadways in the study area. The Critical Crash Rate is a statistically derived value that is used as a threshold to identify high crash locations. To begin with crash rates were calculated for study area roadways based upon the total number of crashes, the average daily traffic (ADT), and the roadway section length. Roadway section crash rates were then normalized for comparison by either hundred-million-vehicle-miles traveled (HMVM), or millions-of-vehicles (MV), depending upon individual state records. Kentucky and Missouri crash rates are maintained in the HMVM format, while Illinois maintains rates in the MV format.

The individual states provided their statewide average crash rates by roadway classifications. Critical crash rates for area roadways were found using the following formula:

$$A_c = A_a + K \sqrt{\frac{A_a}{M}} + \frac{1}{2M}$$

Where:

A_c = Critical Crash Rate

A_a = Statewide Average Crash Rate

K = Constant related to level of statistical significance selected (a probability of 0.995 was used wherein $K=2.576$), and

M = Exposure (for Kentucky/Missouri, M was in terms of 100 million vehicle-miles; for Illinois, M was in terms of million vehicles).

The critical crash rate factor is defined as the ratio of the roadway crash rate to the critical crash rate. If the ratio is greater than 1, meaning that the roadway crash rate is greater than the critical crash rate, then the roadway is can be labeled as being a high crash location.

**Table 2-7
High Crash Locations**

Route	County, State	Segment Length (miles)	Crashes				ADT	HMVM ²	MV ³	Crash Rate ⁴	Injury Rate	Fatal Rate	Statewide Crash Rate	Critical Rate	Critical Rate Factor ⁵	Statewide Fatal Rate	Critical Fatal Rate	Fatal Rate Factor ⁶
			PDO ¹	Injury	Fatal	Total												
I-24	Marshall, KY	12.1	166	99	2	267	27,300	6.034		44	16	0.33	49	56	0.78	0.6	1.492	0.22
	McCracken, KY	16.9	813	318	2	1133	36,000	11.090		102	29	0.18	92	99	1.03	0.6	1.242	0.15
	Massac, IL	15.1	53	4	0	57	17,500		96.387	0.591	0	0.00	4.172	4.711	0.13	0.6	0.808	0.00
I-55	Scott, MO	26.1	569	210	13	792	20,000	9.534		83	22	1.36	194	206	0.40	1.31	2.314	0.59
	Cape Girardeau, MO	27.3	407	131	5	543	31,800	15.826		34	8	0.32	194	203	0.17	1.31	2.080	0.15
I-57	Scott, MO	20.1	26	7	0	33	8,000	2.930		11	2	0.00	194	215	0.05	1.31	3.197	0.00
	Mississippi, MO	20.0	215	65	6	286	13,000	4.750		60	14	1.26	194	211	0.29	1.31	2.763	0.46
	Alexander, IL	4.3	11	2	0	13	10,700		16.755	0.776	0	0.00	4.172	5.483	0.14	0.6	1.116	0.00
	Pulaski, IL	17.7	40	8	0	48	9,800		63.384	0.757	0	0.00	4.172	4.838	0.16	0.6	0.858	0.00
US 45	McCracken, KY	13.5	1040	637	7	1684	14,000	3.449		488	185	2.03	501	532	0.92	1.5	3.338	0.61
	Massac, IL	22.9	129	41	0	170	9,700		81.042	2.098	1	0.00	1.651	2	1.04	1.3	1.631	0.00
US 51	Ballard, KY	8.3	98	64	1	163	5,000	0.757		215	85	1.32	248	295	0.73	3	8.770	0.15
	Alexander, IL	7.8	26	10	0	36	6,000		17.082	2.107	1	0.00	1.651	2.478	0.85	1.3	2.037	0.00
US 60	McCracken, KY	19.8	1078	763	10	1851	17,500	6.324		293	121	1.58	120	131	2.23	1.3	2.543	0.62
	Ballard, KY	16.8	195	170	6	371	5,700	1.748		212	97	3.43	248	279	0.76	3	6.649	0.52
	Mississippi, MO	22.3	213	96	4	313	5,500	2.240		140	43	1.79	232	258	0.54	2.24	5.030	0.35
	Scott, MO	0.6	10	5	0	15	9,000	0.096		156	52	0.00	232	363	0.43	2.24	19.857	0.00
	Alexander, IL	0.7	3	0	0	3	6,200		1.629	1.841	0	0.00	1.651	4.542	0.41	3	6.790	0.00
US 61	Scott, MO	26.0	507	147	1	655	3,200	1.521		431	97	0.66	232	264	1.63	2.24	5.684	0.12
US 62	Marshall, KY	12.1	155	110	4	269	7,000	1.550		174	71	2.58	248	281	0.62	3	6.894	0.37
	McCracken, KY	16.9	464	311	5	780	3,400	1.048		744	297	4.77	248	288	2.58	3	7.819	0.61
	Scott, MO	7.9	568	238	4	810	19,600	2.808		288	85	1.42	232	256	1.13	2.24	4.711	0.30
US 68	Marshall, KY	28.4	166	124	4	294	6,000	3.114		94	40	1.28	248	271	0.35	3	5.680	0.23
	McCracken, KY	2.7	78	104	3	185	7,000	0.341		543	305	8.81	248	319	1.70	3	12.085	0.73
US 641	Marshall, KY	6.4	83	58	2	143	5,800	0.676		211	86	2.96	248	298	0.71	3	9.145	0.32
IL 3	Alexander, IL	30.6	43	10	2	55	4,500		50.178	1.096	0	0.04	1.078	1.464	0.75	3	3.638	0.01
IL 37	Pulaski, IL	19.9	26	2	0	28	2,600		18.866	1.484	0	0.00	1.078	1.718	0.86	3	4.050	0.00
IL 127	Alexander, IL	14.8	14	6	0	20	1,150		6.225	3.213	1	0.00	1.078	2.227	1.44	3	4.862	0.00
IL 145	Massac, IL	10.1	19	2	0	21	2,500		9.244	2.272	0	0.00	1.078	2.009	1.13	3	4.516	0.00
IL 146	Alexander, IL	3.8	16	6	0	22	10,900		14.999	1.467	0	0.00	1.078	1.800	0.82	3	4.181	0.00
IL 169	Pulaski, IL	5.3	4	1	0	5	2,200		4.224	1.184	0	0.00	1.078	2.493	0.47	3	5.282	0.00
KY 286	McCracken, KY	2.3	19	22	0	41	3,400	0.141		290	156	0.00	248	359	0.81	3	18.355	0.00
	Ballard, KY	14.3	89	83	2	174	2,700	0.705		247	118	2.84	248	297	0.83	3	9.006	0.32

Sources: Kentucky Transportation Cabinet (KYTC) Highway Information System (HIS), Illinois Department of Transportation (IDOT), Missouri Department of Transportation (MoDOT)

¹ PDO (Property Damage Only)

² HMVM (Hundred Million Vehicle Miles Traveled) exposure for roadway sections (greater than 0.30 miles): (length of roadway x ADT x 365 x # of years) / (100,000,000)

³ MV (Million Vehicles) exposure for roadway spots (0.30 miles): (ADT x 365 x # years) / (1,000,000)

⁴ Kentucky and Missouri rates are calculated per hundred million vehicle miles based on data from 1996 through 2000. Illinois rates are calculated per million vehicles based on 2000 data.

⁵ Crash rates greater than 1.00 are high crash rate locations with crashes occurring at statistically significant amounts that cannot be explained by other factors, and are indicated by shading.

⁶ Fatal Rate Factor rates greater than 1.00 are high fatality rate locations with fatalities occurring at statistically significant amounts that cannot be explained by other factors, and are indicated by shading.

Table 2-7 – High Crash Locations identified nine roadway sections with high crash rates. A similar analysis was performed for all fatal crashes. The objective was to identify any roadway sections with statistically higher than statewide average fatality rates. This analysis showed that there were no roadway sections in the study area with a statistically high fatality crash rate.

2.6 Intermodal Transportation Options

Intermodal transportation refers to modes of transportation within the study area in addition to roadways. It includes considerations such as public use airports, freight and passenger railroad terminals, bus service, marine terminals and other water ports, transfer facilities, trucking facilities, industrial parks, bicycle facilities, and pedestrian facilities. Known intermodal transportation modes are shown on Figure 9 - Intermodal Facilities. Although there are some intermodal facilities in the study area, the opportunities to take advantage of them are limited by the nature and geography of the area. The dispersed settlement patterns and lack of density for instance, make the use of transit problematic. There are however, sufficient accommodations for other modes such as bicycling on a region wide basis and for pedestrians in urban areas.

(See Appendix 2, Existing Conditions Summary for more detailed information about the project study area, including the transportation system and its characteristics.)

3.0 ENVIRONMENTAL OVERVIEW

3.1 Introduction

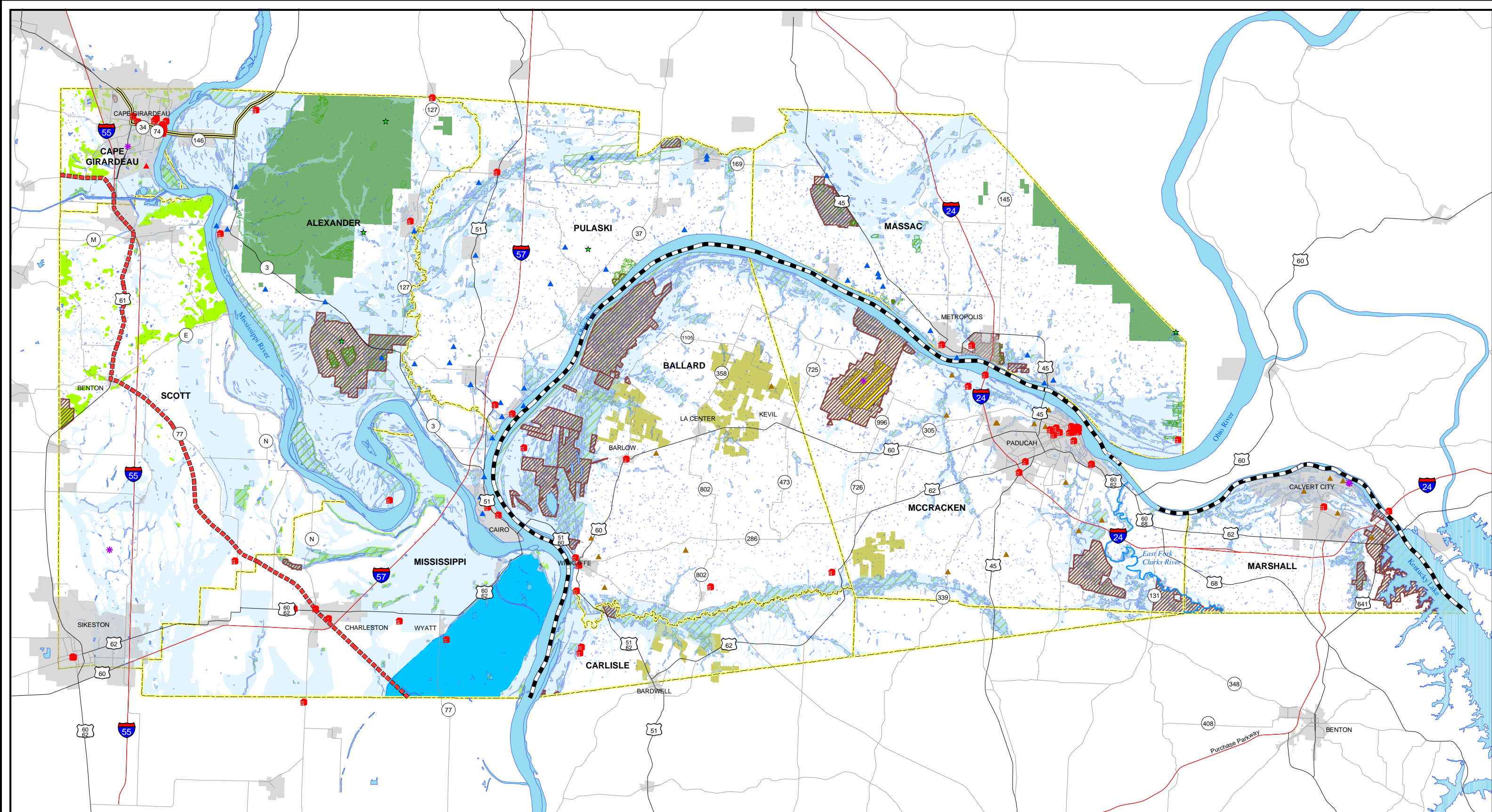
A high-level environmental overview was conducted to determine the general characteristics of the study area. This environmental overview was based on secondary sources, and very limited field verifications. The environmental characteristics areas appear on the following map highlighted by Figure 14 - Environmental Constraints, and are discussed below. For more detailed information see Appendix 2 – Existing Conditions Summary.

3.2 Environmental Constraints

In an effort to identify major environmental constraints, a study was completed to consider documented environmental features in the overall project area and for inclusion in the development of the project corridors and eventually in their analysis. These features included known natural environmental features such as forests, wetlands, wildlife areas, wildlife management areas, conservation lands, and floodplains, as well as human environmental features such as designated agricultural districts, National Register of Historic Places (NRHP) sites, and Superfund hazardous waste sites. All of the data collected was extracted from sources via correspondence with a variety of resource agencies and from their existing databases and/or websites.

The position of the environmental features were placed in a geographic information system (GIS) database and processed to determine the relative abundance of features within the study area. This was designed to generally locate documented features for consideration, but it should be noted that highly sensitive undocumented features likely are present in the project area and were not located in this effort; such features will be identified in future project phases. In addition, some other known features may be excluded from the data set because they were not at the respective repositories contacted during this study. In any event, future project development phases will fully investigate and document the environmental constraints and will likely avoid them.

Wetland areas are one of the more prominent features noted in the study area, particularly in western Ballard County, Kentucky and Alexander County, Illinois. Large areas of wetlands are concentrated in the bottomlands along much of the Ohio and Mississippi Rivers. These areas also commonly have associated wildlife management area (WMA) or conservation area (CA) designations. Designations include large areas such as the Barlow Bottoms WMA (6,900 acres) and Ballard WMA (8,100 acres) in Kentucky and Horseshoe Lake Conservation Area (8,200 acres) in Illinois. Other large features include West Kentucky WMA and Clarks River National Wildlife Reserve in Kentucky. Large areas that would be considered sensitive in Illinois such as Bumgard Island, Burnham Island, and Brown's Bar, are designated Illinois natural areas located



- National Historic Register Site
- ★ Illinois Natural Area Location
- ✱ NPL Sites
- ▲ Active/Permitted Landfills (MO)
- ▲ Landfills (KY)
- ▲ Landfills (IL)
- Trail of Tears - Auto route
- Trail of Tears - Benge's Route
- Trail of Tears - Water Route
- Agricultural District
- Wildlife Preserve/Conservation Area/Park
- Forested Area (MO)
- Shawnee National Forest
- Wetland
- 100 Year Floodplain
- New Madrid Floodway
- Superfund Site (KY)
- PROJECT STUDY AREA

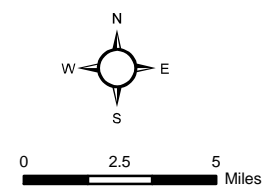
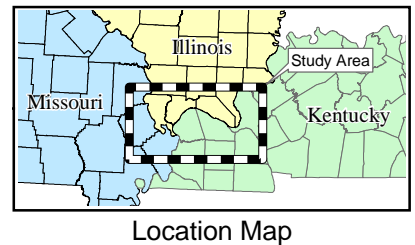


Figure 10
ENVIRONMENTAL CONSTRAINTS
 I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00



along the banks of the Mississippi River. The single largest feature in the project area is the Shawnee National Forest, located primarily in Alexander County, Illinois.

The Shawnee National Forest lies in the rough, unglaciated areas known as the Illinois Ozark and Shawnee Hills. The geology is spectacular and divergent, with numerous stone bluffs and overlooks transcending to lowland areas. Topography ranges from the flood plains of the Mississippi and Ohio Rivers, at about 325 feet above sea level to 1,064 feet at Williams Hill in Pope County. The geologic processes that formed the landscape are partially responsible for the presence of important mineral resources, including some of national significance.

Plant life is extremely diverse and ranges from sun-loving species to those that grow in dense shade. Tree cover dominates the publicly owned acreage, and is a significant component on privately owned lands. Oak-hickory is the predominant timber type; however, many other commercially important timber species also occupy significant acreages. More than 500 wildlife species can be found within the Forest, including 48 mammals, 237 birds, 52 reptiles, 57 amphibians, and 109 species of fish. There are seven federally listed threatened and endangered species inhabiting the Forest, as well as 33 species, which are considered regionally sensitive, and 114 Forest-listed species.

The precise locations of federal threatened or endangered species were not identified for this analysis. However, according to the United States Fish and Wildlife Service, there are 14 species of federal threatened or endangered animal species that may occur in the study area. A listing of the species and a brief description of their habitat is included in Tables 3-1, 3-2, and 3-3 - Threatened and Endangered Species (Kentucky, Missouri, and Illinois, respectively). The habitat for some species, such as the Indiana bat (*Myotis sodalis*) consisting of certain forest types, is common. Other species habitat, such as endangered freshwater mussel species, is limited to streams and rivers.

Human environmental features considered for this phase of the project were landfills, Superfund sites, and NRHP sites. The geographic size of these features varies widely from single historic structures to the Paducah Gaseous Diffusion Plant's 3,500-acre Superfund site. The Trail of Tears is a long linear feature that is present in the study area and is a sensitive Native American and cultural historic feature. Both the Trail of Tears Water Route and the Auto Route are documented throughout the study area and are incorporated into project mapping and GIS analysis databases.

Many of the communities in the project area have historic districts that will vary in size from a single block to an entire neighborhood. There are 68 previously recorded cultural historic or archaeological NRHP sites located within the study area. These resources include prehistoric archaeological sites or districts and historic districts. NRHP sites require consideration; however sites eligible for listing require the same degree of consideration. The number of sites eligible for NRHP listing is unknown but can be expected to significantly exceed the number of recorded sites.

**Table 3-1
Threatened and Endangered Species - Kentucky**

State	County	Taxonomic Group	Scientific Name	Common Name	Statuses	Habitat	
Kentucky	Ballard	Birds	<i>Haliaeetus leucocephalus</i>	Bald eagle	Endangered	Along open bodies of water in large trees	
			<i>Sterna antillarum athalassos</i>	Interior least tern	Endangered	Sandbars and shallow water in large rivers.	
		Bivalves	<i>Obovaria retusa</i>	Ring pink	Endangered	Large rivers on gravel bars in swift water	
			<i>Plethobasus cooperianus</i>	Orangefoot pimpleback	Endangered	Large rivers in 15-20 feet of water with sand or gravel substrates	
		Fishes	<i>Scaphirhynchus albus</i>	Pallid sturgeon	Endangered	Muddy or silty waters of large rivers with moderate currents	
			<i>Etheostoma chienense</i>	Relict darter	Endangered	Known only from the Bayou du Chien - a small sand and mud bottomed stream	
		Mammals	<i>Myotis sodalis</i>	Indiana bat	Endangered	Limestone caves (winter) and large trees with exfoliating bark (summer)	
		Graves	Fishes	<i>Etheostoma chienense</i>	Relict darter	Endangered	Known only from the Bayou du Chien - a small sand and mud bottomed stream
		Marshall	Bivalves	<i>Lampsilis abrupta</i>	Pink mucket	Endangered	Medium to large rivers with moderate to fast flowing currents
				<i>Obovaria retusa</i>	Ring pink	Endangered	Large rivers on gravel bars in swift water
	<i>Plethobasus cooperianus</i>			Orangefoot pimpleback	Endangered	Large rivers in 15-20 feet of water with sand or gravel substrates	
	<i>Pleurobema clava</i>			Clubshell	Endangered	Big rivers burrowed in 2-4 inches of sand or gravel	
	Birds		<i>Haliaeetus leucocephalus</i>	Bald eagle	Threatened	Along open bodies of water in large trees	
	McCracken	Bivalves	<i>Lampsilis abrupta</i>	Pink mucket	Endangered	Medium to large rivers with moderate to fast flowing currents	
			<i>Obovaria retusa</i>	Ring pink	Endangered	Large rivers on gravel bars in swift water	
			<i>Plethobasus cooperianus</i>	Orangefoot pimpleback	Endangered	Large rivers in 15-20 feet of water with sand or gravel substrates	
			<i>Potamilus capax</i>	Fat pocketbook	Endangered	Backwater areas of large rivers in muddy or silty substrates	
		Mammals	<i>Myotis sodalis</i>	Indiana bat	Endangered	Limestone caves (winter) and large trees with exfoliating bark (summer)	
	Carlisle	Bivalves	<i>Potamilus capax</i>	Fat pocketbook	Endangered	Backwater areas of large rivers in muddy or silty substrates	
		Birds	<i>Haliaeetus leucocephalus</i>	Bald eagle	Threatened	Along open bodies of water in large trees	
			<i>Sterna antillarum athalassos</i>	Interior least tern	Endangered	Sandbars and shallow water in large rivers.	
		Mammals	<i>Myotis sodalis</i>	Indiana bat	Endangered	Limestone caves (winter) and large trees with exfoliating bark (summer)	

**Table 3-2
Threatened and Endangered Species - Missouri**

State	County	Taxonomic Group	Scientific Name	Common Name	Statuses	Habitat
Missouri	Mississippi	Birds	Haliaeetus leucocephalus	Bald eagle	Endangered	Along open bodies of water in large trees
			Sterna antillarum athalassos	Interior least tern	Endangered	Muddy or silty waters of large rivers with moderate currents
		Fish	Scaphirhynchus albus	Pallid sturgeon	Endangered	Muddy or silty waters of large rivers with moderate currents
		Plants	Boltonia decurrens	Decurrent false aster	Endangered	Floodplain of the Illinois and Mississippi rivers
	Cape Girardeau	Birds	Haliaeetus leucocephalus	Bald eagle	Threatened	Along open bodies of water in large trees

**Table 3-3
Threatened and Endangered Species - Illinois**

State	County	Taxonomic Group	Scientific Name	Common Name	Statuses	Habitat
Illinois	Alexander	Birds	<i>Sterna antillarum</i>	Least tern	Endangered	Bare alluvial and dredged spoil islands, Mississippi & Ohio Riv.
		Mammals	<i>Myotis grisescens</i>	Gray bat	Endangered	Caves/abandoned mines
			<i>Myotis sodalis</i>	Indiana bat	Endangered	Limestone caves (winter) and large trees with exfoliating bark (summer)
		Fish	<i>Scaphirynchus albus</i>	Pallid Sturgeon	Endangered	Muddy or silty waters of large rivers with moderate currents
	Pulaski	Mammals	<i>Myotis grisescens</i>	Gray bat	Endangered	Caves/abandoned mines
			<i>Myotis sodalis</i>	Indiana bat	Endangered	Limestone caves (winter) and large trees with exfoliating bark (summer)
		Bivalve	<i>Plethobasis cooperianus striatus</i>	Orange-footed pearly mussel	Endangered	Ohio River
			<i>Lampsilis orbiculata abrupta</i>	Pink mucket pearly mussel	Endangered	Ohio River
	Massac	Bivalve	<i>Potamilis capax</i>	Fat pocketbook pearly mussel	Endangered	Wabash River
		Birds	<i>Sterna antillarum</i>	Least tern	Endangered	Sandbars and shallow water in large rivers.

Agricultural lands are also abundant in the study area. Kentucky has designated agricultural districts, which are identified areas of farms. Those areas are documented on the environmental constraints mapping. Agricultural land use takes place extensively throughout the study area. Substantial farming operations with significant on-farm investments are evident throughout the region and the study area and are not limited to any one portion of them respectively.

The prevalence of agricultural activities in the region may be in part attributable to the availability of fertile soils in the Mississippi River valley. The fact that the study area also encompasses an area that includes the confluence of both the Mississippi and the Ohio Rivers also contributes to the fact that the region is conducive to agriculture. Not surprisingly, a large portion of the land in the study area is considered prime and unique farmland.

Landfills are also a common feature in the study area. Many of these facilities are not currently active and can be difficult to identify in the field. The presence of a landfill in a project corridor requires significant consideration as a potential liability and can require substantial mitigation. The databases available that identify such features are incomplete and do not always identify all landfills.

The Birds Point-New Madrid Floodway is a component of the Mississippi River and Tributaries Project, and is located on the west bank of the Mississippi River in Mississippi and New Madrid Counties, Missouri, just below the confluence of the Ohio and Mississippi Rivers. The Floodway is approximately 33 miles long and up to 10 miles wide. Its area comprises approximately 205 square miles of alluvial valley land and is enclosed by Mississippi River Project levees except for a 1,500-foot gap at the lower end, which provides a drainage outlet and allows flood backwaters to enter the Floodway. The upper St. Francis levee (called the Floodway frontline levee) which forms the eastern boundary, and the Birds Point-New Madrid Floodway Levee, called the setback levee, which forms the western boundary. The frontline levee consists of three parts: the upper fuse plug section (11 miles in length), the lower fuse plug section (5 miles in length), and the section between the two fuse plugs (38 miles in length). The fuse plug sections are designed 2 feet lower in grade than the remainder of the frontline levee and will convey the flow into and out of the Floodway. The Floodway setback levee extends from its junction with the Floodway frontline levee at Birds Point, Missouri, directly across the Mississippi River from Cairo, IL, southwesterly for a distance of about 36 miles, and ties in with the St. Johns Bayou levee near the mouth of that stream at the city of New Madrid. Forty one percent of Mississippi County, Missouri lies within the Floodway. The purpose of the Floodway is to prevent an increase in river stages upstream and adjacent to the Floodway during major flood events, which require its use.

4.0 GEOTECHNICAL OVERVIEW

The Kentucky Transportation Cabinet (KYTC) is evaluating potential roadway corridors for the construction of Interstate Route I-66 through portions of Marshall, Graves, Ballard, Carlisle, and McCracken Counties, Kentucky; Mississippi, Scott and Cape Girardeau Counties, Missouri; and Alexander, Pulaski, and Massac Counties in Illinois. Also under review are potential river crossings. Maps presenting the various corridors studied during each level of evaluation are presented throughout the project report.

Note: There is limited information and analysis presented for Illinois. This is because Illinois was not a participant in the study when the majority of the geotechnical work was completed. There are similar geotechnical issues faced in Illinois, especially in southern Illinois, as those documented for Kentucky and Missouri.

The scope of work for this study consists of performing a geotechnical overview for the study area based upon research of available published data; experience with highway design and construction within the Mississippi Embayment physiographic region; and field reconnaissance of the region. General geotechnical/geologic characteristics of the study area have been identified with special attention given to the potential Mississippi River and/or Ohio River crossings. A literature search was performed using a variety of sources. Tasks performed for this aspect of the study included reviews of the following items:

- Available topographic and geologic mapping of the project area published by the United States Geological Survey (USGS) and the Kentucky Geological Survey (KGS);
- The Geologic Map of Missouri, published by the State of Missouri, the Department of Natural Resources, and the Missouri Geological Survey;
- KGS Oil and Gas Development Activity mapping;
- National Wetlands and Wildlife Management Areas as recognized by the U.S. Department of the Interior, Fish and Wildlife Service;
- KYTC data from geotechnical explorations for roadway bridges in the vicinity of Wickliffe, Kentucky;
- Websites of various bridge projects of Mississippi River crossings.

A field reconnaissance of the region and the proposed roadway corridors was performed on July 3, 2003. Based upon the results of the field reconnaissance and reviews of the noted information, the general site physiology has been summarized, and corridor features of geotechnical significance that may influence alignment and grade selection have been identified. The following sections present the results of this overview.

4.1 Topography and Drainage



Figure 4-1. Mississippi River and Adjacent Flood Plains

The proposed roadway corridors are primarily located in Western Kentucky and Southeastern Missouri, and lie within the Mississippi Embayment physiographic region which is part of the Coastal Plain physiographic province. In Kentucky, these corridors are situated on portions of seven USGS 7.5-minute topographic quadrangle maps. They are the Barlow (1977), Wickliffe (1983), La Center (1975), Blandville (1977), Heath (1978), Lovelaceville (1978), and Paducah West (1982) Quadrangles. In Missouri, the corridors are situated on the Wyatt (1979) and Charleston (1979) Quadrangles. The surface topography

varies within the project corridors from well-dissected uplands in the northern and eastern portions of the areas in Kentucky, to large areas of nearly level flood plain in the vicinity of the Ohio and Mississippi Rivers in both Kentucky and Missouri. Figure 4-1 is a typical view of the topography of the flood plains adjacent to the Ohio and Mississippi Rivers. The upland areas are composed of rolling hills, locally flat-topped ridges, and broad valleys. Bottomlands adjacent to the Ohio and Mississippi Rivers are relatively flat, and marked by north-south oriented lakes, ponds, sloughs, chutes, and swamps, all former routes of these rivers in normal or flood-flow conditions. Additionally, loessal silt bluffs rise as much as 150 feet above the Mississippi River flood plain near Wickliffe, Kentucky. The bedrock surface is deep within both Kentucky and Missouri in this study area (generally in excess of two hundred feet). Therefore fluvio-lacustrine soil deposits dominate the area physiology.

Surface drainage within these area of Kentucky and Missouri is directed towards numerous swales, ditches, creeks and streams, and ultimately to the Ohio and Mississippi Rivers. Backwater sloughs are present within the project vicinity at lower elevations and retain water depending on the elevation stage of the adjacent river.

4.2 Stratigraphy

Corresponding USGS geologic quadrangles are available for Barlow (1971), Wickliffe (1974), La Center (1978), Blandville (1971), Heath (1966), Lovelaceville (1968), and Paducah West (1966). The 1979 Geologic Map of Missouri, published by the State of Missouri, the Department of Natural Resources, and the Missouri Geological Survey was used to describe geologic conditions relevant to the Missouri portion of the corridors and Mississippi River crossings. Based on the various geologic mapping and literature reviewed, the proposed corridors are primarily underlain by deeply buried Paleozoic era bedrock. Thick Tertiary sediments lie under a mostly complete covering

of Ice Age deposits of sand. Alluvial deposits of gravel, silt, clay, and loess from the meltwater swollen Ice Age Mississippi River and its tributaries are also present.

Specifically, the eastern (Kentucky) portions of the corridors will cross over well dissected, Quaternary age Peoria Loess silt as well as Tertiary and Quaternary Continental deposits comprised of sandy chert gravel and gravelly sand. Within creek bottoms the surface materials are Quaternary age alluvial silt, sand, and clay deposits. In the study areas of Kentucky and Missouri adjacent to the Mississippi and Ohio river bottoms, surface materials are composed of Quaternary age fluvio-lacustrine silt, sand, and clay deposits. Throughout the project corridors, these deposits are underlain by Tertiary age silts, sands, and clays of the Clairborne and Wilcox Formations. Underlying these deposits is the Lower Tertiary Porters Creek Clay. This Paleocene formation of the Midway Group is comprised of over-consolidated, montmorillinitic clay with interlensed fine sand. Below these deposits are Upper Cretaceous and Tertiary clays and sands of the McNairy and Clayton Formation. The Paleozoic age bedrock (including Mississippian limestone and sandstone) is indicated to be at depths in excess of several hundred feet below the ground surface throughout the study limits.

4.3 Soils and Unconsolidated Materials

A thin mantle of wind blown silt material (loess) covers a large portion of the study area. Loess thicknesses are shown on the referenced geologic mapping to be up to 30 feet along the Mississippi River bluffs near Wickliffe, Kentucky. This material is described as yellowish-brown to medium-gray silt, unstratified, and containing minor amounts of clay and sand. Loess deposits are generally highly erodible and flatter cut slopes should be anticipated in these areas. Wetlands, such as marshes, natural ponds, and floodplains are common in low-lying areas in both Kentucky and Missouri. These situations often contain organic material and soft, unconsolidated soils that may require stabilization prior to constructing roadway improvements.

Alluvial materials comprised of sands, silts and gravels cover the floodplains of the Mississippi and Ohio Rivers, as well as major tributaries in the study area. The referenced mapping indicates the alluvium has been encountered in thicknesses up to 73 feet beneath the Mississippi River floodplain. These alluvial deposits overlay the fluvio-lacustrine silts, clay and sand deposits noted in Section 4.2.

4.4 Groundwater

The project corridors addressed in this overview lie within relatively flat areas of Western Kentucky and Southeastern Missouri in proximity to the Tennessee, Ohio, and Mississippi Rivers watersheds. Because of the permeable nature of the subsurface stratum, the groundwater table is close to the ground surface in floodplain or backwater areas. During design of the project roadways and associated structures, the effects of groundwater on soil strengths and stability will need to be taken into account.

4.5 Regional Seismicity

Review of available geologic mapping indicates that the roadway corridors and potential bridge sites are within the New Madrid Seismic Zone (NMSZ). The NMSZ lies within the central Mississippi Valley, extending from northeast Arkansas, through southeast Missouri, western Tennessee, western Kentucky to southern Illinois. The NMSZ is a series of faults associated with the Reelfoot Rift, and is the most seismically active region in the United States east of the Rocky Mountains. Historically, this area has been the site of some of the largest earthquakes in North America. Between 1811 and 1812, four catastrophic earthquakes, with magnitudes estimated to be greater than 8.0 on the Richter Scale, occurred during a 3-month period. Hundreds of aftershocks followed over a period of several years. The largest earthquakes to have occurred since then were on January 4, 1843 and October 31, 1895. Instruments were installed in and around this area in 1974 to closely monitor seismic activity. Since then, more than 4000 earthquakes have been detected, most of which are too small to be felt by human senses. On average one earthquake per year will be large enough to be felt by communities in the area.

On the basis of the large area of damage (230,000 square miles), the widespread area of perceptibility (1,930,000 square miles), and the complex physiographic changes that occurred, the Mississippi River valley earthquakes of 1811-1812 rank as some of the largest in the United States since its settlement by Europeans. The area of strong shaking associated with these shocks is two to three times larger than that of the 1964 Alaska earthquake and 10 times larger than that of the 1906 San Francisco earthquake.

Although earthquakes in the central and eastern United States are less frequent than in the western United States, they affect much larger areas. Figure 4-2 (Source: <http://quake.wr.usgs.gov/>) shows two areas affected by earthquakes of similar magnitude—the 1895 Charleston, Missouri, earthquake in the New Madrid seismic zone and the 1994 Northridge, California, earthquake. Red indicates minor to major damage to buildings and their contents. Yellow indicates shaking felt, but little or no damage to objects.

Earthquake epicenters and magnitudes for the Central and Eastern United States are presented in Figure 4-3. This figure indicates all of the corridors within this study are in areas of significant seismic potential.

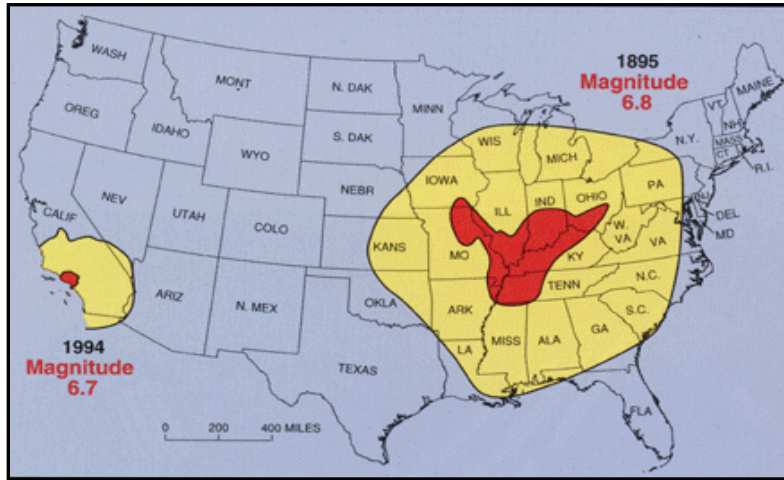


Figure 4-2. Relative Size of Affected Areas

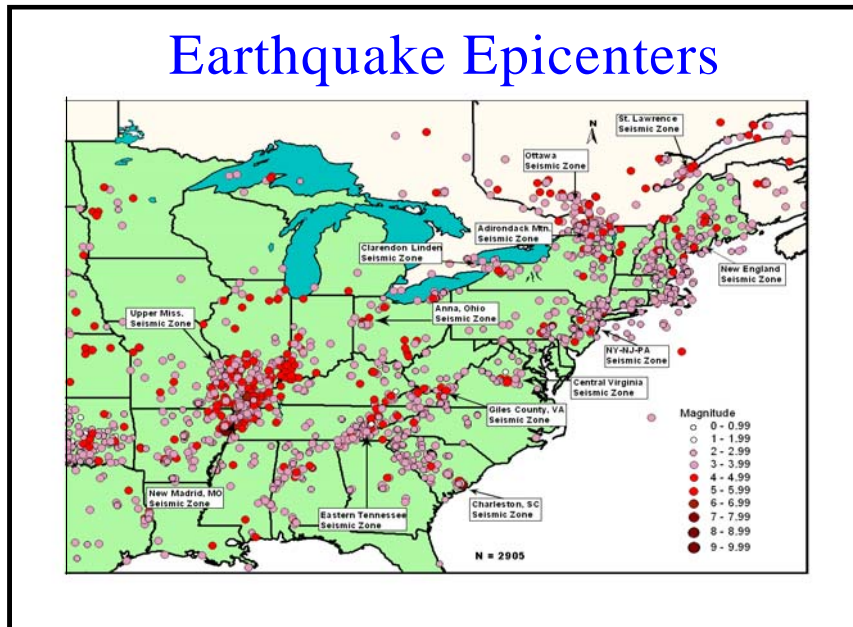


Figure 4-3. Earthquake Epicenters and Magnitudes in the Central and Eastern United States

4.6 Corridor Features

The primary land uses within the project corridors are farmland cultivated for crops; undeveloped forest, grasslands and wetlands; single-family dwellings; and commercial entities commonly associated with small towns. The area is extensively farmed both within and outside the flood plains of the Ohio and Mississippi Rivers. Levee systems, both privately and publicly owned, are located adjacent to the Ohio and Mississippi Rivers and function as flood control structures during high water events. Additionally, sand and gravel has been quarried and timber logging has occurred throughout the region.

McCracken, Ballard, and Carlisle counties Kentucky are within a predominantly rural farm community setting. Likewise, Mississippi County Missouri is also heavily agricultural in land use. Small towns are usually situated at the intersection of county and state routes or historic railroad depots. Numerous schools and churches are located within the proposed corridors presented herein. Gas stations, stores, small commercial businesses and residences are common within these communities. Many of the stores sell gas and diesel fuel. Existing gas stations and stores that handle petroleum products and chemicals often have numerous storage tanks for their products. Small businesses such as auto body and repair shops, farm equipment and supply stores, construction companies and equipment rental companies have tanks and other environmentally sensitive concerns that need to be considered when evaluating a corridor. Locations of former gas stations, stores and other businesses may have abandoned storage tanks, unstable refuse storage areas, or debris dumpsites.

The rural areas generally have various homestead and farm situations that exist within subwatersheds off a primary watershed. These properties are often owned by families that have been in the area for many decades. Lumberyards, farm equipment stores, and community groceries are commonplace in rural areas. Family and community cemeteries are common throughout the region. The field reconnaissance of July 3, 2003 noted that the corridor which follows US 60 to be the more heavily populated of the corridors. In addition, US 60 is the primary arterial road between the major communities in this area, and is therefore much more heavily traveled than the roads associated within other corridors.

The Peal and Swan Lake Wildlife Management Areas (WMA's) are located approximately two miles west of the community of Barlow, Kentucky. The Winford WMA is located nearly 2.5 miles southeast of Wickliffe, Kentucky.

The Barlow Bottoms area on the Ohio River floodplain is in the study area. This area consists primarily of north-south oriented ancient river channels of the Ohio River which were abandoned during channel migration and have been filled in over time by alluvial sediments. Geotechnically, each trough may present its own individual subsurface profile and strength characteristics. Also, these wetlands typically present high water tables as well as soft and/or unconsolidated soils which present issues regarding foundation stability, settlement and sensitivity to seismic events.

Another prominent feature is the Mayfield Creek. This is a low gradient stream which is prone to flooding by backwaters of the Mississippi River. A bridge will be required to cross this stream, and the substructure elements will be required to resist alternating flow directions and forces from debris/drift.

The Birds Point – New Madrid Floodway is located on the Mississippi River Floodplain in Southeastern Missouri, south of the confluence of the Mississippi and Ohio Rivers. The central purpose of the floodway is to provide additional floodwater storage in this part of the river to prevent the Project Design Flood from exceeding its design elevation at and above Cairo, Illinois. Therefore, it is anticipated that any roadway crossing the floodway will be elevated in the form of a bridge to reduce the impact upon the floodway capacity. Substructure elements of these bridges should be designed to resist extreme flow conditions and scour events resulting from levee breaches and inundation during the operation of the flood way. In order to cross the floodway at the proposed locations, bridge lengths must be on the order of 2.8 and 4.2 miles, respectively. Such bridge crossings would necessitate the construction of large numbers of deep foundations.

The 1965 Flood Control Act provides for operation of the floodway in the event floods reach a height of 58 feet, and are projected to exceed 60 feet on the Cairo, Illinois gauge. The current operation plans entail artificially crevassing sections of the levee at the upper and lower “fuse plugs” using explosives having a cratering effect 1.5 times greater than TNT. The Upper Fuse Plug section is approximately 11.3 miles long and includes an area to be breached (the inflow crevasse) approximately 11,000 feet in length. Figures presented in the USACE letter indicate that only crossing 11, 12, 13, 14, 15 and 21 will be within the inflow crevasse area. A safety zone for liquefaction potential, airblast, and ground motion has been established to be one half mile from any of the detonation sites. Additionally, a one-half mile strip along the length of the Upper Fuse Plug was purchased by the USACE and quit claimed to the local levee district. The quit-claim deed(s) reportedly contain a clause stipulating that no permanent structures may be built on this property because of anticipated damage from blueholing (deep scour) and sanding (sandbar deposition) resulting from floodway operations. The USACE operation of the floodway would require that all roadways entering the area be closed until recession of floodwaters and safety inspections of the floodway area have been performed.

Flood control levees were noted to border other portions of the flood plains of the Ohio and Mississippi Rivers, as well as smaller tributaries. These earthen levees were placed to protect both developed and agricultural areas during high water events. In addition, structures comprised of large cyclopean stone dikes were noted along the banks of the Mississippi and Ohio Rivers jutting into the river channels in the study area. These structures are typically under the jurisdiction of local levee districts or the United States Army Corps of Engineers and are used to control or channel flow within the river. Close interaction with these entities will be required because these levees and dikes will have to be accounted for in evaluation of any corridors to reduce the potential of the I-66 roadway jeopardizing their effectiveness.

4.7 Geotechnical Concerns

4.7.1 Roadway

Existing roadways within the proposed corridors typically follow existing topography with little excavation or fill placement. In areas of Kentucky and Missouri crossing significant floodplains and streams, planned roadways are often elevated atop existing earthen levees or in the form of bridges. As previously noted, local soils are primarily loessal in nature, and are highly erodible. Soil embankments should be designed with as flat an outslope as practical (maximum of 3 horizontal to 1 vertical) to reduce erosion and promote revegetation. Embankments crossing areas subject to inundation by flooding may require the application of slope protection, and/or require construction using freely draining materials up to the high water elevation, in order to reduce the loss of embankment material and improve stability during floodwater recession.

Soil cuts may occur in upland loess soils, and should also be designed with as flat an outslope as possible to reduce erosion and promote revegetation. Additionally, intercept ditching may be required above the daylight points of soil cuts to direct surface runoff away from soil cut faces.

In addition to being highly erodible, the referenced loessal soils are extremely moisture sensitive, and this characteristic should be considered in all aspects of design. Dry loess deposits subjected to moisture intrusion may lose interparticle bonds and therefore experience a loss of strength and an increase in compressibility. In addition, the saturation of a loess soil and the subsequent loading/unloading can fluctuate pore water pressures within the soil and create quick (free flowing) conditions. Because these loess soils are highly moisture sensitive, the KYTC typically avoids the use of these soils as roadway subgrade.

4.7.2 Structures

Bridges will be required in each of the corridors to carry the roadways over small streams, backwater sloughs, major rivers, and possibly over sensitive wetland areas. Crossing 8 – Level 2 Alternatives will require a bridge over the Ohio River into Illinois. At this location, the Ohio River is approximately 4,000 feet wide. Other corridors will require bridges over the Mississippi River into the state of Missouri. At these crossings, the Mississippi River is on the order of 4,000 to 5,000 feet wide. There are two new major bridge projects over the Mississippi River which are similar to this project. The first, as shown in Figure 4-4 (Source: <http://www.modot.state.mo.us/>) is a cable-stayed structure connecting Cape



Figure 4-4. View of Illinois Approach, Cape Girardeau, IL

Girardeau, Missouri and East Cape Girardeau, Illinois. This structure has a main span length of approximately 1,150 feet. The second structure carries US Highway 82 between Greenville, Mississippi and Lake Village, Arkansas. The main span length of the Greenville bridge is to be approximately 1,370 feet and when completed, will have the longest cable-stayed span over the Mississippi River. Figure 4-5 (Source:



Figure 4-5. Greenville Bridge Pier 37

<http://www.greenvillebridge.com/>), shows the construction of a dredged caisson main span pier for the Greenville Bridge.

Approach embankments to structures in upland areas away from major streams will likely be designed using traditional soil fill placement techniques. Structures over floodplains subject to frequent or severe flooding may require elevated approach spans. Existing bridges within the corridors over low or 'backwater' areas such as Mayfield Creek and Minor Slough were noted during the field reconnaissance to be comprised of multiple short spans with reduced intrusion of approach embankment construction within the floodway.

Because of the depth to bedrock in each of the corridors, it is probable that all foundation systems for the bridges will be soil-bearing deep foundations. Typical foundation types for bridges with similar subsurface conditions include: driven piles, drilled shafts, and dredged caissons. Conversations with Kentucky Transportation Cabinet (KYTC) personnel indicate that the most widely used foundation type for short span bridges in the area is driven piles. The bridge crossings over the Ohio and Mississippi Rivers will require main span lengths approximately 1,500 feet to meet navigation requirements. With increasing span length, increased foundation capacity is required. Therefore, each type of foundation system should be evaluated to determine which is the most efficient and cost effective. Both driven piles and drilled shafts are considered slender foundations, and will develop axial capacity from the friction between the pile/shaft perimeter and the surrounding soils. Resistance to lateral movement of the slender deep foundations will be derived from the surrounding soils and is dependent upon the embedment lengths, diameters and material properties of the piles or shafts. Dredged caisson foundations follow a spread footing concept which derives bearing capacity at the bearing surface under the caisson. This type of foundation is typically massive, and can withstand significant lateral loads. Because of the significant regional seismicity described in Section 4.5, the ability of a particular foundation type to withstand seismically induced forces will likely govern foundation selection.

4.7.3 Seismic

Regardless of which roadway corridor and bridge crossing are selected for final design, seismic considerations will play a significant role in design and construction. As noted in Section 4.5, the proposed corridors lie within the New Madrid Seismic Zone. A seismic event could create several geotechnical problems. One of which could be a seismic event inducing liquefaction of foundation soils beneath embankments and substructure locations. Liquefaction induces a reduction of the load bearing capacity of the soils in the affected areas. This loss of strength could cause embankment settlement/failures, or the loss of frictional soil resistance to bridge substructure foundations. The loss of frictional strength could leave the foundations laterally unsupported, and in the case of friction piles or drilled shafts bearing in soil, axially unsupported. A second potential geotechnical concern could be a seismic event introducing lateral movements and therefore loads into the foundation systems of structures. Introducing lateral loads while there is a loss of soil strength would require the foundation system to carry all structural and induced loads internally. Additionally, the proposed bridge site should be characterized seismically in order to provide spectra response to the bridge design team.

It is recommended that seismic analyses be performed using data collected from sample borings along the proposed centerlines of any bridge structures. Analyses may include simplified seismic site response, equivalent one-dimensional site response, liquefaction and post-liquefaction settlement. In addition, static slope stability, pseudo-static slope stability, and permanent seismic deformation analyses should be performed for all approach embankment locations.

4.7.4 Scour

Because of the previously described loess, clay, sand, and gravel soil types present throughout the corridors, scour will be of concern in areas surrounding bridge foundations, and embankments adjacent to streams. Both local and contraction scour potential should be estimated for each potential corridor prior to selection. Contraction scour is initiated because of increased flow velocities through the bridge openings, changes in local base-level elevations, or flow around a bend. The most common cause of contraction scour is the contraction of flow by bridge approach embankments that encroach on the floodplain or the main channel, or both. Local scour is the removal of material around piers, abutments, spur dikes, and embankments caused by flow acceleration and turbulence near bridge sub-structure elements and embankments. Local scour can be increased as the result of accumulation of debris in a bridge opening. Figure 4-6 (Source: <http://www.missouri.usgs.gov/>) illustrates the potential of local scour on a typical bridge pier location.

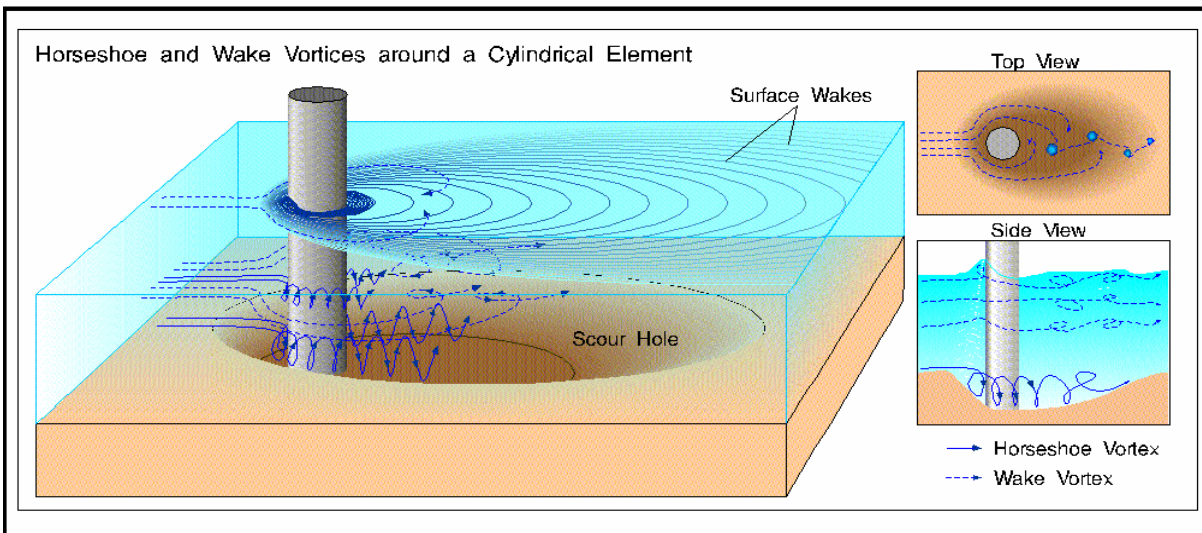


Figure 4-6. Scour

A final scour study should be performed in conjunction with hydrological and hydraulic modeling during the design of the selected bridge structure. Major floods on the Mississippi and Ohio Rivers can create very high flow conditions. Local scour depths greater than 10 feet were reported, (on the above referenced website), after the 1993 Upper Mississippi/Missouri River floods. All bridge foundation designs in the study area will require that the results of detailed scour analyses be incorporated into establishing the embedment depth of individual substructure foundations. Typically, the KYTC requires that the tops of all spread footings and the bases of all shaft/pile caps be constructed below the anticipated maximum scour elevation

4.8 Conclusions

The purpose of this overview was to provide a general summary of the soil and stratigraphic features likely to be encountered within the study area, and to identify geotechnical features which could have adverse impacts on design and construction.

Based on this study, the area is geotechnically feasible to accommodate a roadway corridor. These new corridors will encounter features associated with loessal deposits, deep soils, wetland and major stream crossings. Moisture-sensitive loessal deposits present erosion problems as well as stability issues. Deep subsurface soils typically increase the foundation costs of bridges, and can be more sensitive to seismic events. Because of the substantial length of the main span and approaches as well as the seismic, scour, and deep foundation aspects of design, any Mississippi River and/or Ohio River crossing will require significant design efforts.

Roadway aspects to be addressed as design continues are associated with use of flatter cut and embankment slopes to reduce soil erodibility, stabilization of soft/wet

areas prior to embankment construction, and the construction of roadway embankments subject to floodwater inundation using free draining and/or scour resistant materials.

The roadway corridors will encounter wetlands, streams, rivers, and other types of conditions where structures will be needed. Any crossings will require extensive amounts of bridging. Bridge substructure elements and foundations in the areas of the Ohio River and Mississippi River would be required to meet much more stringent (USACE) criteria than traditional bridging over non-floodway lands in the area. These increased requirements within the floodway would likely require substantial supplemental geotechnical investigations and analyses.

The information presented in this section of the report should be viewed in the general nature in which it was intended. A more detailed study, which was beyond the scope of this work, would be required to more specifically define potential problem areas within the proposed corridors. A thorough geotechnical exploration and seismic evaluation of the selected alignment and grade will be required to help the design team anticipate and plan for special requirements necessary for design and construction of a roadway and major river bridge.

5.0 PRELIMINARY CORRIDORS

This section presents the initial corridor development process used for the I-66 Corridor Study Western Kentucky to Missouri section. It also includes a description of the preliminary corridors themselves.

5.1 Development Process

A wide-range of corridors was developed in response to the study's goals and objectives and identified issues. The corridor development process was interactive and took into account suggestions and input from a wide variety of sources, including:

- Stakeholders / Public at the public workshops in both Kentucky and Missouri
- Project Work Group input
- Project Team input
- Previous studies
- Existing transportation plans

Specific activities to solicit input for the corridors development process included:

- Project Work Group input in a workshop style meeting where numerous corridors were developed and discussed. This meeting was held in Charleston, Missouri on July 25, 2002.
- A set of two (2) public workshops also held in workshop format, specifically designed to receive public comments and feedback on three sample corridors and to receive suggestions for other potential corridors developed by participants at the workshops. These workshops were held in Sikeston, Missouri and in LaCenter, Kentucky respectively on August 19 and 20, 2002. (See Technical Appendix 1 – Public Involvement Summary for more details regarding these and other meetings. Also, even more details are available in the individual Public workshop summaries available from the KYTC Division of Planning.)

5.2 Issues Addressed

The initial corridors were designed to address many observed transportation system deficiencies, problems and other issues in the study area including:

- Identify a viable corridor(s) from I-24 in Western Kentucky to Missouri consistent with national and / or Kentucky legislation, previous national and Kentucky studies, and the goals of the Delta Commission, including improved access and mobility in depressed or impoverished regions
- Maximize connectivity between Kentucky and Missouri

- Stimulate the economic development potential in Western Kentucky and Southeastern Missouri
- Accommodate increasing automobile and truck traffic
- Improve traveler safety
- Support completion of I-66 across southern Kentucky, providing system continuity from West Virginia to Missouri

Although not all encompassing, the list provides a good indication of the types of problems and issues that were of consequence or had an impact on the development of the preliminary corridors.

5.3 Corridor Descriptions

Public stakeholders (citizens), the Project Work Group, and the Project Team identified 23 initial corridors – including combinations and hybrids, and an assumed No - Build Option (for comparison to other “build” corridors).

No - Build Corridor - Includes all existing and committed plans in the KYTC’s Six Year Highway Plan and MoDOT’s Long Range Transportation Plan.

Corridor 1 - From existing I-24 corridor in Illinois due westward on new right-of-way through Shawnee National Forest in southern Illinois to Missouri 146 near Cape Girardeau via new bridge to I-55

Corridor 2 - From existing I-24 corridor in Illinois due southwestward on new right-of-way avoiding major environmental areas in Illinois and Missouri around the Shawnee National Forest in southern Illinois to Missouri 34 near Cape Girardeau over new bridge to I-55

Corridor 3 - From I-24 north of Metropolis, Illinois follow US 45 in Illinois northwest then following corridor 2 as described above to I-55

Corridor 4 - From existing I-24 corridor in Illinois due southwestward on new right-of-way avoiding major environmental areas in Illinois and Missouri around Shawnee National Forest to new bridge over Mississippi River south of Cape Girardeau to I-55

Corridor 5 - From I-24 at Paducah generally follow the existing US 60 corridor to Wickliffe, Kentucky over the Mississippi River on new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57

Corridors 6 / 7 - From existing US 60 east of Kevil, Kentucky go southwest on a new corridor towards Wickliffe over the Mississippi River on a new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57

Corridor 8 - From I-24 at Paducah, Kentucky along existing KY 286, US 60 or US 62 corridor to a point east of Wickliffe, proceed northwest on new route across the Ohio River on a new bridge to I-57 in Illinois

Corridors 9 / 10 - From I-24 near Paducah, Kentucky follow a new route southwesterly to Wickliffe (parallel to US 62 and KY 286) across the Mississippi River on a new bridge to I-57

Corridors 11 / 12 / 13 / 14 / 15 / and 21 - From I-24 south of Paducah follow new route southwest parallel to KY 286 to a point south of Wickliffe over the Mississippi River on a new bridge to I-57 *NOTE: For the remainder of the document, this corridor is sometimes simply referred to as Corridor 11.*

Corridor 16 - From I-24 in Marshall County, Kentucky proceed west along a new route to McCracken County then follow parallel route to Corridor 14 above

Corridor 17 - From I-24 near US 68 in Marshall County, Kentucky proceed west to McCracken County along new route parallel to 16 above to similar route as 14 west and south of Paducah

Corridor 18 - From I-24 / US 60 / US 68 location in Marshall County, Kentucky proceed west along new route to McCracken County with 17 then follow parallel route to option 14 above

Corridor 19 - From existing US 60 bridge across Tennessee River in Kentucky proceed south west across I-24 to new route south of KY 339 westerly along new route south of study area across the Mississippi River on a new bridge to US 60 / US 62 to Sikeston

Corridor 20 - Re-badge existing interstate I-24 in Kentucky as I-66

Corridor 22 - From existing I-24 corridor proceed due southwest on new right-of-way avoiding major environmental area(s) in Illinois to existing I-57

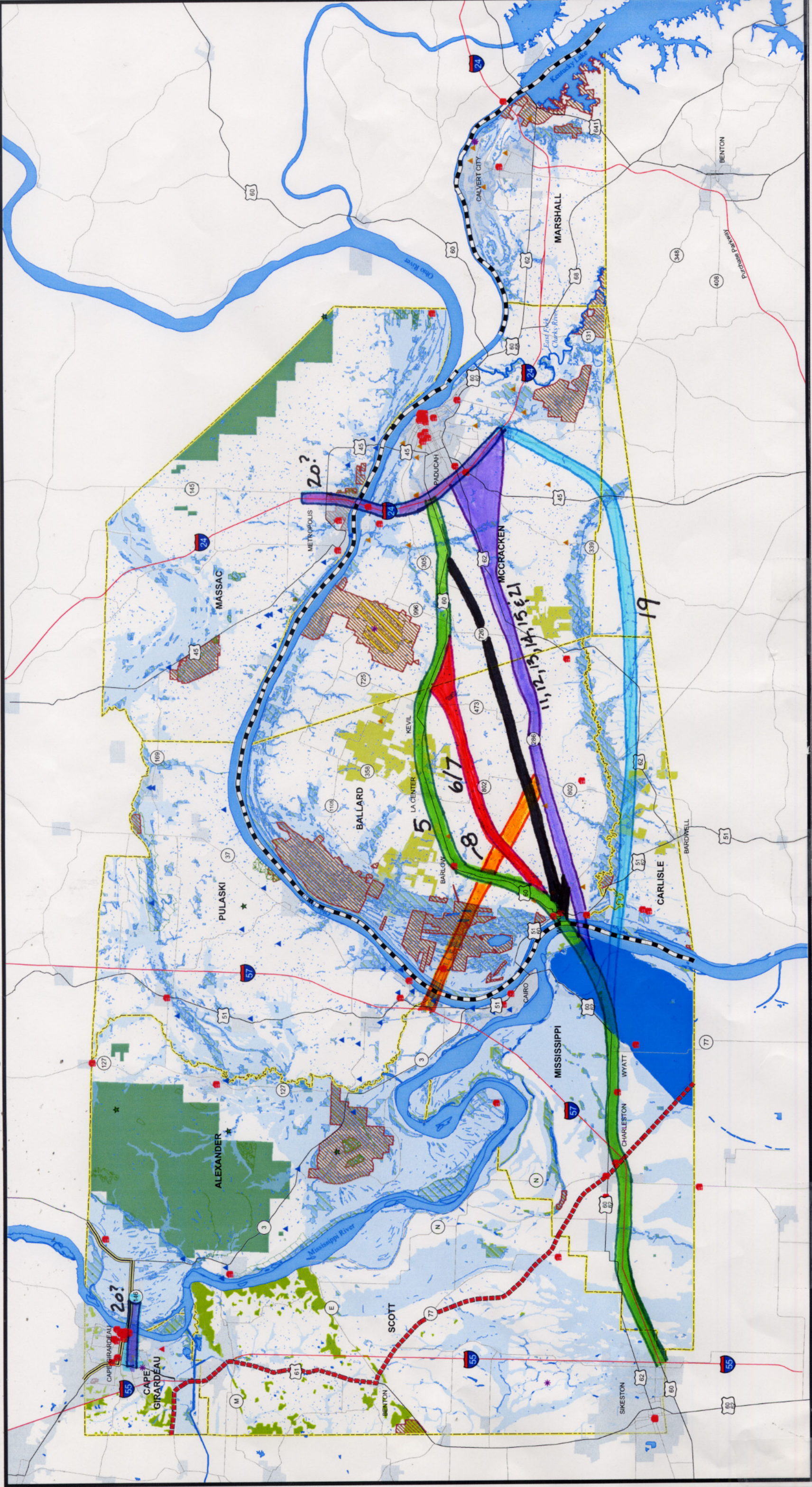
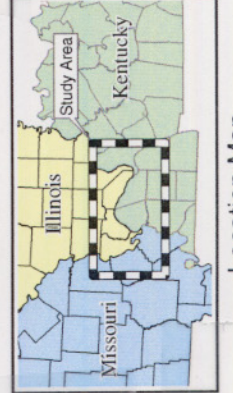
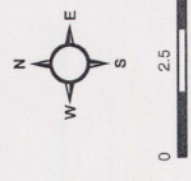


Figure 11
LEVEL 1
ALTERNATIVES
 I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00



- Agricultural District
- National Historic Register Site
- Illinois Natural Area Location
- NPL Sites
- Active/Permitted Landfills (MO)
- Landfills (KY)
- Landfills (IL)
- Trail of Tears - Auto route
- Trail of Tears - Bengie's Route
- Trail of Tears - Water Route
- Wildlife Preserve/Conservation Area/Park
- Forested Area (MO)
- Shawnee National Forest
- Wetland
- 100 Year Floodplain
- New Madrid Floodway
- Superfund Site (KY)
- PROJECT STUDY AREA

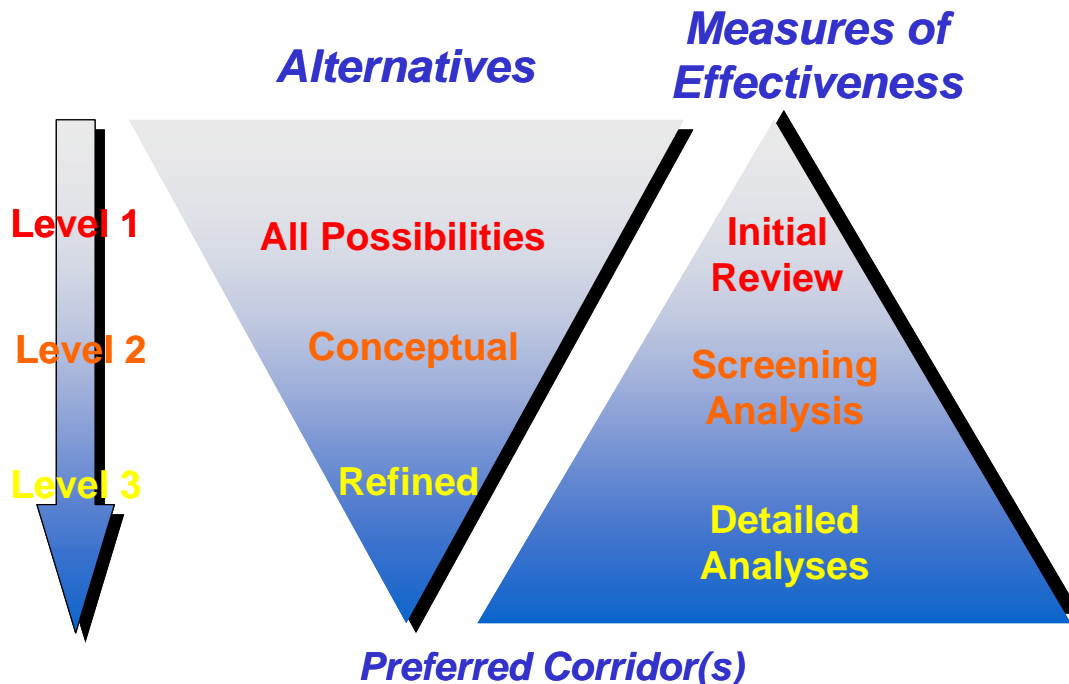


6.0 CORRIDOR EVALUATION METHODOLOGY

6.1 Introduction

This section describes the project's screening and analysis process that was applied to the corridors developed for the I-66 Corridor Study Western Kentucky to Missouri segment. The screening and evaluation process used for this entire project was undertaken collaboratively by the Project Team (representatives of the KYTC Central Office Planning staff, KYTC District 1 and Missouri DOT staffs, the consultant team), the I-66 Project Work Group, and the public who attended a total of the eight (8) open-house workshops (4 meetings each in Missouri and Kentucky). All input from these individuals, along with the objective screening results were put into the evaluation and analysis process.

The purpose of the process was to refine the list of possible corridors from a long list of many / all-possible corridors (universe) at the start of the project, to a shorter list of recommended one(s) at the conclusion of the study. Initially, a few pertinent, qualitative details were identified for the initial group of corridors. As progress was made through the three levels of screening, the amount of information grew and became more quantitative as the number of corridors under consideration decreased.



The first phase of analysis, the Level 1 screening, focused on more qualitative, rather than quantitative analysis. This first level was an initial analysis of the general feasibility of the corridors. As the screening process progressed, more detailed information was

developed. The criteria for Levels 2 and 3 gradually became more definitive and utilized more quantitative rather than qualitative data for the respective analysis.

The following sections detail the three-level screening process.

6.2 Level 1 – Initial Screening

The initial level of analysis sought to apply limited measures of evaluation to all corridors that were developed in order to eliminate some of them from further consideration. Sometimes referred to as a “fatal flaw” screening, this first level of analysis relied on rather qualitative criteria and analysis garnered from the study’s internal working staff or Project Team as well as input from the Project Work Group and the public. Simply put, the evaluative criteria for Level 1 screening focused on whether or not it was likely that a corridor could be developed successfully into the project development phase. The focus of this initial analysis included:

- **Constructability / Implementation / Feasibility** - To what extent is a corridor implementable? This included issues such as ease of construction, political support, and funding.
- **Compatibility with Goals, Objectives, and Issues** - To what extent is a corridor compatible with identified and adopted Goals, Objectives? To what extent does it address identified problems and/or issues?
- **Community / Environmental Impacts** - To what extent does a corridor enhance or degrade the natural, social, built, or economic environments?

6.3 Level 2 – Screening Analysis

The Level 2 evaluation was performed on a smaller set of corridors for which more details were developed. Some criteria from Level 1 shown above were carried through to Level 2, although these criteria were expanded and more detailed measures and information were applied. More specific measures were developed and refined to quantify and evaluate potential impacts of each corridor in greater detail.

Building on Level 1, criteria for Level 2 included:

- **Traffic Operations** – general criteria to evaluate mobility and accessibility improvements including: level of service (LOS), improvements to travel time (savings), number of users (volume / average daily traffic (ADT)), truck percentages, safety, security, etc., based on travel demand forecasting model runs and manual adjustments / interpolation
- **Support** – likelihood that one or more corridors was supported /is supported by the local community, including citizens, political leaders, business / industry and other stakeholders, derived from all public comments, letters, emails, etc., to

date. This description also contains relevant criteria or issues to be scrutinized or that were identified as important during the public workshops.

- **Community Impacts** – compatibility with adjacent and proposed land uses and the effects and impacts on those land uses (separate impacts to type of property: farmland, commercial / business, parks / recreation, residential, etc.), calculated by lane miles of adjacent property. Also included an environmental justice analysis
- **Property Impacts** – more specific impact determining need for new right-of-way quantified in acres
- **Environmental Impacts** – impacts on known mapped historic and archeological sites / structures, acres of natural resource / wildlife areas, habitat areas, number of HAZMAT sites, number of stream crossings, floodplain / floodway impacts, and acres of wetlands
- **Capital cost considerations** – order of magnitude capital costs for proposed corridors derived on a built up unit cost and cost per mile basis from typical sections for roadway (at-grade and elevated) and bridge improvements, and typical cost basis for interchanges

6.4 Level 3 – Refinement

Finally, a third round of screening took place based on the most detailed analysis. This third round of refinement used the processes described above to focus even more detailed analysis on the corridors that survived from the first two rounds of screening. This analysis phase brought more depth and a finer detail to the range of information known about the final corridors and sought to determine the most refined quantitative and definitive information about each corridor. At this point, the volume of technical data about each of the corridors was at its peak. Measures from Level 2 will were refined to include the following measures:

- **Traffic Operations** – refinement for Level 3 involved revised model runs with some manual adjustments / interpolation to account for model conditions. This new round of analysis included total vehicle miles of travel (VMT) and total vehicle hours of travel (VHT) for the entire statewide model
- **Support** – no refinement for Level 3, however subsequent public / stakeholder comments from all meetings received were incorporated
- **Community Impacts** – refined to include more quantitative number of impacts to community by type

- **Property Impacts** – refined to include more specific impacts determining need for new right-of-way quantified in acres and with refined approximate costs of that property by corridor
- **Environmental Impacts** – refined to include threatened rare and endangered species locations (corridor specific), and bridge location geology / compatibility
- **Capital cost considerations** – refined to separate costs for right-of-way, utilities, design, construction costs and contingencies

7.0 COORDINATION WITH AGENCIES

The Project Team discussed several issues relative to the project's study area that would influence the development and evaluation of the corridors. Various Federal and state agencies were consulted. Issues discussed included various Mississippi River bridge crossing locations and their navigation impacts with the US Coast Guard, and the impacts of roadways and bridges on the Birds Point New Madrid Floodway with the US Army Corps of Engineers, Memphis District. In addition, the Project Team also discussed the potential impacts to the wildlife management areas in northwest Ballard County with the Kentucky Department of Fish and Wildlife and the Kentucky Nature Preserves Commission.

7.1 Mississippi River Navigation Impacts

Upon discussing potential Mississippi River crossing locations – one just south of Wickliffe, Kentucky and one in Carlisle County, Kentucky with the US Coast Guard, it was learned that the north Mississippi River crossing location (roughly near mile marker 951 just south of Wickliffe) is close enough to the confluence of the Ohio and Mississippi rivers that it effectively would interfere with safe river navigation. In fact, the affects of a bridge location, including piers, anywhere between mile makers 951 and 949.5 (nearer Wickliffe) would have negative impacts on safe river navigation and thus any bridge location in this area is problematic from that standpoint.

The Coast Guard is more comfortable with and accepting of a river crossing south of mile marker 949 in Carlisle County. This is far enough south of the confluence area of the rivers and would allow for barge tows to have adequate time to maintain a proper and safe course to avoid the bridge piers and other obstructions. Possibly at this point, the right descending pier would be located on the Missouri bank with the left descending pier being placed behind a dikefield. A 1,500+ foot horizontal clearance would be required to safely meet the need of waterway navigation traffic below the bridge. Pier protection, including the use of dolphins would need to be examined during further project stages.

These conclusions were reached based upon advice and consultation given in written correspondence from the Coast Guard dated February 13, 2003 from Mr. Roger Wiebusch, Bridge Administrator for the St. Louis district and detailed discussions during a conference call with the Project Team and Mr. Wiebusch held on June 25, 2003. The subject letter and the conference call also indicated that the Ohio River crossing location (Corridor 8) is also acceptable with the 1,500+ span. Therefore, it is concluded that any Mississippi River bridge location that is should be no further north than LMR mile marker 949 in Carlisle County, Kentucky.

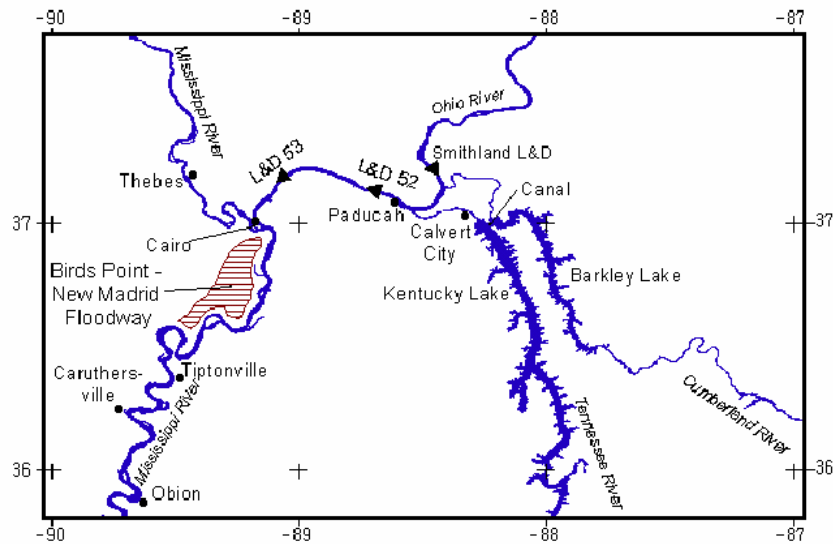
7.2 Birds Point-New Madrid Floodway Impacts

The Project Team also coordinated the bridge location's impacts on the Birds Point-New Madrid Floodway with US Army Corps of Engineers, Memphis District. The Birds Point-New Madrid Floodway is a component of the Mississippi River and Tributaries (MR&T) Project, and is located on the west bank of the Mississippi River in southeast Missouri just below the confluence of the Ohio and Mississippi Rivers. The construction and operation of the floodway was authorized by the 1928 Flood Control Act and later modified by the 1965 Flood Control Act. The purpose of the floodway is to lower flood stages upstream and adjacent to the floodway during major flood events. The Floodway is roughly 35 miles in length and varies from 4 to 12 miles in width. It comprises about 205 square miles of alluvial valley land.

The primary features of the floodway are the setback (mainline) levee, which extends from Birds Point, Missouri, to New Madrid, Missouri, and the frontline levee which is located on the west bank of the river and generally follows its alignment. Within the frontline levee, there are two fuse plug sections. These sections were designed and built 2 feet lower than the remaining portions of the frontline levee. The upper fuse plug section is 11 miles in length and is located in the northernmost reach of the frontline levee. The lower fuse plug is 5 miles in length and is located in the extreme lower end of the frontline levee. In addition, there is an existing 1,500-foot gap, which is located between the setback levee and the end of the frontline levee. This opening currently provides a drainage outlet for interior run-off and allows flood backwaters to enter the floodway. (Note: The Corps has recently proposed a project to fill the 1,500 gap and replace it with a pumping station. To date, the project has not yet begun.)

The existing Plan of Operation for the Floodway, which was reviewed by Missouri state officials in November 1985 and approved by the President, Mississippi River Commission, in January 1986, calls for crevassing the levees to allow excess water into the floodway. There are three crevasse locations designated as Inflow, Inflow/Outflow No. 1, and Inflow/Outflow No. 2. In order to assure adequate water access to the crevasse sites access lanes are required from the Mississippi River to and along the designated crevasses. With a project design flood rate of rise, approximately 2 feet per day, initial preparation of floodway is required when the stage at the Cairo, IL, gage is approximately 59 feet; completion of preparation of the Inflow Crevasse at 60 feet; and operation of the floodway begins upon order of the President, MRC. (See diagram of the Birds Point New Madrid Floodway on the following page.) Again, it is concluded that the ultimate alignment and engineering solution is workable through the floodway. The location of the bridge and the impacts to the floodway should be fully explored during the next stages of project development.

Figure 7 -1 Location of Birds Point – New Madrid Floodway



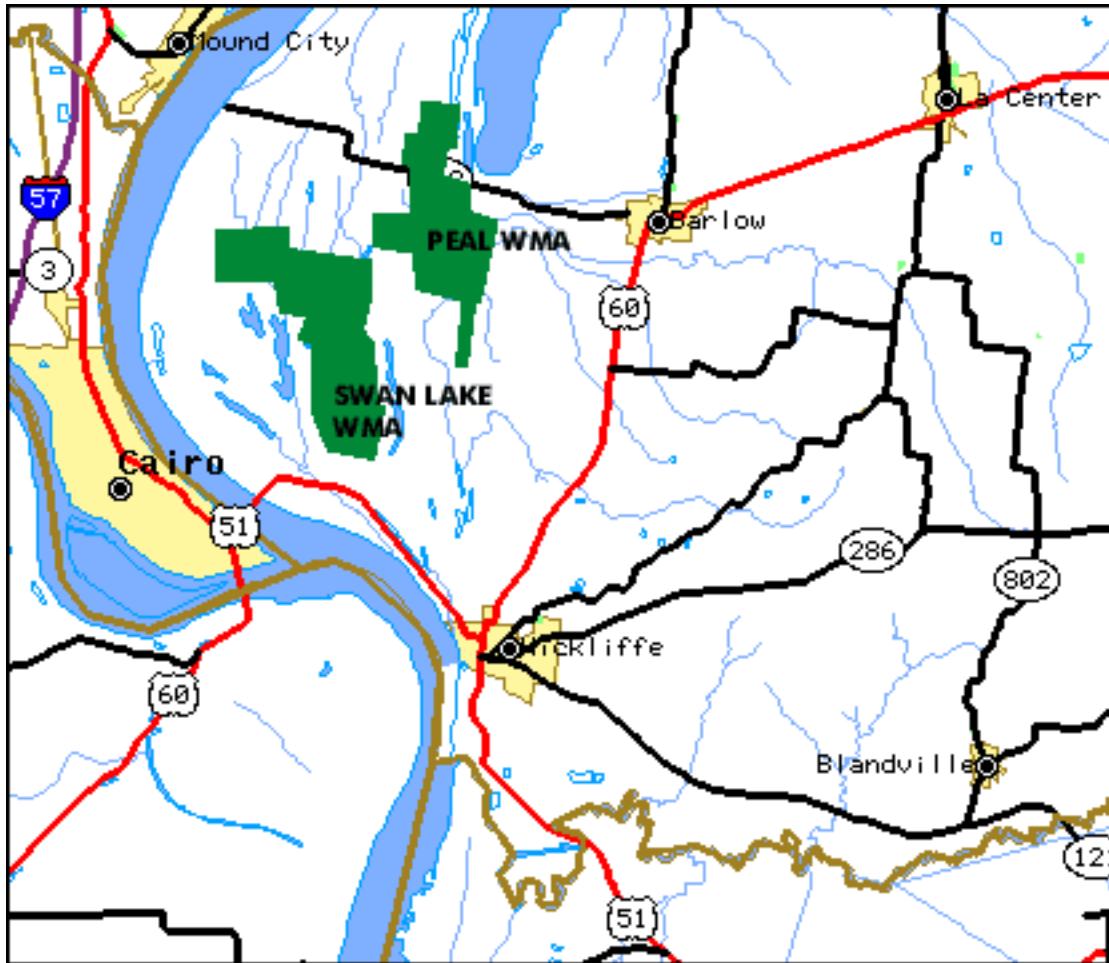
Source: US Army Corps of Engineers

7.3 Ballard County Wildlife Management Areas

The Kentucky Department of Fish and Wildlife and the Kentucky Nature Preserves Commission Corridor have jurisdiction on lands associated with the wildlife management areas. Specifically, the Barlow Bottoms Wildlife Management Area (WMA) controlled by the Kentucky Department of Fish and Wildlife Resources. The area is composed of seven (7) individual tracts of land. However, only two (2) tracts are potentially impacted by corridors proposed by the study. Those tracts are:

- Swan Lake – a 2,100-acre tract, 6 miles northwest of Wickliffe on US 51/US60 has the state's largest natural lake and an observation tower for wildlife viewing. The habitat is primarily bottomland and flood plain area of the Ohio River, with several lakes and some interior gravel roads. Several migratory species winter here each year, including ring-billed and herring gulls, double-crested cormorants, waterfowl, and bald eagles.
- Peal – a 2,219-acre tract, 4 miles west of Barlow on Mounds City Landing Road. This area is composed of Ohio River bottomland with marshlands and cypress swamps. It has two roads, which provide access to three oxbow lakes. Bird watching, camping, hiking, fishing, and hunting activities are permissible.

Figure 7 – 2 Location of Wildlife Management Areas



Coordination between the KYTC and the Kentucky Department of Fish and Wildlife and the Kentucky Nature Preserves Commission have taken place. The KYTC had a briefing with the agencies and discussed the project with them. The agencies in turn discussed their concerns and agreed to detail them in writing. Essentially, each agency has serious concerns about the impacts of a bisecting roadway corridor on the WMAs and the wildlife that inhabit the areas. They have documented their concerns and essentially view that any impacts to associated lands and wildlife areas as a “fatal flaw”. The WMAs are home to several species that inhabit the area and need it for winter migration. Impacts to these parts of the WMAs could NOT be mitigated in the estimation of these agencies. In addition, some portions of the WMAs were purchased with federal funds and therefore other uses, such as for a highway are currently prohibited.

8.0 LEVEL 1 EVALUATION

8.1 Introduction

The following discussion presents a summary of the analysis and outcomes for the Level 1 screening analysis. This discussion, together with the Level 1 Screening Summary sheets and the Level 1 Working Paper in the Appendix 6 depict known information related to the corridors. Note that the decision to advance or not consider further in the next level of analysis a particular corridor was a collaborative decision made by the Project Work Group and Project Team with input from the public at large through meetings in both Kentucky and Missouri. Decisions were based on the evaluation of each corridor relative to the screening criteria. The decision to not advance a corridor to the next level of screening was for this study only. (Note that for ease of analysis, some similar corridors were combined, which are evident below.)

8.2 Level 1 Evaluation

The focus of this initial Level 1 analysis included:

- **Constructability / Implementation / Feasibility** - To what extent is a corridor implementable? This included issues such as ease of construction, political support, and funding.
- **Compatibility with Goals, Objectives, and Issues** - To what extent is a corridor compatible with identified and adopted Goals, Objectives? To what extent does it address identified problems and/or issues?
- **Community / Environmental Impacts** - To what extent does a corridor enhance or degrade the natural, social, built, or economic environments?

No - Build Option – The No - Build Option was not explicitly evaluated in Level 1. However, it was assumed to be carried forward as a basis for comparison in later evaluation stages consistent with current practices.

Corridor 1

Constructability / Implementation / Feasibility – Rated Low.

- Most sections of the proposed corridor lend themselves to being constructed via staged methods over wetlands and flood plains.
- Has a large section of the route is in Illinois, which was neither interested in an I-66 corridor nor participating in this study at the time of the Level 1 Screening.

Compatibility with Goals, Objectives, and Issues – Rated Medium

- Satisfies some of the goals, objectives and issues, although on a very basic level.

- Provides a new route and makes use of portions of the existing interstate
- Does little for western Kentucky in terms of supporting economic development or improving community character and quality of life.
- Improves accessibility and connectivity but is not the most direct route

Impacts – Rated Low for Community and High for Environmental

- Requires new right-of-way, although in less populated areas
- Bisection a large portion of the Shawnee National forest in southern Illinois just east of Cape Girardeau.

Overall, the corridor was not recommended for further consideration in Level 2. Its environmental impacts, especially to the forest, lack of support and interest from Illinois (at the time of the Level 1 screening), and the fact that it does little to facilitate economic development in western Kentucky and only minimally satisfies goals, objectives and issues all limit its ability to be implemented successfully; especially when other corridors under consideration are more viable. (Although going through a national forest may not be in and of itself a “fatal flaw”; if another feasible and prudent corridor exists, it must be considered. In the case of Corridor 1, other corridor options exist that do not involve impacts to the forest).

Corridor 2 –

Constructability / Implementation / Feasibility – Rated Low

- Most sections of the proposed corridor lend themselves to being constructed.
- Large portions to be built over wetlands and/or 100-year flood plains that would require staged construction.
- A large section of the route is in Illinois, which was not interested in an I-66 corridor, nor participating in this study at the time of the Level 1 Screening.

Compatibility with Goals, Objectives, and Issues – Rated Medium

- Minimally satisfies the goals, objectives, and issues
- Provides a new, yet circuitous route and makes use of portions of the existing interstate.
- Does little for economic development or improving community character and quality of life, especially in western Kentucky
- Provides for some improved accessibility and connectivity

Impacts – Rated Low for Community and Medium for Environmental

- Uses existing interstate right-of-way for a portion of the corridor from Paducah to Illinois.
- Requires new right-of-way but areas needed are less likely to be populated
- Avoids the large portion of the Shawnee National Forest

- Encroaches on existing natural areas, wetlands and the 100-year floodplain near the Mississippi River.

Overall, the circuitous corridor was not recommended for further consideration in Level 2. Its environmental impacts, lack of support and interest from Illinois (at the time of the Level 1 analysis), and the fact that it does little to facilitate economic development in western Kentucky and only minimally satisfies goals, objectives and issues combine to limit its ability to be implemented especially when other corridors are more viable.

Corridor 3 –

Constructability / Implementation / Feasibility – Rated Low

- Readily constructible, although over wetlands and/or 100 year flood plains
- Requires staged construction
- Lack of Illinois interest

Compatibility with Goals, Objectives, and Issues – Rated Medium

- Basically satisfies goals, objectives and issues
- Provides a new route and makes use of portions of the existing interstate
- Circuitous path to avoid major environmental areas
- Little economic development or improvements to community character and quality of life, especially in Western Kentucky

Impacts – Rated Low for Community and Medium for Environmental

- Uses existing interstate right-of-way for a portion of the corridor
- New right-of-way is in less populated and/or developed areas.
- Misses the large portion of the Shawnee National forest
- Encroaches on and has impacts to existing natural areas including wetlands and 100-year floodplains.

Overall, the corridor was not recommended for further consideration in Level 2. Its environmental impacts, lack of support and interest from Illinois, and the fact that it does little to facilitate economic development in western Kentucky and only minimally satisfies goals, objectives and issues all limit its ability to be implemented successfully. This is especially true when other corridors are more viable in the study area.

Corridor 4 -

Constructability / Implementation / Feasibility – Rated Low

- Readily constructible
- Some sections to be built over wetlands and/or 100-year flood plains requiring staged construction
- Lack of interest in Illinois

Compatibility with Goals, Objectives, and Issues – Rated Medium

- Basically satisfies some of the goals, objectives and issues
- Provides a new, circuitous route and makes use of portions of the existing interstate
- Little economic or other benefits for western Kentucky
- Provides for improved accessibility and connectivity

Impacts – Community Impacts rated Medium, Environmental Impacts rated High

- Uses existing interstate right-of-way for a portion of the corridor
- New right-of-way in areas of southwestern Illinois that is less likely to be populated and/or developed.
- Misses the Shawnee National forest
- Encroaches on existing natural areas - wetlands, 100-year floodplains and forested areas.
- New river crossing would have environmental affects on the adjacent Mississippi River aquatic ecosystem.

Overall, the corridor was not recommended for further consideration in Level 2. This corridor, like others in the same area, has environmental impacts, lacks support and interest from Illinois (at the time of the Level 1 analysis), and does little to facilitate economic development in western Kentucky. It also only minimally satisfies goals, objectives, and issues. These factors limit its ability to be implemented, especially when other corridors are more viable.

Corridor 5 –

Constructability / Implementation / Feasibility – Medium

- Readily constructible – runs through existing highway corridor
- Includes new river crossing south of Wickliffe, Kentucky, - endorsed by the McCracken County Fiscal Court

Compatibility with Goals, Objectives, and Issues – Rated High

- Satisfies a large majority of the goals, objectives, and issues.
- Provides a new route and makes use of portions of the existing facilities
- Direct route would likely facilitate economic development and provide other benefits in western Kentucky and southeastern Missouri
- Provides for improved accessibility and connectivity in the region

Impacts – Rated Medium for both Community and Environmental

- New facility would be in existing transportation corridor
- Incremental impacts would largely be similar to what already exists
- Some changes in local access points for many residences and businesses
- Avoids many of the sensitive environmental areas in the region

- May impact farmlands and other areas especially the aquatic ecosystem(s) of the Mississippi River

Overall, the corridor was recommended for advancement and further consideration in Level 2 screening. The corridor can be implemented, it would have political support, it does satisfy the goals, objectives, and issues and its impacts are commensurate with likely positive regional benefits.

Corridor 6 / 7

Constructability / Implementation / Feasibility – Rated Medium

- Readily constructible - on new right-of-way
- Corridor is largely situated in undeveloped areas and farmlands

Compatibility with Goals, Objectives, and Issues – Rated High

- Satisfies a large majority of the goals, objectives, and issues
- Provides a new route and makes use of portions of the existing facilities (US 60)
- Direct route - facilitates economic development
- Improves accessibility and connectivity

Impacts – Rated Medium for both Community and Environmental

- Existing transportation corridor
- Impacts to undeveloped areas and/or farmlands
- Some changes in local farm access points
- Misses many of the most sensitive areas in the region
- Impacts on farmlands and the aquatic ecosystem(s) of the Mississippi River

Overall, the corridor was recommended for advancement and further consideration in Level 2 screening. The corridor can be implemented, it would have political support, it does satisfy the goals, objectives and issues, and its impacts are commensurate with likely benefits.

Corridor 8 –

Constructability / Implementation / Feasibility – Rated Medium

- Constructed on new right-of-way, including farmlands
- Staged construction over the sensitive aquatic / habitat areas near Mississippi River

Compatibility with Goals, Objectives, and Issues – Rated Medium

- Satisfies many of the goals, objectives and issues

- Provides a new route and makes use of large portions of the existing facilities (I-57)
- Not as direct as other corridors
- Provides some improved accessibility and connectivity in the region

Impacts – Rated Medium for both Community and Environmental

- New right-of-way would be needed – although in undeveloped areas
- Impacts to farms / agricultural lands
- Impacts to sensitive aquatic and wildlife habitat areas in the region, especially those near the Mississippi River and the Barlow Bottoms and Barlow Flats
- Impacts to 100-year floodplains in Missouri

Overall, the corridor was recommended for advancement and further consideration in Level 2 screening. The corridor can be implemented and would provide a connection between I-24 and I-57. It does satisfy the goals, objectives and issues and its impacts are commensurate with its likely benefit.

Corridor 9 / 10

Constructability / Implementation / Feasibility – Rated Medium

- Readily constructed on new right-of-way
- Situated in farmland and / or undeveloped areas
- River crossing backed by McCracken County Fiscal Court

Compatibility with Goals, Objectives, and Issues – Rated High

- The corridors satisfy a majority of the goals, objectives, and issues
- It provides a new route and makes use of a small portion of existing roadways (US 60)
- The route is fairly direct and would likely facilitate economic development
- The route provides for improved accessibility and connectivity

Impacts – Rated Medium for both Community and Environmental

- Required right-of-way confined to existing highway, farm and undeveloped areas
- Few impacts to existing communities
- Avoids most environmentally sensitive areas in the region
- Impacts on the aquatic ecosystem(s) of the Mississippi River near new bridge

Overall, the corridor was recommended for advancement and further consideration in Level 2 screening. The corridor can be implemented, it would have political support, it does satisfy the goals, objectives and issues, and its impacts are commensurate with likely benefits.

Corridors 11 / 12/ 13/ 14/ 15 and 21

Constructability / Implementation / Feasibility – Rated Medium

- Readily constructible
- Built on new right-of-way
- Corridor is largely situated in farmland and /or undeveloped areas
- Corridor is well south of populated localities.
- Includes a new river crossing south of Wickliffe

Compatibility with Goals, Objectives, and Issues – Rated High

- Satisfies a majority of the goals, objectives, and issues
- Provides a new route that is fairly direct
- Would likely facilitate economic development in western Kentucky
- Provides for improved accessibility and connectivity
- Includes a new bridge to in addition to the two that are currently in use
- Closest corridor to the new industrial park planned for the western Kentucky

Impacts – Rated Medium for both Community and Environmental

- New right-of-way confined to undeveloped areas and/or farmlands
- Few impacts to existing communities or developed areas
- The corridor avoids most of the sensitive areas in the region
- Impacts to nearby agricultural district
- Will affect the aquatic ecosystem(s) of the Mississippi River

Overall, the corridor was recommended for advancement and further consideration in Level 2 screening. The corridor can be implemented, it would have political support, it does satisfy the goals, objectives and issues, and its impacts are commensurate with likely benefits.

Corridor 16

Constructability / Implementation / Feasibility – Rated Low

- Lengthy sections of staged construction
- Corridor runs through the wildlife preserve / conservation areas and 100 year floodplains
- Impacts to Clarks River National Wildlife Reserve

Compatibility with Goals, Objectives, and Issues – Rated Medium

- The corridor satisfies some of the goals, objectives, and issues
- Provides a new route but is longer than others
- Minimizes connectivity without a connection to I-24 in Marshall County
- Makes little use of existing facilities
- Does support economic development in the western Kentucky and southeastern Missouri regions however

Impacts – Rated Medium for both Community and Environmental

- New right-of-way needed along the entire route
- Results in community impacts
- Some impacts to existing natural areas
- Natural impacts largely confined to two locations however

Overall, the corridor was not recommended for further consideration in Level 2. It's localized environmental impacts, the fact that it does not lend itself to being readily implemented, its lack of system connectivity east of Marshall County, and its level of impacts all combine to make it less likely to be implemented, especially when other corridors are more viable.

Corridor 17

Constructability / Implementation / Feasibility – Rated Low

- Staged / launched construction over a large section
- Section for staged / launched construction is in the Clarks River National Wildlife Reserve

Compatibility with Goals, Objectives, and Issues – Rated Medium

- Satisfies some of the goals, objectives, and issues
- Provides a new route but that route is long, and makes little use of existing facilities
- Supports economic development in western Kentucky and southeast Missouri
- Improves accessibility and connectivity, but may not provide the most desirable or direct route
- Does not use I-24 as its eastern terminus

Impacts – Rated Medium for Community and Environmental

- New right-of-way needed along the entire route
- More community impacts likely
- Impacts to existing natural areas, including wildlife preserve and conservation / park areas, wetlands and 100-year floodplains

Overall, the corridor was not recommended for further consideration in Level 2. Its localized environmental impacts, its lack of system connectivity east of Marshall County, the fact that it does not lend itself to being readily implemented and its community and especially environmental impacts, all combine to make it less likely to be continued in the analysis, especially when other corridors are more viable.

Corridor 18

Constructability / Implementation / Feasibility –Rated Low

- Requires staged / launched construction
- Impacts to Clarks River National Wildlife Reserve

Compatibility with Goals, Objectives, and Issues – Rated Medium

- Satisfies some of the goals, objectives, and issues
- Provides a new route but is long and makes little use of existing facilities
- May support economic development in the region
- Improves accessibility and connectivity
- May not be most direct route

Impacts – Medium for both Community and Environmental

- New right-of-way would be needed along the entire length of the route.
- Anticipated community impacts
- Impacts to existing natural areas, wildlife preserve and conservation / park areas, wetlands and 100-year floodplains

Overall, the corridor was not recommended for further consideration in Level 2. Its localized environmental impacts, lack of system connectivity east of Marshall County, the fact that it does not lend itself to being readily implemented and its impacts, especially those to the natural environment, all combine to make it less likely to be continue in the analysis, especially when other corridors are more viable.

Corridor 19

Constructability / Implementation / Feasibility – Rated Medium

- Some sections to require staged / launched construction
- Other section in undeveloped areas
- Closest corridor to the proposed western Kentucky industrial /business park in Graves County

Compatibility with Goals, Objectives, and Issues – Rated Medium

- Satisfies some of the goals, objectives, and issues
- Provides a new route but is long and circuitous
- May support economic development in the region

Impacts –Rated Low for Community and Medium for Environmental

- Corridor is lengthy but isolated, remote and sparsely developed
- Environmental impacts to Clarks River National Wildlife Reserve, wetlands, and 100-year floodplains

Overall, the corridor was recommended for advancement to Level 2 and for further consideration. Although there are localized environmental impacts, they are not “fatal flaws”. The corridor does lend itself to being implemented, as it may be easier to locate needed new right-of-way especially when compared to other corridors that are the near the developed and congested Paducah / McCracken County area.

Corridor 20

Constructability / Implementation / Feasibility – Rated High

- The corridor reuses existing facilities
- The improvements to US 60 are consistent with existing plans

Compatibility with Goals, Objectives, and Issues – Rated High

- Satisfies a large majority of the goals, objectives and issues
- Provides a new route per se by using substantial portions of existing facilities
- Provides for improved accessibility and connectivity

Impacts – Rated Low for Community and Low for Environmental

- New right-of-way needed for some sections in areas that are not populated / built up
- Planned improvements to US 60 have been documented
- Misses many of the sensitive areas in the region
- Impacts to aquatic ecosystem(s) of the Mississippi River and along US 60 / 62

Overall, the corridor was recommended for advancement and further consideration in Level 2 screening. The corridor can be readily implemented, it would have political support, it does take advantage of existing or planned investments, satisfies most of the goals, objectives and issues, and its impacts are low and commensurate with likely benefits.

Corridor 22

Constructability / Implementation / Feasibility – Rated Low

- Readily constructible
- Corridor is predominantly in Illinois, which has shown little support for the project during the Level 1 screening stage

Compatibility with Goals, Objectives, and Issues – Rated Low

- Satisfies some of the goals, objectives and issues
- Provides a new route and makes use of portions of the existing facilities
- Not as direct as others under consideration
- May facilitate limited economic development and other benefits, few of them likely in western Kentucky

- Some improved accessibility and connectivity

Impacts – Low for Community and Medium for Environmental

- Need for new right-of-way minimized
- Most new right -of-way in less populated and/or developed areas
- Misses many of the major environmentally sensitive areas in Kentucky
- Impacts on natural areas and wetlands in Illinois

Overall, the corridor was not recommended for further consideration in Level 2 screening. The corridor would have little support for implementation. Although it does satisfy some of the goals, objectives and issues in a minimal fashion, the environmental impacts are not commensurate with likely positive benefits.

8.3 Level 1 Screening Summary / Conclusions

In summary, of the 22 initial corridors, eight (8) were not recommended for further study in Level 2 Screening. Those corridors included: 1, 2, 3, 4, 16, 17, 18, and 22. Similarly, fourteen (14) corridors were recommended to advance into Level 2. For simplicity, these fourteen (14) corridor were combined for analysis purposes in Level 2 into seven (7) corridors, Those corridors, included: 5, 6 / 7 (combined corridor), 8, 9 / 10 (combined corridor), 11 / 12 / 13 / 14 / 15 / 21 (combined corridor), 19, and 20. The Level 2 analysis also included examination of the No - Build Option.

The following matrix presents a summary of the discussion above and the recommendations and analysis for the Level 1 Screening.

The following map depicts the corridors that were selected to continue in the Level 2 Evaluation

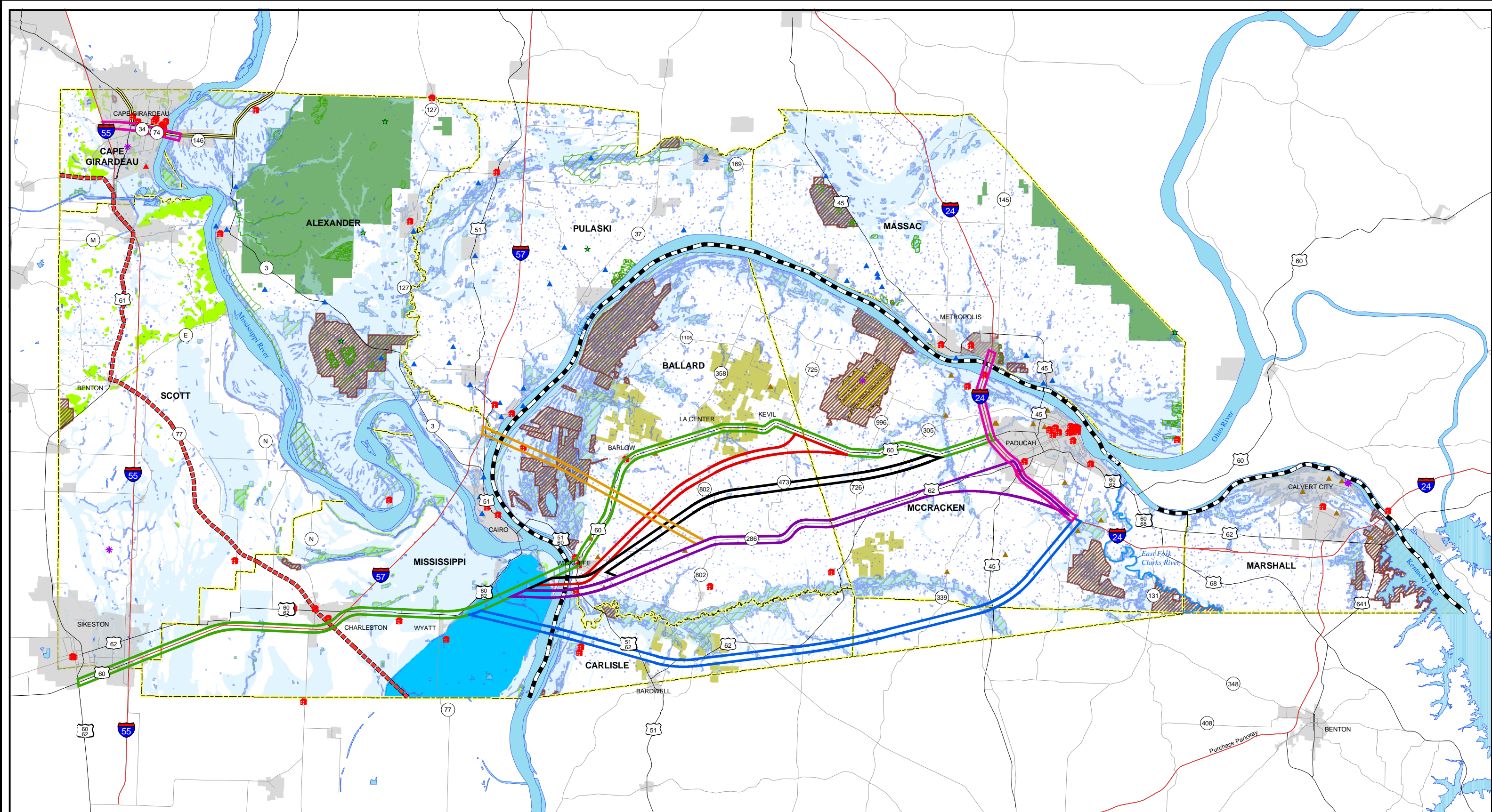
**I-66 Corridor Study
Western Kentucky to Missouri
Level 1 Screening Summary**

Alt. / Corridor No.	Description	Constructability / Implementation / Feasibility	Compatibility with Goals, Objectives and Issues	Impacts		Advance to Level 2 Screening?
				Community Impacts	Environmental Impacts	
1	From existing I-24 alignment in Illinois due westward on new ROW through Shawnee National Forest to MO 146 near Cape Girardeau via existing bridge to I-55	Low	Medium	Low	High	No
2	From existing I-24 alignment in Illinois due southwestward on new ROW missing major environmental area in Illinois and Missouri around Shawnee National Forest to MO 146 near Cape Girardeau over existing bridge to I-55	Low	Medium	Low	Medium	No
3	From I-24 north of Metropolis, follow US 45 in Illinois northwest then following alternative 2 as described above to I-55	Low	Medium	Low	Medium	No
4	From existing I-24 alignment in Illinois due southwestward on new ROW missing major environmental area in Illinois and Missouri around Shawnee National Forest to new bridge over Miss. River south of Cape Girardeau to I-55	Low	Medium	Medium	High	No
5	From I-24 at Paducah generally follow the existing US 60 corridor to Wickliffe over the Miss. River on new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57	Medium	High	Medium	Medium	Yes
6 / 7	From existing US 60 east of Kevil go southwest on a new alignment towards Wickliffe over the Miss. River on a new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57	Medium	High	Medium	Medium	Yes
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Missouri	Medium	Medium	Medium	Medium	Yes
9 / 10	From I-24 near Paducah, follow new route south westerly to Wickliffe (parallel to US 62/KY 286) across the Mississippi River on a new bridge to I-57	Medium	High	Medium	Medium	Yes
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	Medium	High	Medium	Medium	Yes

**I-66 Corridor Study
Western Kentucky to Missouri
Level 1 Screening Summary**

Alt. / Corridor No.	Description	Constructability / Implementation / Feasibility	Compatibility with Goals, Objectives and Issues	Impacts		Advance to Level 2 Screening?
				Community Impacts	Environmental Impacts	
16	From I-24 in Marshall County proceed west along new route to McCracken County then follow parallel route to option 14 above	Low	Medium	Medium	Medium	No
17	From I-24 near US 68 in Marshall County proceed west to McCracken County along new route parallel to 16 above to similar route as 14 west and south of Paducah	Low	Medium	Medium	Medium	No
18	From I-24 / US 60 / US 68 location in Marshall County proceed west along new route to McCracken County with 17 then follow parallel route to option 14 above	Low	Medium	Medium	Medium	No
19	From I-24 near existing US 60 bridge across Tennessee River proceed south west to new route south of KY 339 westerly along new route south of study area across the Mississippi River on a new bridge to US 60 / US 62 to Sikeston	Medium	Medium	Low	Medium	No
20	Rebadge existing interstate I-24 as I-66	High	High	Low	Low	Yes
22	From existing I-24 alignment proceed due southwest on new ROW missing major environmental area(s) in Illinois to existing I-57	Low	Low	Low	Medium	No

Shaded corridors indicate those that are not recommended for further consideration



- | | | |
|------------------------------|---------------------------------|--|
| Alternative Corridors | National Historic Register Site | Agricultural District |
| 5 | Illinois Natural Area Location | Wildlife Preserve/Conservation Area/Park |
| 6/7 | NPL Sites | Forested Area (MO) |
| 8 | Active/Permitted Landfills (MO) | Shawnee National Forest |
| 9/10 | Landfills (KY) | Wetland |
| 11/12/13/14/15/21 | Landfills (IL) | 100 Year Floodplain |
| 19 | Trail of Tears - Auto route | New Madrid Floodway |
| 20 | Trail of Tears - Bengé's Route | Superfund Site (KY) |
| | Trail of Tears - Water Route | PROJECT STUDY AREA |

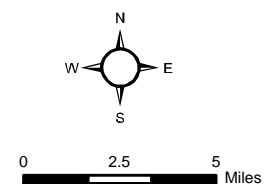
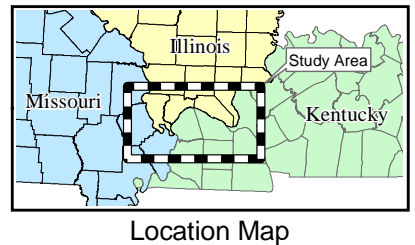


Figure 12
LEVEL 1 REFINED ALTERNATIVES
 I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00



9.0 LEVEL 2 EVALUATION

As noted earlier, fourteen (14) corridors, combined for analysis purposes into seven (7) corridors (described above), as well as an eighth corridor the No - Build Option (used for comparison purposes to other corridors) were all advanced to Level 2 Screening and were studied in further detail. In addition, through the course of screening and refining these corridors, two (2) new additional corridors were developed and added to the analysis. Those corridors included:

- Corridor 8A - US 60 planned highway improvements per KYTC's 2002 – 2006 6 Year Highway Plan and Long Range Plan from Paducah to Wickliffe. This corridor includes a new connector road and new bridge over the Ohio River connecting US 60 southwest of Barlow, Kentucky to I-57 in Illinois.
- Corridor 8B - US 60 planned highway improvements per KYTC's 2002 – 2006 6 Year Highway Plan and Long Range Plan from Paducah to Wickliffe. Includes a new connector road from US 60 to a new bridge over the Mississippi River south of Wickliffe then to US 60 in Missouri to I-57.

These corridors were added to develop some lower cost solutions to observed congestion and safety problems, and to accomplish the goals and objectives and address the issues of the project in a fiscally restrained manner. They were also developed to examine alternative river crossing locations.

The analysis for this level was more expansive and quantitative than that which was conducted for Level 1, which was largely qualitative in nature. New subcategories were introduced in Level 2 to provide a more detailed comparison of the corridors. The evaluation categories and subcategories for Level 2 include:

- **Traffic Operations** – general criteria to evaluate mobility and accessibility improvements including: level of service (LOS), improvements to travel time, number of users (volume / ADT), truck percentage(s), safety, security, etc., based on travel demand forecasting model runs and manual adjustments / interpolation. Measures were taken at four (4) screen line locations, which are common points in the study area used to calculate the various measures. The screen lines are generally described as: (1) Paducah, Kentucky (2) Western McCracken County, Kentucky, (3) Ballard County, Kentucky and (4) a Mississippi River / Ohio River crossing. Specific measures examined in this category for the future year 2030 included:
 1. Average Daily Traffic (ADT) – How many vehicles per day will use the new corridor (estimates for 2003 – base year / No - Build and future year of 2030)
 2. Level of Service (LOS)

3. Travel Time / Travel Time Savings (note: travel time and travel time savings are derived for two trips (1) from I-24 to I-55 south – essentially from Paducah, Kentucky to Sikeston, Missouri and (2) from I-24 to I-55 north – essentially Paducah, Kentucky to Cape Girardeau, Missouri. Travel time savings are expressed as a comparison of each corridor as compared to the No - Build Option
4. Safety / Security

To facilitate the analysis, the Kentucky statewide I-66 model was used as the basis for coding and running the analysis of the corridors under evaluation for Level 2 screening.

- **Support** – likelihood that one or more corridors will be supported / is supported by the local community, including citizens, political leaders, business / industry and other stakeholders, derived from all public comments, letters, emails, etc., received to date. Also contains description of relevant criteria or issues to be scrutinized. Specific measures included:
 1. Corridor - Based on input from public workshops, project work group, and stakeholder meetings, what percentage of the community favored a corridor?
 2. Issues - Based on input from public workshops, project work groups, and stakeholder meetings, what community issues are addressed or will need to be addressed by the corridor and the analysis?
- **Community Impacts** – compatibility with adjacent and proposed land uses and the affects and impacts on those land uses (separate impacts to type of property: farmland, commercial / business, parks / recreation, residential, etc.), calculated by miles and acres of adjacent property. Also included was an Environmental Justice Analysis (See Technical Appendix 3 Environmental Justice Analysis for more information on this analysis). Specific impacts include those to:
 1. Farmland
 2. Kentucky Agricultural Districts
 3. State / Federal Forest – Parks / Recreation lands / COE floodways
 4. Urban areas
 5. Probable Environmental Justice Impacts
- **Property Impacts** – more specific impact which determined a need for new right-of-way quantified in acres
- **Environmental Impacts** – impacts on known and mapped historic and archeological sites / structures, acres of natural resource / wildlife areas, habitat

areas, number of HAZMAT sites, number of stream crossings, floodplain / floodway impacts, and acres of wetlands. Specific measures included:

1. Number of Listed National Historic Registry Sites
 2. Nature / Wildlife Preserves / Conservation Lands
 3. Number of Stream Crossings
 4. Birds Point - New Madrid Floodway impacts
 5. Floodplain / Floodway (100 yr. / 500 yr.) – expressed in miles and acres
 6. Wetlands
- **Capital cost considerations** – order of magnitude capital costs for proposed corridors derived on a cost build up / unit cost basis from typical sections for roadway (at-grade and elevated) and bridge improvements, also included typical costs for interchanges, and appropriate costs for engineering, contingencies, etc. Specific costs included:
 1. Roadway
 2. Bridge
 3. Right-of-way
 4. Engineering / Mobilization / Demobilization
 5. Total

9.1 No - Build Option

Traffic Operations

- Screen line #1 – 45,000 ADT, 3,500 ADT trucks (7%), LOS E
- Screen line #2 – 11,000 ADT, 1,500 ADT trucks (14%), LOS A
- Screen line #3 – 10,000 ADT, 1,000 ADT trucks (10%), LOS E
- Screen line #4 – 11,500 ADT, 2,000 ADT trucks (17%), LOS E

The travel time for the No - Build serves as the baseline for comparison to other corridors. For the two trips; Paducah to Sikeston and Paducah to Cape Girardeau, the travel times are 76 and 98 minutes respectively.

The No - Build Option will make some improvements to US 60; but only those programmed in the KYTC's 2001 – 2006 Six Year Highway Plan. This will have some very tangible improvements in terms of safety and security, including the provision of an upgraded route and improved / increased access to points west of Paducah. It does not however provide for a new bridge over the Mississippi River, which would provide a great deal of redundancy in terms of connectivity (east – west connections) and access for the transportation system in western Kentucky / southeastern Missouri.

Support

There is some minimal support for the No - Build Option in both Kentucky and Missouri. Most of those who are interested in the No - Build Option want more improvements than just those that are currently programmed. These same individuals also tend to be concerned with the anticipated impacts of the US 60 improvements on adjacent communities including nearby residences, businesses, farms, etc.

Community Impacts

Community impacts have been fully documented in previous studies. The no-build corridor for the I-66 project also does not recommend further improvements beyond those existing and committed, therefore no anticipated incremental impacts are anticipated. In addition, there are no adverse potential environmental justice (EJ) issues.

Property Impacts

Property impacts have been fully documented in previous studies. The no-build corridor also does not recommend further improvements beyond those existing and committed, therefore no new property impacts are anticipated.

Environmental Impacts

Environmental impacts have been fully documented in previous studies. The no-build corridor also does not recommend further improvements beyond those existing and committed, therefore no environmental impacts are anticipated.

Capital Costs

The current total for existing and committed projects is \$26.3 million dollars.

The No - Build Option was recommended to be carried forward into Level 3 analysis for comparison to other corridors.

9.2 Corridor 5

Traffic Operations

- Screen line #1 – 50,000 ADT, 5,000 ADT trucks (10%), LOS D
- Screen line #2 – 11,500 ADT, 3,000 ADT trucks (26%), LOS A
- Screen line #3 – 13,500 ADT, 2,500 ADT trucks (19%), LOS A
- Screen line #4 – 7,000 ADT, 1,500 ADT trucks (21%), LOS A

The travel times for Corridor 5 represented an improvement from the No - Build. Travel timesavings of 13 minutes for the Paducah to Charleston trip and travel time savings of 9 minutes for the Paducah to Cape Girardeau trip were recognized.

Corridor 5 goes beyond the programmed improvements of the No - Build Option and improves US 60 all the way from Paducah to Wickliffe. The corridor also includes a new bridge over the Mississippi River. This new facility would add to safety of the system and provide a redundant link from Kentucky to Missouri for security and other purposes. The bridge location is the least preferred by the Coast Guard as it adversely affects river traffic. Corridor 5 improves system connectivity and access.

Support

There is a minimal level of support for this corridor. Issues raised in regard to Corridor 5 include concerns over impacts to residences, businesses, farms, etc., that are parallel to existing US 60.

Community Impacts

Corridor 5 impacted farmlands, Kentucky agricultural districts, urban areas, and had property impacts and potential environmental justice (EJ) impacts.

- 30 miles or 9,506 acres of adjacent roadway / farmland impacts throughout the corridor
- 1.3 mile or 343 acre of impacts to agricultural districts
- no anticipated impacts to state / Federal forests, parks, and/or recreation land
- 2 miles or 288 acres of impacts to urban areas are anticipated
- medium probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts are anticipated to be 2,800 acres. The needed right-of-way is a mixture of farmlands, agricultural district lands, urban areas and other land uses.

Environmental Impacts

The anticipated environmental impacts are to stream crossings, the Birds Point - New Madrid Floodway, other floodplains and floodways (100 and 500 year) and to wetlands.

- no anticipated impacts to listed National Historic Register (NHR) sites, nature preserves / conservation lands
- 56 stream crossings throughout the corridor
- 3 miles or 723 acres of impacts to the Birds Point - New Madrid Floodway
- 12 miles or 2,944 acres of impacts to the 500 year floodplain
- 0.2 miles or 35 acres of impacts to the 100 year flood plain
- 1.7 miles or 466 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 5 are \$536 million (2003 dollars). \$272 million is for roadway construction, \$100 million for construction of a new bridge across the Mississippi River, \$89 million for right-of-way and utilities and \$75 million for contingencies, engineering, design, and mobilization / demobilization of construction.

Corridor 5 was not recommended for further consideration in Level 3.

9.3 Corridor 6/7

Traffic Operations

- Screen line #1 – 50,000 ADT, 5,500 ADT trucks (11%), LOS D
- Screen line #2 – 11,500 ADT, 3,000 ADT trucks (26%), LOS A
- Screen line #3 – 14,000 ADT, 2,500 ADT trucks (18%), LOS A
- Screen line #4 – 7,000 ADT, 1,500 ADT trucks (21%), LOS A

The travel times for Corridor 6/7 represented an improvement from the No - Build. Travel timesavings of 14 minutes for the Paducah to Charleston trip and travel time savings of 9 minutes for the Paducah to Cape Girardeau trip were recognized.

Corridor 6/7 provides a new limited access highway corridor and also includes a new bridge over the Mississippi River. These new facilities would add to safety of the system and provide a redundant link from Kentucky to Missouri for security and other purposes. The bridge location is the least preferred by the Coast Guard. Corridor 6/7 also improves system connectivity and access.

Support

There is a minimal level of support for this corridor. Issues raised in regard to Corridor 6/7 include concerns with impacts to residences, businesses, farms, etc., that are parallel to existing US 60.

Community Impacts

Community impacts for Corridor 6/7 are similar in scope to those for Corridor 5. There are impacts to farmlands, Kentucky agricultural districts, urban areas, property impacts and potential EJ impacts.

- 30 miles or 8,671 acres of adjacent roadway / farmland impacts throughout the corridor
- 1.4 miles or 352 acre of impacts to agricultural districts
- no anticipated impacts to state / Federal forests, parks, and/or recreation land
- 2 miles or 285 acres of impacts to urban areas are anticipated
- medium probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts are anticipated to be 2,700 acres. The needed right-of-way is a mixture of farmlands, agricultural district lands, urban areas and other land uses.

Environmental Impacts

The anticipated environmental impacts are to stream crossings, the Birds Point - New Madrid Floodway, other floodplains and floodways (100 and 500 year) and to wetlands.

- no anticipated impacts to listed National Historic Register (NHR) sites, nature preserves / conservation lands
- 54 stream crossings throughout the corridor
- 3 miles or 723 acres of impacts to the Birds Point - New Madrid Floodway
- 12 miles or 2,944 acres of impacts to the 500 year floodplain
- 0.2 miles or 35 acres of impacts to the 100 year flood plain
- 1.8 miles or 425 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 6/7 are \$528 million (2003 dollars). \$260 million is for roadway construction, \$106 million is for construction of a new bridge across the Mississippi River, \$88 million is for right-of-way and utilities and \$74 million is for contingencies, engineering, design, and mobilization / demobilization of construction.

Corridor 6/ 7 was not recommended for further consideration into Level 3.

9.4 Corridor 8

Traffic Operations

- Screen line #1 – 50,000 ADT, 5,000 ADT trucks (10%), LOS D
- Screen line #2 – 13,000 ADT, 3,000 ADT trucks (23%), LOS A
- Screen line #3 – 11,500 ADT, 2,500 ADT trucks (24%), LOS A
- Screen line #4 – 10,000 ADT, 1,500 ADT trucks (15%), LOS A

The travel time for Corridor 8 represents an improvement from the No - Build. The travel time for the Paducah to Sikeston trip decreases by 10 minutes. Similarly, the travel time for the Paducah to Cape Girardeau trip also decreases by 15 minutes from the baseline.

Corridor 8 provides a new limited access highway connector from other corridors near KY 286, and includes a new bridge over the Ohio River. These new facilities would add to safety of the system and provide a redundant link from Kentucky to Illinois and into Missouri for security purposes. This bridge location is preferable in terms of the Coast Guard's analysis of affects on river traffic. Corridor 8 also improves system connectivity and access.

Support

There is some support for Corridor 8. Issues associated with this corridor include impacts to wetlands, floodplains, and potential wildlife refuge and habitat area impacts near Barlow, Kentucky.

Community Impacts

Community impacts for Corridor 8 are slightly smaller in scope than those for Corridor 5 or 6/7. There are impacts to farmlands, Kentucky agricultural districts, urban area, property impacts, and potential EJ impacts.

- 21 miles or 7,222 acres of adjacent roadway / farmland impacts throughout the corridor
- 1.3 miles or 343 acre of impacts to agricultural districts
- no anticipated impacts to state / Federal forests, parks, and/or recreation land
- 1 mile or 135 acres of impacts to urban areas are anticipated
- Medium probability of adverse Environmental Justice impacts, mainly near Cape Girardeau due to the presence of minority, elderly and low income persons at the end of the corridor

Property Impacts

Total property impacts are anticipated to be 2,113 acres. The needed right-of-way is a mixture of farmlands, agricultural district lands, urban areas and other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 8 are to a NHR site, nature / wildlife preserves and conservation lands, to stream crossings, other floodplains and floodways (100 and 500 year) and to wetlands.

- 1 anticipated impact to listed National Historic Register (NHR) site, a 0.4 mile segment of the Trail of Tears National Historic Trail
- 2 miles or 455 acres of impacts to nature, wildlife preserves and conservation lands
- 49 stream crossings throughout the corridor
- no impacts to the Birds Point - New Madrid Floodway
- 7 miles or 1,810 acres of impacts to the 500 year floodplain
- 0.5 miles or 123 acres of impacts to the 100 year flood plain
- 4 miles or 1,001 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 8 are \$517 million (2003 dollars). \$206 million is for roadway, construction, \$129 million for construction of a new bridge across the Ohio River, \$114 million for right-of-way and utilities and \$68 million for contingencies, engineering, design and mobilization / demobilization of construction.

Corridor 8 was not recommended for further consideration into Level 3.

9.5 Corridor 8A

Traffic Operations

- Screen line #1 – 51,500 ADT, 4,000 ADT trucks (8%), LOS F
- Screen line #2 – 14,000 ADT, 2,000 ADT trucks (14%), LOS B
- Screen line #3 – 12,500 ADT, 1,500 ADT trucks (12%), LOS A
- Screen line #4 – 7,000 ADT, 500 ADT trucks (7%), LOS A

The travel times for Corridor 8A represent slight improvements from the No - Build Option. The travel time for the Paducah to Sikeston trip decreased by 2 minutes from baseline, while the travel time for the Paducah to Cape Girardeau trip decreased by 7 minutes.

Corridor 8A provides a new bridge connector from US 60 in Kentucky to I-57 in Illinois. These new facilities would add to safety of the system and provide a redundant river crossing link from Kentucky to Illinois and into Missouri for security purposes. This corridor's bridge location is preferable in terms of the Coast Guard's analysis of affects on river traffic. The location across the Ohio River would have minimum impacts on river traffic. Likewise, Corridor 8A also improves system connectivity and access.

Support

Support exists for continuing the programmed US 60 improvements and for upgrading the corridor. There is some support for a potential new bridge somewhere over the Ohio River northwest of Barlow, Kentucky. Issues of concern include impacts to areas adjacent to US 60 as well as wetland and wildlife habitat area impacts and concerns over the river crossing location near Barlow.

Community Impacts

Community impacts are documented in the US 60 improvement projects. Additional impacts are anticipated west of LaCenter, Kentucky and at the location of the bridge crossing over the Ohio River.

Property Impacts

Property impacts are documented in the US 60 improvement projects. Additional impacts are anticipated west of LaCenter, Kentucky and at the location of the bridge crossing over the Ohio River.

Environmental Impacts

Environmental impacts are documented in the US 60 improvement projects. Additional impacts are anticipated west of LaCenter, Kentucky and at the location of the bridge crossing over the Ohio River. For analysis purposes, no other details are provided in the level of screening. Environmental impacts can be assumed to be similar to those of the No Build Corridor for the roadway. There is anticipated to be considerable impacts

to the wildlife management / recreation areas (including wetlands and waterfowl habitat areas) southwest of Barlow, Kentucky for the location of the river crossing / bridge.

Capital Costs

The total capital costs for Corridor 8A are assumed to be more than \$184 million (2004 dollars). There are no additional costs assumed for roadway improvements for this corridor due to the fact that the existing US 60 will be upgraded. Incremental costs for the roadway component from east of LaCenter, Kentucky to southwest of Barlow, Kentucky were not available for the Level 2 evaluation. The cost of a new bridge over the Ohio River northwest of Barlow, Kentucky, for this corridor is \$129 million. Costs for right-of-way and utilities are \$29 million, while contingencies, engineering, design and mobilization / demobilization of construction are estimated at \$26 million.

Corridor 8A was not recommended for further consideration into Level 3.

9.6 Corridor 8B

Traffic Operations

- Screen line #1 – 44,500 ADT, 3,500 ADT trucks (8%), LOS E
- Screen line #2 – 7,000 ADT, 1,500 ADT trucks (21%), LOS A
- Screen line #3 – 6,000 ADT, 500 ADT trucks (8%), LOS A
- Screen line #4 – 5,500 ADT, 500 ADT trucks (9%), LOS A

The travel time for Corridor 8B represents very slight improvements from the No - Build Option. The travel time for the Paducah to Sikeston trip decreases by 2 minutes from while the travel time for the Paducah to Cape Girardeau trip represents no change from the No - Build Option.

Corridor 8B provides a new bridge connector from US 60 in Kentucky to I-57 in Missouri. These new facilities would add to safety of the system and provide a redundant river crossing link from Kentucky directly to Missouri for security purposes. This bridge location is less preferable in terms of the Coast Guard's analysis of affects on Mississippi River traffic. Likewise, Corridor 8B also improves system connectivity and access.

Support

Support exists for continuing the US 60 improvements and for upgrading the corridor. There is also support for a new bridge over the Mississippi River near Wickliffe, Kentucky. Issue of concern include impacts to areas adjacent to US 60 as well as wetland impacts and concerns over the river crossing location, especially impacts to river traffic and impacts to the Birds Point - New Madrid Floodway in Missouri.

Community Impacts

Community impacts are documented in US 60 improvement projects. Additional impacts are anticipated west of LaCenter, Kentucky and at the location of the bridge crossing over the Mississippi River.

Property Impacts

Property impacts are documented in US 60 improvement projects. Additional impacts are anticipated west of LaCenter, Kentucky and at the location of the bridge crossing over the Mississippi River. For analysis purposes, no other details are provided in this level of screening. However, property impacts can be assumed to be similar to those of the No - Build or Corridor 0.

Environmental Impacts

Environmental impacts are documented in US 60 improvement projects. Additional impacts are anticipated west of LaCenter, Kentucky and at the location of the bridge crossing over the Mississippi River. For analysis purposes, no other details are provided in this level of screening. However, environmental impacts can be assumed to be similar to those of the No - Build or Corridor 0. There is anticipated to be considerable impacts to the Birds Point - New Madrid Floodway in Missouri, due west of Wickliffe, Kentucky.

Capital Costs

The total capital costs for Corridor 8A are assumed to be greater than \$209 million (2003 dollars). There are no additional costs assumed for the roadway due to the fact that US 60 will be upgraded. Incremental costs for the roadway component from east of LaCenter, Kentucky to Wickliffe, Kentucky were not available for Level 2 evaluation. The cost of a new bridge over the Mississippi River near Wickliffe, Kentucky is \$140 million. Costs for right-of-way and utilities are \$41 million, while contingencies, design, engineering and mobilization / demobilization of construction are estimated at \$28 million.

Corridor 8B was recommended to be carried forward into Level 3 analysis.

9.7 Corridor 9/10

Traffic Operations

- Screen line #1 – 25,000 ADT, 3,500 ADT trucks (14%), LOS B
- Screen line #2 – 15,500 ADT, 3,000 ADT trucks (19%), LOS A
- Screen line #3 – 9,500 ADT, 2,500 ADT trucks (26%), LOS A
- Screen line #4 – 7,000 ADT, 1,500 ADT trucks (21%), LOS A

The travel time for Corridor 9 / 10 represents significant improvements from the No - Build Option. The travel time for the Paducah to Sikeston trip decreased by 15 minutes and the travel time for the Paducah to Cape Girardeau trip decreased by 11 minutes.

Corridor 9/10 provides a new bridge connection from Kentucky to I-57 in Missouri with a new limited access highway corridor. These new facilities would add significantly to safety of the system and provide a redundant river crossing link from Kentucky directly to Missouri for security purposes. This bridge location is less preferable in terms of the Coast Guard's analysis of affects on river traffic as it causes disruptions to river traffic on the Mississippi River because of the location of the piers and the proximity of the structure to the confluence of the Ohio and Mississippi rivers. Likewise, this Corridor also improves system connectivity and access.

Support

Support is somewhat strong for Corridor 9/10. It is equal to the support for Corridor 11/12/13/14/15/ & 21. Issues of concern include farmland impacts and river crossing location.

Community Impacts

Community impacts for Corridor 9/10 are similar in scope to those for similar corridors, namely 6/7 and 11/12/13/14/15 & 21. There are impacts to farmlands, urban areas, property impacts, and potential EJ impacts.

- 28 miles or 8,618 acres of adjacent roadway / farmland impacts throughout the corridor
- no impacts to agricultural districts
- no anticipated impacts to state / Federal forests, parks, and/or recreation land
- 1 mile or 264 acres of impacts to urban areas are anticipated
- low probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts for right-of-way purposes are anticipated to be 2,643 acres. The needed right-of-way is a mixture of farmlands, urban areas and some other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 9/10 are to stream crossings, the Birds Point - New Madrid Floodway, other floodplains and floodways (100 and 500 year) and to wetlands.

- No impacts to National Historic Register Sites or nature / wildlife preserves or conservation lands
- 46 stream crossings throughout the corridor
- 3 miles or 723 acres of impacts to Birds Point - New Madrid Floodway
- 11.5 miles or 2,787 acres of impacts to the 500 year floodplain
- 0.1 miles or 33 acres of impacts to the 100 year flood plain
- 1.4 miles or 357 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 9/10 are \$551 million (2003 dollars). \$274 million is for roadway, construction, \$105 million for construction of a new bridge across the Mississippi River, \$95 million for right-of-way and utilities and \$77 million for contingencies, design, engineering and mobilization / demobilization of construction.

Corridor 9 / 10 was not recommended for further consideration into Level 3.

9.8 Corridor 11/12/13/14/15 and 21

Traffic Operations

- Screen line #1 – 35,000 ADT, 5,000 ADT trucks (14%), LOS C
- Screen line #2 – 19,000 – 30,000 ADT, 3,500 – 4,500 ADT trucks (15 - 18%), LOS A - B
- Screen line #3 – 12,500 ADT, 3,000 ADT trucks (24%), LOS A
- Screen line #4 – 7,500 ADT, 1,500 ADT trucks (20%), LOS A

The travel time for Corridor 11/12/13/14/15/21 represents significant improvements from the base line for the No - Build Option. The travel time for the Paducah to Sikeston trip decreased by 18 minutes while the travel time for the Paducah to Cape Girardeau also decreased by 14 minutes.

Corridor 11/12/13/14/15 & 21 provides a new bridge connector along the proposed new limited access highway from Kentucky to I-57 in Missouri. These new facilities would add to safety of the system and provide a redundant river crossing link from Kentucky directly to Missouri for security purposes. This bridge location is less preferable in terms of the Coast Guard's analysis of affects on river traffic. This corridor would also improve system connectivity and access.

Support

Support is strong for Corridor 11/12/13/14/15/ & 21. It is equal to the support for Corridor 9/10. The river crossing is of concern to the US Coast Guard as it causes disruptions to river traffic because of the location of the piers and the proximity of the structure to the confluence of the Ohio and Mississippi rivers. The location would also impact the operation of the Birds Point - New Madrid Floodway in Missouri. Issues of concern include farmland impacts and river crossing location.

Community Impacts

Community impacts for Corridor 11/12/13/14/15 & 21 are similar in scope to those for similar corridors, namely 6/7 and 9/10.

- 29 miles or 7,319 acres of adjacent roadway / farmland impacts throughout the corridor
- 1.7 miles or 420 acres of impacts to agricultural districts
- no anticipated impacts to state / Federal forests, parks, and/or recreation land
- 0 miles or 144 acres of impacts to urban areas are anticipated
- low probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts for right-of-way purposes are anticipated to be 2,786 acres. The needed right-of-way is a mixture of farmlands, urban areas and some other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 11/12/13/14/15 & 21 are to stream crossings, the Birds Point - New Madrid Floodway, other floodplains and floodways (100 and 500 year) and to wetlands.

- No impacts to National Historic Register Sites or nature / wildlife preserves or conservation lands
- 54 stream crossings throughout the corridor
- 3 miles or 723 acres of impacts to Birds Point - New Madrid Floodway
- 11.5 miles or 2,774 acre of impacts to the 500 year floodplain
- less than 1 mile or 21 acres of impacts to the 100 year flood plain
- 1.2 miles or 312 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 11/12/13/14/15 & 21 are \$624 million (2003 dollars). \$287 million is for roadway construction, \$109 million for construction of a new bridge across the Mississippi River, \$148 million for right-of-way and utilities and \$80 million for contingencies, design, engineering and mobilization / demobilization of construction.

Corridor 11/12/13/14/15 & 21 was recommended to be carried forward into Level 3 analysis.

9.9 Corridor 19

Traffic Operations

- Screen line #1 – 16,000 ADT, 3,500 ADT trucks (22%), LOS A
- Screen line #2 – 17,500 ADT, 3,000 ADT trucks (17%), LOS A
- Screen line #3 – 10,500 ADT, 2,000 ADT trucks (19%), LOS A
- Screen line #4 – 8,000 ADT, 1,500 ADT trucks (19%), LOS A

The travel times for Corridor 19 represent improvements from the No - Build Option ... The travel time for the Paducah to Sikeston trip decreased by 16 minutes and the travel time for the Paducah to Cape Girardeau trip decreased by 10 minutes.

Corridor 19 provides a new bridge connection from the new limited access highway facility in Kentucky to I-57 in Missouri. These new facilities would add to safety of the system and provide a redundant river crossing link from Kentucky directly to Missouri for security purposes. This bridge location is preferable in terms of the Coast Guard's analysis of affects on river traffic. Likewise, Corridor 19 also improves system connectivity and access, especially to the planned business / industrial park in Graves County.

Support

There is modest geographical support for Corridor 19. Issues associated with this corridor include impacts to wetlands and floodplains. The bridge crossing location is preferred by the US Coast Guard, as it would not affect Mississippi River traffic.

Community Impacts

Community impacts for Corridor 19 are slightly more in scope than others that involve a Mississippi River crossing. There are impacts to farmlands, Kentucky agricultural districts, State / Federal / Forests – Parks and Recreation lands, property impacts and potential EJ impacts.

- 34 miles or 10,134 acres of adjacent roadway / farmland impacts throughout the corridor
- 0.8 miles or 269 acres of impacts to agricultural districts
- < 1 mile or 8 acres of impacts to state / Federal forests, parks, and/or recreation land
- no anticipated impacts to urban areas are anticipated
- low probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts are anticipated to be 3,049 acres for right-of-way purposes. The needed right-of-way is a mixture of farmlands, agricultural district lands, and other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 19 are to a NHR site, nature / wildlife preserves and conservation lands, to stream crossings, other floodplains and floodways (100 and 500 year) and to wetlands.

- 1 impact to a 0.4 mile segment of the Trail of Tears National Historic Trails
- < 1 mile or 8 acres of impacts to nature / wildlife preserves or conservation lands
- 77 stream crossings throughout the corridor
- 4.5 miles or 1,068 acres of impacts to Birds Point - New Madrid Floodway
- 13 miles or 3,179 acres of impacts to the 500 year floodplain
- 0.2 miles or 54 acres of impacts to the 100 year flood plain

- 1.6 miles or 615 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 19 are \$713 million (2003 dollars). \$317 million is for roadway construction, \$140 million for construction of a new bridge across the Mississippi River, \$163 million for right-of-way and utilities and \$93 million for contingencies, design, engineering and mobilization / demobilization of construction.

Corridor 19 was not recommended for further consideration into Level 3.

9.10 Corridor 20

Traffic Operations

- Screen line #1 – 15,500 ADT, 1,500 ADT trucks (10%), LOS A
- Screen line #2 – 15,500 ADT, 1,500 ADT trucks (10%), LOS A
- Screen line #3 – 16,000 ADT, 1,500 ADT trucks (10%), LOS A
- Screen line #4 – 17,000 ADT, 2,000 ADT trucks (12%), LOS A

The travel time for Corridor 20 represent very slight improvements for the Paducah to Sikeston trip, which decreased by 2 minutes, while the travel time savings for the Paducah to Cape Girardeau trip decreased by 31 minutes.

Corridor 20 provides no new bridge connector but does provide a new limited access highway across southern Illinois. It may also require some widening of I-24 in Kentucky and the need for a connector roadway of interstate quality from the bridge at Cape Girardeau to I-55. These new facilities would add to safety of the system and add benefits for security purposes. This Corridor provides good access and connectivity benefits for southern Illinois and the Cape Girardeau Missouri areas. It provides little benefit for Western Kentucky because the new route is located in Illinois.

Support

There is strong support for Corridor 20 mainly from constituencies in the Cape Girardeau area. There has been almost an equal amount of opposition to Corridor 20 from study participants who reside in Kentucky. Issues associated with this corridor include impacts to the Shawnee National Forest. The bridge crossing location at Cape Girardeau would make use of the Bill Emerson Bridge. However, the connection to the bridge from I-55 may not be interstate quality.

Community Impacts

Community impacts for Corridor 20 include impacts to farmlands, State / Federal / Forests – Parks and Recreation lands, urban area impacts, property impacts and potential EJ impacts.

- 33 miles or 7,957 acres of adjacent roadway / farmland impacts throughout the corridor
- no anticipated impacts to agricultural districts
- 8 miles or 1,964 acres of impacts to state / Federal forests, parks, and/or recreation land
- 3 miles or 469 acres of no anticipated impacts to urban areas
- high probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts are anticipated to be 3,514 acres, largely for right-of-way purposes. The needed right-of-way is a mixture of farmlands, forests / recreation areas, urban areas, and other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 20 are to a NHR site, to stream crossings, other floodplains and floodways (100 and 500 year) and to wetlands.

- 1 impact to a 4.5 mile segment of the Trail of Tears National Historic Trails
- no anticipated impacts to nature / wildlife preserves or conservation lands
- 41 stream crossings throughout the corridor
- no anticipated impacts to the Birds Point - New Madrid Floodway
- 8 miles or 1,991 acres of impacts to the 500 year floodplain
- 1 mile or 300 acres of impacts to the 100 year flood plain
- 1.9 miles or 530 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 20 are more than \$536 million (2003 dollars). \$340 million is for construction of the roadway, \$127 million for right-of-way and utilities and \$69 million for contingencies, design, engineering and mobilization / demobilization of construction. There are no costs assumed for the bridge at Cape Girardeau since, at the time of the Level 2 screening, it was still under construction and already funded.

Additional costs that were not quantified for the analysis would include any new widening of I-24 in Kentucky and/or Illinois and the construction of an interstate quality connector from the Bill Emerson Bridge to I-55 near Cape Girardeau.

Corridor 20 was recommended to be carried forward into Level 3 analysis.

9.11 Level 2 Screening Summary / Conclusions

The more detailed analysis performed in the Level 2 screening / evaluation further reduced the corridors being considered from nine (9) (eight (8) build corridors plus the No - Build) to four (4) total Corridors that are recommended for further evaluation in the Level 3 Screening. Those Corridors included:

- No - Build Option – Only existing and committed projects in the KYTC 2001 – 2006 Six Year Highway Plan and MoDOT improvement program.
- Corridor 8B – US 60 improvements from Paducah to Wickliffe with a new Mississippi River crossing
- Corridor 11 – new limited access highway corridor parallel to US 62 and KY 286 with a new Mississippi River crossing
- Corridor 20 – unspecified corridor-connecting I-24 north of Paducah to I-55 near Cape Girardeau, Missouri with no new river crossing either over the Mississippi or Ohio rivers.

All other corridors not listed above are not being carried forward for further consideration in Level 3 screening. This is because one or more of the impacts significantly reduced the viability of that corridor or that there are other corridors still under consideration that are better at satisfying the goals, objectives, and issues of the study.

The matrices and map on the following pages summarize the details above and depict the corridors that are being advanced to the Level 3 screening.

**I-66 Corridor Study
Western Kentucky to Missouri
Level 2 Screening Summary**

Alt. / Corridor No.	Description	Traffic Operations*											
		Screen Line #1: Paducah			Screen Line #2: W. McCracken Co.			Screen Line #3: Ballard County			Screen Line #4: Mississippi River (Ohio River for 8 & 8A)		
		Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service
0	No Build or Do Nothing (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	45,000 (US 60)	3,500 (7%)	E (4 lanes)	11,000 (US 60)	1,500 (14%)	A (4 lanes)	10,000 (US 60)	1,000 (10%)	E (2 lanes)	11,500 (Bridge Over Ohio River)	2,000 (17%)	E (2 lanes)
5	From I-24 at Paducah generally follow the existing US 60 corridor to Wickliffe over the Miss. River on new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57	50,000	5,000 (10%)	D	11,500	3,000 (26%)	A	13,500	2,500 (19%)	A	7,000	1,500 (21%)	A
6 / 7	From existing US 60 east of Kevil go southwest on a new alignment towards Wickliffe over the Miss. River on a new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57	50,000	5,500 (11%)	D	11,500	3,000 (26%)	A	14,000	2,500 (18%)	A	7,000	1,500 (21%)	A
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	50,000	5,000 (10%)	D	13,000	3,000 (23%)	A	11,500	2,500 (24%)	A	10,000 (Bridge Over Ohio River)	1,500 (15%)	A
8A	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Ohio River connecting US 60 to I-57 in Illinois.	51,500 (US 60)	4,000 (8%)	F (4 lanes)	14,000 (US 60)	2,000 (14%)	B (4 lanes)	12,500 (US 60)	1,500 (12%)	A (4 lanes)	7,000 (Bridge Over Ohio River)	500 (7%)	A (4 lanes)
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	44,500 (US 60)	3,500 (8%)	E (4 lanes)	7,000 (US 60)	1,500 (21%)	A (4 lanes)	6,000 (US 60)	500 (8%)	A (4 lanes)	5,500	500 (9%)	A (4 lanes)
9 / 10	From I-24 near Paducah, follow new route south westerly to Wickliffe (parallel to US 62/KY 286) across the Mississippi River on a new bridge to I-57	25,000	3,500 (14%)	B	15,500	3,000 (19%)	A	9,500	2,500 (26%)	A	7,000	1,500 (21%)	A
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	35,000	5,000 (14%)	C	19,000 - 30,000	3,500-4,500 (15-18%)	A-B	12,500	3,000 (24%)	A	7,500	1,500 (20%)	A
19	From I-24 near existing US 60 bridge across Tennessee River proceed south west to new route south of KY 339 westerly along new route south of study area across the Mississippi River on a new bridge to US 60 / US 62 to Sikeston	16,000	3,500 (22%)	A	17,500	3,000 (17%)	A	10,500	2,000 (19%)	A	8,000	1,500 (19%)	A
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	15,500	1,500 (10%)	A	15,500	1,500 (10%)	A	16,000	1,500 (10%)	A	17,000	2,000 (12%)	A

* Future Year = 2030 **Based on Environmental Constraints Map ***In Millions of 2003 Constant Dollars

**I-66 Corridor Study
Western Kentucky to Missouri
Level 2 Screening Summary**

Alt. / Corridor No.	Description	Traffic Operations*			
		Travel Time in Minutes Paducah to Sikeston (Savings from No-Build)	Travel Time in Minutes Paducah to Cape Girardeau (Savings from No-Build)	Safety / Security	Connectivity / Access
0	No Build or Do Nothing (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	76	98	Improves US 60 in place improvements largely to safety, little for security	Keeps existing connectivity and access
5	From I-24 at Paducah generally follow the existing US 60 corridor to Wickliffe over the Miss. River on new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57	63 (13)	89 (9)	Provides some level of improvement - New bridge over Mississippi River	Makes new system connections
6 / 7	From existing US 60 east of Kevil go southwest on a new alignment towards Wickliffe over the Miss. River on a new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57	62 (14)	89 (9)	Provides some level of improvement - New bridge over Mississippi River	Makes new system connections
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	66 (10)	83 (15)	Provides some level of improvement - New bridge over Ohio River	Makes some new system connections
8A	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Ohio River connecting US 60 to I-57 in Illinois.	74 (2)	91 (7)	Provides some level of improvement - New bridge over Ohio River	Keeps existing connectivity and access, provides for new river crossing
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	74 (2)	98 (0)	Provides some level of improvement - New bridge over Mississippi River	Keeps existing connectivity and access, provides for new river crossing
9 / 10	From I-24 near Paducah, follow new route south westerly to Wickliffe (parallel to US 62/KY 286) across the Mississippi River on a new bridge to I-57	61 (15)	87 (11)	Provides improvement - New bridge over Mississippi River	Makes new system connections
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	58 (18)	84 (14)	Provides improvement - New bridge over Mississippi River	Makes new system connections
19	From I-24 near existing US 60 bridge across Tennessee River proceed south west to new route south of KY 339 westerly along new route south of study area across the Mississippi River on a new bridge to US 60 / US 62 to Sikeston	60 (16)	88 (10)	Provides improvement - New bridge over Mississippi River	Connects to planned regional industrial / development site
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	74 (2)	67 (31)	Provides improvement - New roadway connecting I-24 and I-55 / I-57	Good connections for southern Illinois, little benefit for KY

* Future Year = 2030 **Based on Environmental Constraints Map ***In Millions of 2003 Constant Dollars

**I-66 Corridor Study
Western Kentucky to Missouri
Level 2 Screening Summary**

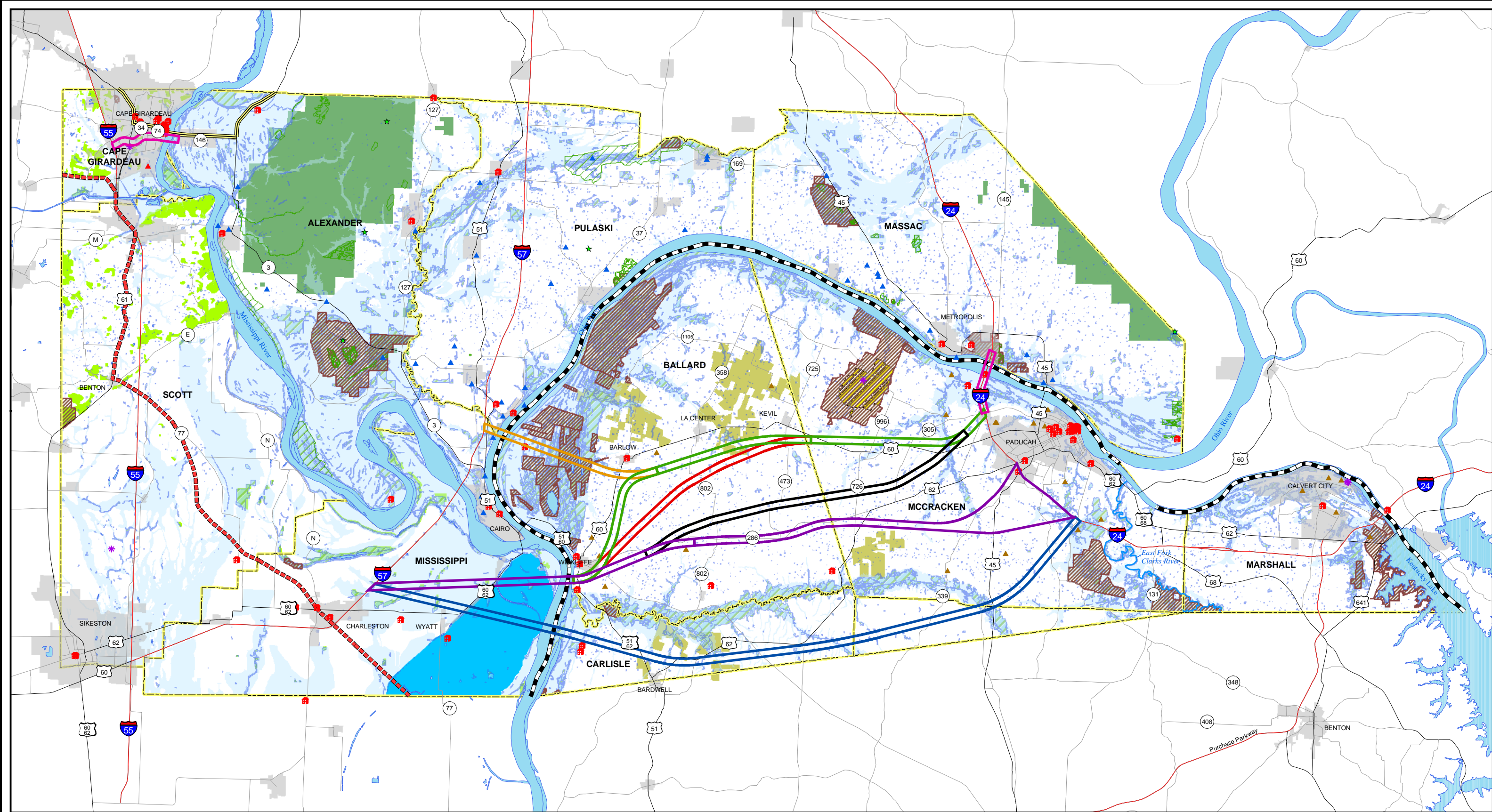
Alt. / Corridor No.	Description	Support		Community Impacts													
		Corridor	Issues	Farmland (miles/acres)	Kentucky Agriculture Districts (miles/acres)	State / Federal Forest - Parks / Recreation (miles/acres)	Urban (miles/acres)	Probable Environmental Justice Impacts	Property Impacts (in acres)								
0	No Build or Do Nothing (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan		There is minimal support for continuing with current plans. Especially noted are the plans to improve Hwy 60.							Impacts to adjacent development on US 60	Community impacts documented in US 60 improvement project - no additional impacts anticipated						
5	From I-24 at Paducah generally follow the existing US 60 corridor to Wickliffe over the Miss. River on new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57		Minimal support for Alternative 5		Parallels US 60 corridor, some farm and / or residential impacts, least favorable river crossing location	30 mi/9,506 ac	1.3 mi/343 ac	None	2 mi/288 ac	Medium	2,800						
6 / 7	From existing US 60 east of Kevil go southwest on a new alignment towards Wickliffe over the Miss. River on a new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57		Minimal support for Alternative 6 / 7		Farm impacts, least favorable river crossing location	30 mi/8,671 ac	1.4 mi/352 ac	None	2 mi/285 ac	Medium	2,700						
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois		There has been no vocal support for Alternative 8 during public workshops		Wetland, floodplain and potential wildlife refuge impacts, preferred river crossing	21 mi/7,222 ac	1.3 mi/343 ac	None	1 mi/135 ac	Medium	2,113						
8A	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Ohio River connecting US 60 to I-57 in Illinois.		Support exists for US 60 improvements; however little support has been expressed for a new bridge southwest of Barlow, KY		Impacts to adjacent development on US 60 plus wetland, floodplain and potential wildlife refuge impacts at preferred river crossing	Community impacts documented in US 60 improvement project - additional impacts anticipated west of LaCenter											
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.		Support exists for US 60 improvements and support has been expressed for a new bridge near Wickliffe, KY		Impacts to adjacent development on US 60 plus wetland and floodplain impacts at preferred river crossing	Community impacts documented in US 60 improvement project - additional impacts anticipated west of LaCenter and south of Wickliffe, impacts to farmland in Missouri											
9 / 10	From I-24 near Paducah, follow new route south westerly to Wickliffe (parallel to US 62/KY 286) across the Mississippi River on a new bridge to I-57		Support is somewhat strong for Alternative 9/10. It is equal to Alternative 11/12/13/14/15/21		Farmland impacts, uses least favorable river crossing	28 mi/8,618 ac	None	None	1 mi/264 ac	Low	2,643						
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57		Support is strong for Alternative 11/12/13/14/15/21. It is equal to Alternative 9/10		Farmland impacts, uses least favorable river crossing	29 mi/7,319 ac	1.7 mi/420 ac	None	0 mi/144 ac	Low	2,786						
19	From I-24 near existing US 60 bridge across Tennessee River proceed south west to new route south of KY 339 westerly along new route south of study area across the Mississippi River on a new bridge to US 60 / US 62 to Sikeston		There has been no vocal support for Alternative 19 during public		Large need for new right of way, closest to planned industrial park, impacts to flats area, preferred river crossing location	34 mi/10,134 ac	0.8 mi/269 ac	< 1 mi/8 ac	None	Low	3,049						
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri		There has been some level of support for Alternative 20, there has also been equal support against the alternative especially from residents of KY		In southern Illinois, little economic benefit for KY, impacts to Shawnee National Forest, use of newly built bridge	33 mi/7,957 ac	None	8 mi/1,964 ac	3 mi/469 ac	High	3,514						

* Future Year = 2030 **Based on Environmental Constraints Map ***In Millions of 2003 Constant Dollars

**I-66 Corridor Study
Western Kentucky to Missouri
Level 2 Screening Summary**

Alt. / Corridor No.	Description	Environmental Impacts**							Capital Costs***					Advance to Level 3 Screening?
		No. of Listed Natl. Historic Registry Sites	Nature / Wildlife Preserves / Conservation Lands (miles/acres)	No. of Stream Crossings	Birds Point - New Madrid Floodway (miles/acres)	Floodplain / Floodway (100 yr. / 500 yr.) (in miles)	Floodplain / Floodway (100 yr. / 500 yr.) (in acres)	Wetlands (miles/acres)	Roadway	Bridge	Right-of-Way / Utilities	Contingency / Engineering / Mobil. / Demobil.	Total	
0	No Build or Do Nothing (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	Community impacts documented in US 60 improvement project - no additional impacts anticipated							No incremental capital costs anticipated over those programmed in 6 Year Plan Total Costs in 6 Year Plan are \$26.3 million					Yes
5	From I-24 at Paducah generally follow the existing US 60 corridor to Wickliffe over the Miss. River on a new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57	None	None	56	3 miles/723 acres	12/0.2	2,944/35	1.7 mi/466 ac	\$272	\$100	\$89	\$75	\$536	No
6 / 7	From existing US 60 east of Kevil go southwest on a new alignment towards Wickliffe over the Miss. River on a new bridge through lowland/floodway in Missouri connecting to US 60 in Missouri east of Charleston to I-57	None	None	54	3 miles/723 acres	12/0.2	2,944/35	1.8 mi/425 ac	\$260	\$106	\$88	\$74	\$528	No
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	1 (0.4 miles of Trail of Tears NHT)	2 mi/455 ac	49	None	7/0.5	1,810/123	4.0 mi/1,001ac	\$206	\$129	\$114	\$68	\$517	No
8A	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Ohio River connecting US 60 to I-57 in Illinois.	Environmental impacts documented in US 60 improvement project - additional impacts anticipated west of LaCenter and northwest of Barlow - impacts to Barlow Flats and adjacent wildlife management area in northeastern Ballard County, KY							\$0	\$129	\$29	\$26	\$184	No
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	Environmental impacts documented in US 60 improvement project - additional impacts anticipated south of Wickliffe and to Bird's Point floodway area in Missouri							\$0	\$140	\$41	\$28	\$209	Yes
9 / 10	From I-24 near Paducah, follow new route south westerly to Wickliffe (parallel to US 62/KY 286) across the Mississippi River on a new bridge to I-57	None	None	46	3 miles/723 acres	11.5/0.1	2,787/33	1.4 mi/357 ac	\$274	\$105	\$95	\$77	\$551	No
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	None	None	54	3 miles/723 acres	11.5/ < 1	2774/21	1.2 mi/312 ac	\$287	\$109	\$148	\$80	\$624	Yes
19	From I-24 near existing US 60 bridge across Tennessee River proceed south west to new route south of KY 339 westerly along new route south of study area across the Mississippi River on a new bridge to US 60 / US 62 to Sikeston	1 (0.4 miles of Trail of Tears NHT)	< 1 mi/8 ac	77	4.5 miles/1,068 acres	13/0.2	3,179/54	1.6 mi/615 ac	\$317	\$140	\$163	\$93	\$713	No
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	1 (4.5 miles of Trail of Tears NHT)	None	41	None	8/1	1,991/300	1.9 mi/530 ac	\$340	\$0	\$127	\$69	\$536	Yes

* Future Year = 2030 **Based on Environmental Constraints Map ***In Millions of 2003 Constant Dollars



- | | | |
|------------------------------|---------------------------------|--|
| Alternative Corridors | National Historic Register Site | Agricultural District |
| 5 | Illinois Natural Area Location | Wildlife Preserve/Conservation Area/Park |
| 6/7 | NPL Sites | Forested Area (MO) |
| 8 | Active/Permitted Landfills (MO) | Shawnee National Forest |
| 9/10 | Landfills (KY) | Wetland |
| 11,12,13,14,15 & 21 | Landfills (IL) | 100 Year Floodplain |
| 19 | Trail of Tears - Auto route | New Madrid Floodway |
| 20 | Trail of Tears - Benge's Route | Superfund Site (KY) |
| | Trail of Tears - Water Route | PROJECT STUDY AREA |

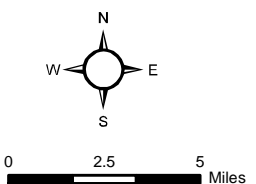
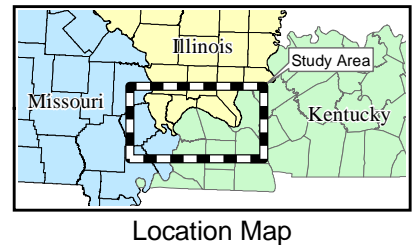


Figure 13
LEVEL 2
ALTERNATIVES

I-66 CORRIDOR STUDY
Western Kentucky to Missouri
KYTC Item No. 1-23.00



10.0 LEVEL 3 EVALUATION

The analysis for this level is the most extensive and quantitative that the project undertook. Although no new evaluation categories were introduced for Level 3, the analysis was to a greater level of detail than previous. In addition, more coordination with other agencies (US Army Corps of Engineers, US Coast Guard, and Illinois Department of Transportation) took place. (See Section 7- Agency Coordination for more details.) The evaluation categories and subcategories for Level 3 included:

- **Traffic Operations** – general criteria to evaluate mobility and accessibility improvements including: level of service (LOS), improvements to travel time, number of users (volume / ADT), truck percentages, safety, security, etc., based on travel demand forecasting model runs and manual adjustments / interpolation. Four (4) screen line locations were used to estimate the various measures. The locations are common points in the study area, and are generally described as: (1) Paducah, KY (2) Western McCracken County, KY, (3) Ballard County, KY, and (4) a Mississippi or Ohio River crossing. Specific measures examined in this category for the base year 2003 and the future year 2030 included:
 1. Average Daily Traffic (ADT) – How many vehicles per day will use the new highway corridor at a “screen line”? (Note that for this analysis, a screenline was defined as a specific point for that corridor only. It is not an additive measure of all volumes for all corridors at a certain point.)
 2. Average Daily Truck Traffic – How many trucks per day will use the new highway corridor at a “screen line”?
 3. Level of Service (LOS)
 4. Vehicle Miles of Travel (VMT) – measure of total miles of travel across the model area of travel for all vehicles
 5. Vehicle Hours of Travel (VHT) – measure of total hours of travel across the model area for all vehicles
 6. Travel Time / Travel Time Savings (note: travel time and travel time savings are derived for two trips (1) from I-24 to I-55 south – essentially from Paducah, KY to Sikeston, MO and (2) from I-24 to I-55 north – essentially Paducah, KY to Cape Girardeau, MO. Travel time savings are expressed as a comparison of each corridor as compared to the No - Build (Corridor 0)
 7. Safety / Security
 8. Connectivity / Access

To facilitate the analysis, the Kentucky statewide I-66 model was used as the basis for coding and running the analysis of the corridors under evaluation.

- **Support** – likelihood that one or more corridors will be supported / is supported by the local community, including citizens, political leaders, business / industry and other stakeholders, derived from all public comments, letters, emails, etc., to date. Also contains description of relevant criteria or issues to be scrutinized. Specific measures included:
 1. Corridor - Based on input from public workshops, project work group, and stakeholder meetings, what percentage of the community favors a corridor
 2. Issues - Based on input from public workshops, project work groups, and stakeholder meetings, what community issues are addressed or will need to be addressed by the corridor and the analysis

- **Community Impacts** – compatibility with adjacent and proposed land uses and the affects and impacts on those land uses (separate impacts to type of property: farmland, commercial / business, parks / recreation, residential, etc., calculated by miles and acres of adjacent property. Also included was an environmental justice analysis. Specific impacts included those to:
 1. Farmland
 2. Kentucky Agricultural Districts
 3. State / Federal Forest – Parks / Recreation lands
 4. Urban areas
 5. Environmental Justice Communities

- **Property Impacts** – specific new right-of-way quantified in acres

- **Environmental Impacts** – refinements to impacts on known historic and archeological sites / structures, acres of natural resource / wildlife areas, habitat areas, number of HAZMAT sites, number of stream crossings, floodplain / floodway impacts, and acres of wetlands, based on refined alignments. Specific measures included:
 1. Number of Listed National Historic Register Sites
 2. Nature / Wildlife Preserves / Conservation Lands
 3. Number of Stream Crossings
 4. Birds Point Floodway Impacts
 5. Floodplain / Floodway – expressed in miles and acres
 6. Wetlands – expressed in miles and acres

- **Capital cost considerations** – order of magnitude capital costs for proposed corridors derived on a cost build up basis from typical sections for roadway (at-grade and elevated) and bridge improvements, also includes typical costs for interchanges, and appropriate costs for engineering, contingencies, etc. Specific costs included:
 1. Roadway
 2. Bridge
 3. Right-of-way
 4. Engineering / Mobilization / Demobilization
 5. Total

Note that although seemingly detailed estimates of impacts and costs are provided, the analysis was NOT to an engineering level. Assumptions are for analysis purposes, and include a 180-foot wide typical section for current year 2003 cost estimating and a 600-foot section for right-of-way purposes calculated on an average cost per acre basis. For environmental analysis, a bandwidth of 2,000 from an imaginary centerline of the corridor was used for analysis purposes with all data assumed available from the project's mapping databases. Comparisons should only be made to other corridors within the context of this study.

The more detailed analysis performed in the Level 3 screening / evaluation further examined the remaining four (4) corridors and re-examined Corridor 8. The Project Team, decided to reexamine a modified Corridor 8 – essentially Corridor 11 in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceeding north west on new route across the Ohio River on a new bridge to I-57 in Illinois, in the Level 3 Screening. This occurred because of several reasons:

- It was necessary to look at an alternative river crossing that would minimize disruptions to barge traffic on the Mississippi River. This was evident after further discussions with the US Coast Guard about the location of a possible bridge across the Mississippi River
- Illinois DOT became interested in another corridor other than Corridor 20 and KYTC and MoDOT and the Project Team concurred.
- Potential corridors that did not impact the Birds Point – New Madrid Floodway were revisited. It became clear after talking with the US Army Corps of Engineers that corridors that would not impact the floodway should also be examined due to the technical challenges that traversing the floodway would present.

Thus, the corridors examined during Level 3 included:

- No - Build Option – Only existing and committed projects in KYTC 2001 – 2006 Six Year Highway Plan and MoDOT improvement program.

- Corridor 8 – essentially Corridor 11 in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceeding north west on new route across the Ohio River on a new bridge to I-57 in Illinois.
- Corridor 8B – US 60 improvements from Paducah to Wickliffe with a new Mississippi River crossing
- Corridor 11/12/13/14/15 & 21 – new limited access highway corridor parallel to US 62 and KY 286 with a new Mississippi River crossing
- Corridor 20 – unspecified corridor connecting I-24 north of Paducah to I-55 near Cape Girardeau, Missouri with no new river crossing either over the Mississippi or Ohio rivers.

The following presents the detailed analysis for the corridors examined in Level 3. Please note that the data presented here and in the final Level 3 matrix that follows includes the *refined* Level 3 traffic results. There are some minor differences between these numbers and the original numbers presented in the Level 3 Report (Appendix 8).

10.1 No - Build Option

Traffic Operations

- Screen line #1 – 43,000 ADT, 3,300 ADT trucks (7%), LOS E
- Screen line #2 – 11,000 ADT, 1,500 ADT trucks (13%), LOS A
- Screen line #3 – 9,000 ADT, 900 ADT trucks (10%), LOS E
- Screen line #4 – 11,000 ADT, 1,900 ADT trucks (17%), LOS E

- 938.5 million miles of travel
- 18.72 million hours of travel

(Note: In terms of million miles of travel and million hours of travel, there is little difference between the options under consideration. This is because the analysis was derived from Kentucky's Statewide Travel Forecasting Model, which aggregates travel on the basis of the entire state, not a particular corridor.)

The travel time for the No - Build serves as the baseline for comparison to other corridors. For the two trips; Paducah to Sikeston and Paducah to Cape Girardeau, the travel times are 76 and 95 minutes respectively.

The No - Build Option will make some improvements to US 60; but only those programmed in the KYTC's 2001 – 2006 Six Year Highway Plan. This will have some very tangible improvements in terms of safety and security, including the provision of an upgraded route and improved / increased access to points west of Paducah. It does not however provide for a new bridge over the Mississippi River, which would provide a great deal of redundancy in terms of connectivity (east – west connections) and access for the transportation system in western Kentucky / southeastern Missouri.

Support

There is some minimal support for the No - Build Option in both Kentucky and Missouri. Most of those who are interested in the No - Build Option want more improvements than just those that are currently programmed. These same individuals also tend to be concerned with the anticipated impacts of the US 60 improvements on adjacent communities including nearby residences, businesses, farms, etc.

Community Impacts

Community impacts have been fully documented in previous studies. The no-build corridor for the I-66 project also does not recommend further improvements beyond those existing and committed, therefore no anticipated incremental impacts are anticipated. In addition, there are no adverse potential environmental justice (EJ) issues.

Property Impacts

Property impacts have been fully documented in previous studies. The no-build corridor also does not recommend further improvements beyond those existing and committed, therefore no new property impacts are anticipated.

Environmental Impacts

Environmental impacts have been fully documented in previous studies. The no-build corridor also does not recommend further improvements beyond those existing and committed, therefore no environmental impacts are anticipated.

Capital Costs

The current total for existing and committed projects is \$26.3 million dollars.

10.2 Corridor 8

Traffic Operations

- Screen line #1 – 30,000 ADT, 4,400 ADT trucks (14%), LOS C
- Screen line #2 – 18,000 ADT, 3,000 ADT trucks (16%), LOS A - B

Screen line #3 and Screen line #4 parameters were not calculated because it was deemed that Corridor 8 was fatally flawed from an environmental standpoint

The total vehicle miles of travel, total vehicle hours of travel and travel times for Corridor 8 were also not calculated for the Level 3 Screening because it was deemed that the corridor was fatally flawed from an environmental standpoint.

Corridor 8 provides a new limited access highway connector from other options nearest KY 286 also includes a new bridge over the Ohio River. These new facilities would add to safety of the system and provide a redundant link from Kentucky to Illinois and into

Missouri for security purposes. This bridge location is preferable in terms of the Coast Guard's analysis of affects on river traffic. Corridor 8 also improves system connectivity and access.

Support

There is some support for Corridor 8. Issues associated with this corridor include impacts to wetlands, floodplains, and potential wildlife refuge and habitat area impacts near Barlow, Kentucky.

Community Impacts

Community impacts for Corridor 8 are to farmlands, Kentucky agricultural districts, urban area, property impacts, and potential EJ impacts.

- 21 miles or 7,222 acres of adjacent roadway / farmland impacts throughout the corridor
- 1.3 miles or 343 acre of impacts to agricultural districts
- no anticipated impacts to state / Federal forests, parks, and/or recreation land
- 1 mile or 135 acres of impacts to urban areas are anticipated
- low probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts are anticipated to be 2,113 acres. The needed right-of-way is a mixture of farmlands, agricultural district lands, urban areas and other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 8 are to a NHR site, nature / wildlife preserves and conservation lands, to stream crossings, other floodplains and floodways (100 and 500 year) and to wetlands. The largest impacts are to the Peal and Swan Lake Wildlife Management Areas near Barlow, Kentucky.

- 1 anticipated impact to listed National Historic Register (NHR) sites, a 0.4 mile segment of the Trail of Tears National Historic Trail
- 2 miles or 455 acres of impacts to nature, wildlife preserves and conservation lands
- 49 stream crossings throughout the corridor
- no impacts to the Birds Point - New Madrid Floodway
- 7.2 miles or 1,001 impact to adjacent floodplains
- 4 miles or 1,001 acres of impacts to adjacent wetlands

Through correspondence with agencies in Kentucky, it was determined that Corridor 8 was fatally flawed from an environmental analysis perspective.

Capital Costs

The total capital costs for Corridor 8 are \$767 million (2003 dollars). \$265 million is for roadway, construction, \$266 million for construction of a new bridge across the Ohio

River, \$128 million for right-of-way and utilities and \$108 million for contingencies, engineering, design and mobilization / demobilization of construction.

10.3 Corridor 8B

Traffic Operations

- Screen line #1 – 40,000 ADT, 2,000 ADT trucks (7%), LOS E
- Screen line #2 – 9,000 ADT, 1,300 ADT trucks (14%), LOS A
- Screen line #3 – 5,500 ADT, 400 ADT trucks (7%), LOS A
- Screen line #4 – 7,000 ADT, 1,000 ADT trucks (14%), LOS A

- 942.5 million miles of travel
- 18.76 million hours of travel

The travel time for Corridor 8B represents very slight improvements from the No - Build Option. The travel time for the Paducah to Sikeston trip decreases by approximately 3 minutes from the No - Build, while the travel time for the Paducah to Cape Girardeau trip represents no change from the No - Build Option.

Corridor 8B provides a new bridge connector from US 60 in Kentucky to I-57 in Missouri. These new facilities would add to safety of the system and provide a redundant river crossing link from Kentucky directly to Missouri for security purposes. This bridge location is less preferable in terms of the Coast Guard's analysis of affects on Mississippi River traffic. Likewise, Corridor 8B also improves system connectivity and access.

Support

Support exists for continuing the US 60 improvements and for upgrading the corridor. There is also support for a new bridge over the Mississippi River near Wickliffe, Kentucky. Issue of concern include impacts to areas adjacent to US 60 as well as wetland impacts and concerns over the river crossing location, especially impacts to river traffic and impacts to the Birds Point - New Madrid Floodway in Missouri.

Community impacts for Corridor 8B are to farmlands, urban areas, property impacts and potential EJ impacts.

- 30.54 miles or 10,665 acres of adjacent roadway / farmland impacts throughout the corridor
- 2.58 miles or 623 acres of impacts to agricultural districts
- no anticipated impacts to state / Federal forests, parks, and/or recreation land
- 1.88 miles or 468 acres of impacts to urban areas are anticipated
- low probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts for right-of-way purposes are anticipated to be 1,100 acres. The needed right-of-way is a mixture of farmlands, urban areas and some other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 8B are to stream crossings, the Birds Point - New Madrid Floodway, floodplains, and floodways and to wetlands.

- 1 impacts to a 0.4 mile long segment of the National Historic Register Site the Trail of Tears
- no impacts to nature / wildlife preserves / conservation lands
- 82 stream crossings throughout the corridor
- 3 miles or 723 acres of impacts to Birds Point - New Madrid Floodway
- 11.74 miles or 2,970 acres of impacts to floodplain / floodways
- 1.56 miles or 441 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 8B are \$691 million (2003 dollars). \$254 million is for roadway, construction, \$297 million for construction of a new bridge across the Mississippi River, \$29 million for right-of-way and utilities and \$111 million for contingencies, design, engineering and mobilization / demobilization of construction.

10.4 Corridor 11 / 12/ 13/ 14 / 15/ and 21

Traffic Operations

- Screen line #1 – 30,000 ADT, 4,400 ADT trucks (14%), LOS C
- Screen line #2 – 18,000 ADT, 3,000 ADT trucks (16%), LOS A - B
- Screen line #3 – 7,000 ADT, 2,500 ADT trucks (35%), LOS A
- Screen line #4 – 9,000 ADT, 2,200 ADT trucks (20%), LOS A

- 942.6 million miles of travel
- 18.76 million hours of travel

The travel time for Corridor 11 et al represents improvements from the No - Build Option. The travel time for the Paducah to Sikeston trip decreased by almost 19 minutes when compared to the No - Build. The travel time for the Paducah to Cape Girardeau trip represents a 9-minute decrease.

Corridor 11 et al provides a new bridge over the Mississippi River to I-57 in Missouri. These new facilities would add to safety of the system and provide a redundant river crossing link from Kentucky directly to Missouri for security purposes. This bridge location is more preferable in terms of the Coast Guard's analysis of affects on

Mississippi River traffic. Likewise, Corridor 11 et al also improves system connectivity and access.

Support

Strong support exists for Corridor 11 et al. Issues of concern include impacts to areas adjacent to the corridor as well as farmland impacts.

Community impacts for Corridor 11 et al are to farmlands, agricultural districts, urban areas, property impacts and potential EJ impacts.

- 28.87 miles or 8,324 acres of adjacent roadway / farmland impacts throughout the corridor
- 2.30 miles or 870 acres of impacts to agricultural districts
- no anticipated impacts to state / Federal forests, parks, and/or recreation land
- 0.17 miles or 74 acres of impacts to urban areas are anticipated
- low probability of adverse Environmental Justice impacts

Property Impacts

Total property impacts for right-of-way purposes are anticipated to be 2,325 acres. The needed right-of-way is a mixture of farmlands, urban areas and some other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 11 et al are to stream crossings, the Birds Point - New Madrid Floodway, floodplains and floodways and to wetlands.

- 1 impact to a 0.4 mile long segment of the National Historic Register Site the Trail of Tears
- no impacts to nature / wildlife preserves / conservation lands
- 87 stream crossings throughout the corridor
- 3 miles or 723 acres of impacts to Birds Point - New Madrid Floodway
- 12.38 miles or 3,323 acres of impacts to floodplain / floodways
- 1.17 miles or 509 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 11 et al are \$895 million (2003 dollars). \$328 million is for roadway, construction, \$292 million for construction of a new bridge across the Mississippi River, \$151 million for right-of-way and utilities and \$124 million for contingencies, design, engineering and mobilization / demobilization of construction.

10.5 Corridor 20

Traffic Operations

- Screen line #1 – 15,000 ADT, 1,600 ADT trucks (10%), LOS A

- Screen line #2 – 16,000 ADT, 1,600 ADT trucks (10%), LOS A
- Screen line #3 – 16,000 ADT, 1,600 ADT trucks (10%), LOS A
- Screen line #4 – 17,000 ADT, 2,100 ADT trucks (12%), LOS A

- 942.4 million miles of travel
- 18.75 million hours of travel

The travel time for Corridor 20 represents improvements from the No - Build Option. The travel time for the Paducah to Sikeston trip decreased by 3 minutes when compared to the No - Build. The travel time for the Paducah to Cape Girardeau trip represents a 25-minute decrease.

Corridor 20 provides a link from I-24 across southern Illinois to Cape Girardeau. This provides improved access for southern Illinois and Missouri, but does little for western Kentucky.

Support

Strong support exists for Corridor 20 in Illinois and near Cape Girardeau. Likewise, there is no support for Corridor 20 in western Kentucky.

Community impacts for Corridor 20 are to farmlands, urban areas, state / Federal Forests / park, property impacts and potential EJ impacts.

- 35.23 miles or 8,511 acres of adjacent roadway / farmland impacts throughout the corridor
- no impacts to agricultural districts (since the proposed corridor is in Illinois)
- 8.67 miles or 2,102 acres of impacts to state / Federal forests, parks, and/or recreation land, mainly to the Shawnee National Forest
- 3.88 miles or 504 acres of impacts to urban areas are anticipated
- high probability of adverse Environmental Justice impacts, mainly near the Cape Girardeau area

Property Impacts

Total property impacts for right-of-way purposes are anticipated to be 2,930 acres. The needed right-of-way is a mixture of farmlands, urban areas and some other land uses.

Environmental Impacts

The anticipated environmental impacts of Corridor 20 are to National Historic Register Sites, stream crossings, floodplains and floodways and to wetlands.

- 2 impacts totaling 2.9 miles to segments of the National Historic Register Site the Trail of Tears
- .03 miles of 64 acres of impacts to nature / wildlife preserves / conservation lands
- 51 stream crossings throughout the corridor
- no anticipated impacts to the Birds Point - New Madrid Floodway

- 12.78 miles or 3,113 acres of impacts to floodplain / floodways
- 2.78 miles or 843 acres of impacts to adjacent wetlands

Capital Costs

The total capital costs for Corridor 20 are \$586 million (2003 dollars). \$363 million is for roadway, construction, \$18 million for construction / modifications to link the roadway to the existing Bill Emerson Bridge, \$128 million for right-of-way and utilities and \$77 million for contingencies, design, engineering and mobilization / demobilization of construction.

10.6 Level 3 Screening Summary / Conclusions

Based on the analysis, the following can be concluded:

- The No - Build Option is sufficient to meet the needs of the region in the near future, but will be inadequate to accommodate future traffic closer to the project's horizon year - 2030. It does address the study's goals, objectives, and issues and has some level of support. The No - Build Option will likely meet the needs of the region in the short term, although it is not sufficient for longer-term transportation needs.
- Corridor 8 can meet the needs of the project and address some of the goals, objectives, and issues of the study. It does provide a new route and a river crossing. However, the impacts caused by this corridor to sensitive natural resource and especially the impacts to wildlife management areas are too great to make the corridor feasible. These impacts, coupled with the fact that there are other corridors with less impacts, make Corridor 8 fatally flawed. This determination was also corroborated by agencies in Kentucky with jurisdiction over the wildlife management areas.
- Corridor 8B can meet the needs of the project, address the goals, objectives and issues of the study and provide a new upgraded US 60 (controlled access facility) in the long term with a new bridge crossing the Mississippi River south of Wickliffe, Kentucky, (no further north than Lower Mississippi River Mile marker 949), capitalizing on improvements already made to US 60. Corridor 8B is a viable option for satisfying both the short and long-term transportation needs of western Kentucky.
- Corridor 11 / 12 / 13/ 14/ 15/ and 21, can also meet the needs of the project, address the goals, objectives, and issues of the study, and provides a long term new limited access highway with a new bridge crossing the Mississippi River near Wickliffe, Kentucky. However, given the need for additional right-of-way and the higher costs of this type of corridor, it is unlikely to be funded for construction in the time horizon of the study.

- Corridor 20, although unspecified as to the route through southern Illinois, does meet the needs of the project, addresses only some of the goals, objectives, and issues of the study, and provides a new highway through southern Illinois. It is supported by Illinois and from the contingent of stakeholders near Cape Girardeau, Missouri. However, it does not provide for benefits to western Kentucky and has impacts to the Shawnee National Forest that other corridors do not.

This concludes the technical analysis portion of the I-66 corridor study. This technical analysis may be used as the basis for future project development.

The following matrices and map depict the results of the Level 3 Screening and portray the final set of corridors that are thought to be workable for the project.

**I-66 Corridor Study
Western Kentucky to Missouri
Final Level 3 Screening Summary**

Alt. / Corridor No.	Description	Length of Route - Total Miles / New Roadway	Traffic Operations ¹											
			Screen Line #1: Paducah			Screen Line #2: W. McCracken Co.			Screen Line #3: Ballard County			Screen Line #4: Mississippi River		
			Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service	Average Daily Traffic	Average Daily Truck Traffic (%)	Level of Service
0	No Build (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	0 mi / 0 mi	43,000 (US 60)	3,400 (8%)	E (4 lanes)	17,000 (US 60)	1,500 (9%)	A-B (4 lanes)	10,000 (US 60)	1,100 (11%)	E (2 lanes)	11,000 (Bridge Over Ohio River)	1,800 (16%)	E (2 lanes)
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	33.33 mi / 33.33 mi	31,000	3,700 (12%)	C	16,000	2,400 (15%)	A-B	See Note 5 Below					
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	38.50 mi / 15 mi	40,000 (US 60)	2,800 (7%)	E (4 lanes)	12,000 (US 60)	800 (7%)	A (4 lanes)	5,000 (US 60)	300 (6%)	A (4 lanes)	7,000	1,000 (14%)	A (4 lanes)
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	40.93 mi / 40.93 mi	30,000	4,000 (13%)	C	14,000	2,500 (18%)	A-B	11,000	2,700 (25%)	A	9,000	2,200 (20%)	A
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	48.32 mi / 48.32 mi	16,000	1,800 (11%)	A	16,000	1,800 (11%)	A	17,000	1,900 (11%)	A	27,000	2,100 (8%)	A-B

(1) Future Year = 2030 (2) Due to conditions near Cape Girardeau, MO (3) Based on Environmental Constraints Map (4) In Millions of 2003 Constant Dollars (5) Limited Traffic Operations Analysis Were Performed Due To Environmental Constraints

**I-66 Corridor Study
Western Kentucky to Missouri
Final Level 3 Screening Summary**

Alt. / Corridor No.	Description	Traffic Operations ¹						Support	
		Total Vehicle Miles of Travel (VMT in Millions)	Total Vehicle Hours of Travel (VHT in Millions)	Travel Time in Minutes Paducah to Sikeston (Savings from No-Build)	Travel Time in Minutes Paducah to Cape Girardeau (Savings from No-Build)	Safety / Security	Connectivity / Access	Corridor	Issues
0	No Build (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	938.5	18.72	76.5 mins	93.6 mins	Improves US 60 in place improvements largely to safety, little for security	Keeps existing connectivity and access	There is minimal support for continuing with current plans. Especially noted are the plans to improve Hwy 60.	Impacts to adjacent development on US 60
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	See Note 5 Below				Provides improvement - connects I-24 to I-57 in Illinois	Provides new river crossing location over Ohio River	There has been no vocal support for Alternative 8 during public workshops	Wetland, floodplain and potential wildlife refuge impacts, Corps of Engineers preferred river crossing
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	942.5	18.76	72.7 mins (3.8 mins)	94.8 mins (N/A)	Provides some level of improvement - New bridge over Mississippi River	Keeps existing connectivity and access, provides for new river crossing	Support exists for US 60 improvements and support has been expressed for a new bridge near Wickliffe, KY	Impacts to adjacent development on US 60 plus wetland and floodplain impacts at preferred river crossing
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	942.6	18.76	57.9 mins (18.6 mins)	84.0 mins (9.6 mins)	Provides improvement - New bridge over Mississippi River	Provides new river crossing location over Mississippi River	Support is strong for Alternative 11/12/13/14/15/21.	Farmland impacts, uses least favorable river crossing
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	942.4	18.75	76.1 mins (0.4 mins)	68.1 mins (25.5 mins)	Provides improvement - New roadway connecting I-24 and I-55 / I-57	Good connections for southern Illinois, little benefit for KY	There has been strong support for Alternative 20 in Illinois. Likewise, there is no support for Alternative 20 from residents of Kentucky.	Some economic benefits to southern Illinois, little economic benefit for KY, impacts to Shawnee National Forest, use of Bill Emerson bridge

(1) Future Year = 2030 (2) Due to conditions near Cape Girardeau, MO (3) Based on Environmental Constraints Map (4) In Millions of 2003 Constant Dollars (5) Limited Traffic Operations Analysis Were Performed Due To Environmental Constraints

**I-66 Corridor Study
Western Kentucky to Missouri
Final Level 3 Screening Summary**

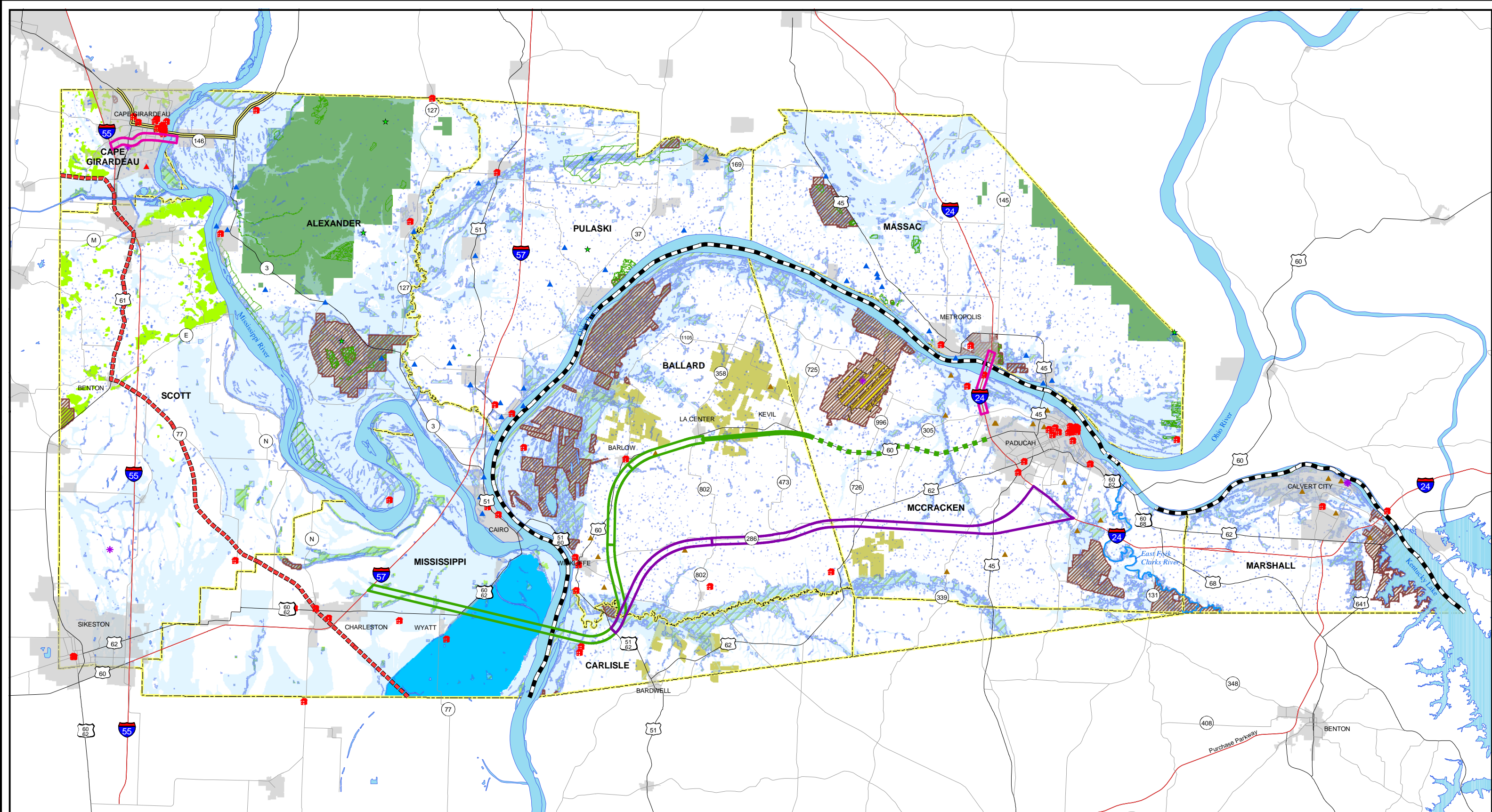
Alt. / Corridor No.	Description	Community Impacts					
		Farmland (miles/acres)	Kentucky Agriculture Districts (miles/acres)	State / Federal Forest - Parks / Recreation (miles/acres)	Urban (miles/acres)	Probable Environmental Justice Impacts	Property Impacts (in acres)
0	No Build (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	Community impacts documented in US 60 improvement project - no additional impacts anticipated					
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	21 mi/7,222 ac	1.3 mi/343 ac	0 mi/0 ac	1 mi/135 ac	Medium	2,113
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	30.54 mi/10,665 ac	2.58 mi/623 ac	0 mi/0 ac	1.88 mi/468 ac	Low	1,100
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	28.87 mi/8,324 ac	2.30 mi/670 ac	0 mi/0 ac	0.17 mi/74 ac	Low	2,325
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	35.23 mi/8,511 ac	N/A	8.67 mi/2,102 ac	3.88 mi/504 ac	High ²	2,930

(1) Future Year = 2030 (2) Due to conditions near Cape Girardeau, MO (3) Based on Environmental Constraints Map (4) In Millions of 2003 Constant Dollars (5) Limited Traffic Operations Analysis Were Performed Due To Environmental Constraints

**I-66 Corridor Study
Western Kentucky to Missouri
Final Level 3 Screening Summary**

Alt. / Corridor No.	Description	Environmental Impacts ³						Capital Costs ⁴				
		No. of Listed Natl. Historic Registry Sites	Nature / Wildlife Preserves / Conservation Lands (miles/acres)	No. of Stream Crossings	Bird's Point - New Madrid Floodway (miles/acres)	Floodplain / Floodway (miles/acres)	Wetlands (miles/acres)	Roadway	Bridge	Right-of-Way / Utilities	Contingency / Engineering / Mobil. / Demobil.	Total
0	No Build (serves as basis for comparison to other alternatives) - Includes projects currently programmed in the KYTC's Six Year Plan	Community impacts documented in US 60 improvement project - no additional impacts anticipated						No incremental capital costs anticipated over those programmed in 6 Year Plan Total Costs in 6 Year Plan are \$26.3 million				
8	From I-24 at Paducah in/along existing KY 286, US 60 or US 62 corridors to a point east of Wickliffe, proceed north west on new route across the Ohio River on a new bridge to I-57 in Illinois	1 (0.4 miles of Trail of Tears NHT)	2 mi/455 ac	49	None	7.20 mi / 1,001 ac	4.0 mi/1,001ac	\$265	\$266	\$128	\$108	\$767
8B	US 60 planned highway improvements per KYTC 6 Year Plan and Long Range Plan from Paducah to Wickliffe. Includes new connector road and new bridge over the Mississippi River south of Wickliffe US 60 to I-57 in Missouri.	1 (0.4 mi of Trail of Tears)	0 mi/0 ac	82	3 mi/723 ac	11.74 mi/2,970 ac	1.56 mi/441 ac	\$254	\$297	\$29	\$111	\$691
11 / 12 / 13 / 14 / 15 / 21	From I-24 south of Paducah follow new route southwest parallel to KY 286 to point south of Wickliffe over Mississippi River on new bridge to US 60 / US 62 to I-57	1 (0.4 mi of Trail of Tears)	0 mi/0 ac	87	3 mi/723 ac	12.38 mi/3,323 ac	1.17 mi/509 ac	\$328	\$292	\$151	\$124	\$895
20	Rebadge existing interstate I-24 as I-66 in KY and build connector in southern Illinois and rebadge I-55 or I-57 as I-66 in Missouri	2 (2.9 mi of Trail of Tears)	0.03 mi/64 ac	51	0 mi/ 0 ac	12.78 mi/3,113 ac	2.78 mi/843 ac	\$363	\$18	\$128	\$77	\$586

(1) Future Year = 2030 (2) Due to conditions near Cape Girardeau, MO (3) Based on Environmental Constraints Map (4) In Millions of 2003 Constant Dollars (5) Limited Traffic Operations Analysis Were Performed Due To Environmental Constraints



- | | | |
|--------------------------------|---------------------------------|--|
| Alternative Corridors | National Historic Register Site | Agricultural District |
| Existing 60 Improved | Illinois Natural Area Location | Wildlife Preserve/Conservation Area/Park |
| Improvements Programmed | NPL Sites | Forested Area (MO) |
| 8b | Active/Permitted Landfills (MO) | Shawnee National Forest |
| 11 | Landfills (KY) | Wetland |
| 20 | Landfills (IL) | 100 Year Floodplain |
| Trail of Tears - Auto route | New Madrid Floodway | Superfund Site (KY) |
| Trail of Tears - Bengé's Route | Trail of Tears - Water Route | PROJECT STUDY AREA |

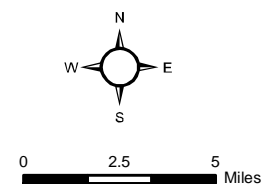
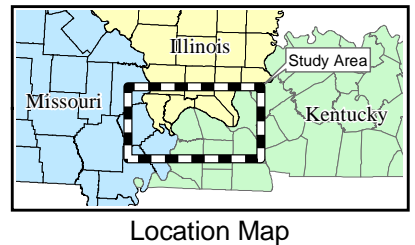


Figure 14
LEVEL 3 ALTERNATIVES
 I-66 CORRIDOR STUDY
 Western Kentucky to Missouri
 KYTC Item No. 1-23.00

11.0 RECOMMENDATION AND NEXT STEPS

Given the current fiscal constraints in the Commonwealth and the KYTC and the lack of firm commitments for project funding the KYTC has chosen not to pursue a build option at this time. If the stated conditions change, this decision does not preclude future project development activities from taking place for a limited access highway in Western Kentucky. Independent of this decision, KYTC, MoDOT, and/or IDOT can restart the project development activities in their respective states using this study. The corridors from this study that would be included in a next phase of project development are Corridors 8B, 11, and 20. However, other corridors may also be developed at a future date.

When future project development activities take place, a number of issues identified during this initial I-66 study will need to be dealt with appropriately. Those issues and the commitments to deal with them include:

- Type, size and location (TS&L) study of a bridge spanning either the Mississippi River or the Ohio River. This will be needed to analyze the bridge's impact on the natural and human environments.
- Hydraulic analysis of bridge pier locations, including an analysis of scour will be needed, and the impacts of pier locations and other structures to the Birds – Point New Madrid Floodway. This was specifically mentioned by the US Army Corps of Engineers.
- Navigational impacts study of proposed pier locations. This was requested by US Coast Guard.
- No Rise / floodway impacts to FEMA jurisdictional and other agency floodways / floodplains.
- Examination of and incorporation of multimodal alternatives (bicycling, walking, etc.). This is necessary to comply with environmental regulations and KYTC practices.
- In depth examination of Environmental Justice (EJ) effects at a more finite level. Although this project examined potential EJ effects, it did so at a larger scale – at the county and block group level. Once a corridor is advanced further in project development, it will be appropriate to examine potential affects at the block and/or tract level for a more thorough analysis.
- In depth investigation – perhaps including field surveys and analysis – of corridors and their potential affects on the natural and human environments.

Although this initial project examined potential affects to the natural and human environments, it did so at a large scale, and utilized GIS resources. Once a corridor is advanced further in project development, it may be appropriate to examine potential affects at a more in-depth level.

- Continued coordination with other state DOTs, regulatory and jurisdictional agencies. This initial study used many types of coordination efforts, and they should be continued through the next phases of project development.

12.0 TECHNICAL APPENDICES

Appendix 1 – Public Involvement Summary

Appendix 2 – Existing Conditions Summary

Appendix 3 – Environmental Justice Analysis

Appendix 4 – Traffic Methodology

Appendix 5 – Geotechnical Overview

Appendix 6 – Level 1 Screening

Appendix 7 – Level 2 Screening

Appendix 8 – Level 3 Screening

Appendix 9 – Contacts

Appendix 10 – Resource Agency Correspondence