

Alternatives Screening Report



**US 51 Ohio River Bridge Study between Wickliffe, KY, and Cairo, IL
Kentucky Transportation Cabinet
Item No. 1-100.00 and 1-1140.00**

August 16, 2013

REVISION HISTORY

The following table summarizes changes which have been made to this White Paper.

Version	Date	Name	Description of Changes

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Alternatives Screening Report

The US 51 Bridge Replacement Project (KYTC Item Nos. 1-100.00 and 1-1140.00) proposes replacement or rehabilitation of the existing US 51 Bridge that connects Ballard County, Kentucky with Cairo, Illinois. The purpose of the project is to improve or replace the functionally obsolete bridge/structurally deficient bridge, to improve or maintain cross river connectivity between Wickliffe, KY and Cairo, and to improve safety on the bridge and its approaches.

The Cairo Bridge carries US 51, US 60, and US 62 traffic across the Ohio River. The bridge carries approximately 5,400 vehicles across the Ohio River each day between Wickliffe and Ballard County, KY and Cairo, IL with approximately 35% of that being truck traffic. It also provides a connection to the US 60/US 62 Mississippi River Bridge to Missouri, approximately ½ mile to the south.

This *Initial Alternatives Screening Report* describes the conceptual alternatives that were developed and evaluates them against two levels of screening criteria. In the Level 1 Screening, all suggested alternatives were evaluated against the project Purpose and Need. Alternatives that passed this level of screening then advanced to Level 2 Screening. At this stage, additional planning-level information was prepared before alternatives were evaluated against the secondary considerations developed.

The following sections describe the alternatives that have been developed, input received from agencies and the public, the Level 1 Screening process, and the Level 2 Screening process.

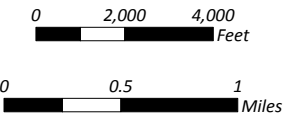
1. Alternatives Development

Project engineers developed a selection of conceptual alternatives for consideration, shown in **Figure 1**. These alternatives were developed to represent the range of potential alternatives for consideration, including No Build, Rehabilitation, Superstructure Replacement and New Bridge Location Alternates. A number of other conceptual alternative strategies were also considered but dismissed as infeasible for this project:

- Travel Demand Management strategies (e.g. carpooling, flexible work schedules, and other policies to reduce the number of cars using the existing bridge) are not viable alternatives for the rural setting and do not meet the project purpose.
- Transportation Systems Management strategies (i.e. low cost measures to increase network efficiencies) are not viable alternatives for the rural setting and do not meet the project purpose.
- Transit is not a viable alternative for the rural setting and does not meet the project purpose.
- A cross-river ferry could maintain cross-river mobility, but is not a practical long term solution as it does not support truck traffic, leads to capacity issues, and would result in additional costs.



- River Milepoint
- Sail Line
- Interstate
- US Highway
- State Highway
- Local Road
- Railroad
- State Boundary
- County Boundary
- Park
- City
- Lake/Pond
- Swamp/Marsh
- Wildlife Management Area
- Proposed Alternatives
- Alternative 1
- Alternative 2
- Alternative 2A
- Alternative 2B
- Alternative 3
- Alternative 3A
- Alternative 4
- Alternative 5



US 51 Ohio River Bridge Basemap

In the **No Build Alternative**, routine maintenance would continue on the existing structure, such as routine bridge inspections and replacement of isolated steel members as the condition falls below acceptable levels. This alternative serves as a baseline for comparison against other alternatives. Under the No Build Alternative, the bridge would remain structurally deficient and functionally obsolete. As it continues to age, the condition will deteriorate; over time, it would become necessary to limit the weight of vehicles using the bridge (estimated to occur within 5-10 years) and eventually to close the bridge entirely (estimated to occur within 10-20 years assuming significant rehabilitation is not undertaken).

In the **Rehabilitation Alternative**, repairs would be undertaken around year 2020 to keep the bridge open to traffic through the year 2045. This alternative includes repairing/strengthening structural steel members, patching concrete on the piers, repainting the structure, and laying a new deck. The rehabilitation alternative does not address any of the sub-standard geometrics; therefore the bridge would remain classified as functionally obsolete. Also, seismic retro-fit costs have not been included in this appraisal and could be significant.

Alternative 1 would rebuild a new superstructure at the existing location of the US 51 Bridge. The existing piers would be retrofitted as needed to support the new superstructure and meet seismic guidelines. The curve on the Kentucky approach, currently posted at 20 mph, would be altered to provide a higher design speed. The intersection with US 60/US 62 would also be reconfigured to provide a higher design speed for US 51 through movements.

Alternatives 2, 2A, and 2B would build a new bridge up to 2,000 feet upstream (north) from the existing bridge. Design speeds on either approach would be up to 55 mph. Alternatives 2 and 2A would cross parallel to the existing bridge; Alternative 2B would cross the river at a skew angle. The existing US 51 highway alignment would continue to provide access to the approaches in either state.

Alternative 3 would follow US 51 from Wickliffe to the existing bridge location, would continue on new alignment immediately east of the railroad line, and would cross the river approximately 1,000 feet upstream (north) of the railroad bridge. The new river crossing would tie into the existing US 51 alignment between Cairo and Future City.

Alternative 3A would create a new roadway on new alignment, running east/west from US 61 at Oldham Road to Swan Lake Road near Grassy Lake. From here, the alternative would curve to the south and cross the river at the same location as Alternative 3, approximately 1,000 feet upstream (north) of the railroad bridge. As in Alternative 3, the new river crossing would tie into the existing US 51 alignment between Cairo and Future City.

Alternative 4 would follow the same alignment as Alternative 3: follow US 51 from Wickliffe to the existing bridge location then would continue on new alignment immediately east of the railroad line. The alternative would curve eastward between the railroad bridge and Swan Lake Road, connecting with the existing highway network in Illinois near the intersection of US 51/SR 37/SR 3.

Alternative 5 would follow KY 118 from US 60 at Barlow, would cross the Ohio River at a skew angle, and would tie into SR 37 in Illinois just south of Mound City.

2. Agency & Community Input

The conceptual alternatives and screening criteria were presented to the public in Spring 2013. Resource agencies will be presented with the alternatives and screening process in August 2013. Specific input received to date from these groups is discussed in the following subsections.

The need for a Mississippi River bridge between Illinois and Missouri was expressed by both groups, in light of the continuing deterioration of the existing US 60/US 62 Bridge. While this concern may merit further consideration, it falls beyond the scope of this US 51 Bridge study.

2.1. April 2013 Agency Coordination

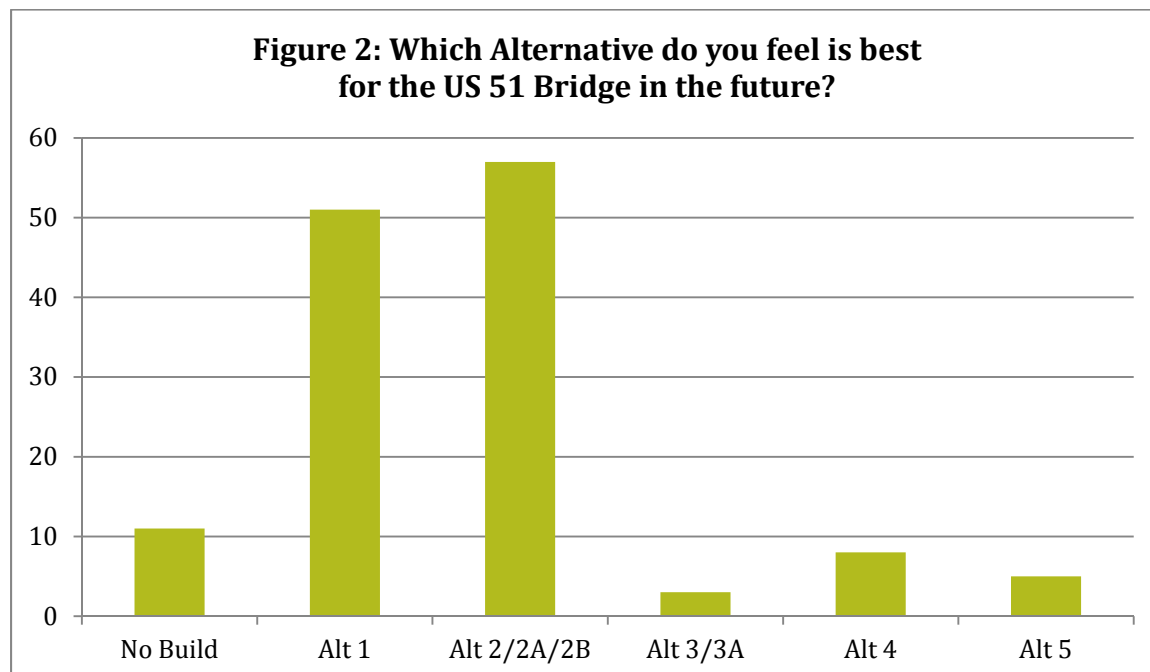
An agency coordination meeting/webinar was held in Paducah on April 30, 2013. Agency representatives were provided with a copy of the draft Purpose and Need Statement (including screening criteria) and overview information about the project. A copy of the meeting minutes is included in **Appendix A**. Beyond discussions during the meeting, one follow-up written comment was received. Although no specific alternatives were discussed during the meeting, attendees did express concerns that the bridge is a vital link for farming operations; closures and lane restrictions should be minimized during any future construction efforts.

2.2. May 2013 Public Meetings

Two public meetings were held in May 2013: May 20 in Cairo, Illinois and May 21 in LaCenter, Kentucky. Between the two meetings, over 130 members of the public attended and over 120 survey questionnaires were returned. A copy of the meeting summary is included in **Appendix A**.

Generally, survey respondents identified the primary objective of the US 51 Bridge Project as maintaining cross-river connectivity (37% of responses), followed by improving safety (30%) and replacing the functionally obsolete bridge (30%).

Figure 2 shows public alternative preferences based on the 120 completed surveys that were returned.



A variety of other comments were received during the meetings, summarized below.

- US 51 in Kentucky should be improved to minimize closures during flood events.
- Constructing a replacement bridge at or near the existing location would minimize negative impacts and costs.
- Bypassing Cairo would have substantial negative impacts on the town.
- The bridge is an essential link between communities, providing access for commuters, hospitals, teachers, farmers, shopping, and more. It is essential to maintain a connection between the states during construction.
- The project should also address the nearby link to Missouri.
- An improved connection nearer the interstate could help spur economic development.
- The bridge and its location at the confluence of the rivers are important to the area's history.
- The new bridge should be wider and have fewer curves.

3. Level 1: Purpose Screening

The Purpose and Need Statement (included as **Appendix B**) describes what the project should accomplish. It forms the basis for the decision-making process: each alternative must meet the purpose and address the identified needs to be considered a viable solution.

The primary purpose of the project is to rehabilitate or replace the existing US 51 Ohio River Bridge in order to improve or replace the functionally obsolete/structurally deficient bridge; to maintain cross-river connectivity between Wickliffe, KY and Cairo, IL; and to improve safety on the bridge and its approaches.

3.1. Improve or Replace Bridge

To satisfy the first element of the project purpose, an alternative must address two distinct elements:

- The alternative addresses functional obsolescence.
- The alternative addresses structural deficiencies.

Functionally obsolete bridges are those with deck geometry (e.g. lane width), clearance, or approach roadway alignments that no longer meet the current design criteria for the roadway type. Because the US 51 Bridge does not meet the current standards for lane width or shoulder width, it is classified as functionally obsolete. An alternative should conform to current design criteria for a major river crossing (e.g. provide 12-foot wide lanes) to satisfy this performance measure.

Structurally deficient bridges do not meet current design load (e.g. truck weight) standards. The US 51 Bridge is considered structurally deficient because the original design load for the bridge is less than today's current standards. While the bridge can carry all legal loads, oversize/overweight permit loads are not allowed. Deterioration of steel members can also lead to a reduction in load rating. An alternative should conform to current design criteria for a major river crossing to satisfy this performance measure.

Four screening criteria were developed for this element of the project purpose:

1. Does the alternative address the functional obsolescence?
2. Does the alternative address structural deficiencies (e.g. satisfy the current load rating)?

3. Does the alternative improve the sufficiency rating?
4. Does the alternative provide an anticipated lifespan of over 25 years?

Table 1 summarizes how each alternative performs against these screening criteria. Cells marked with an “X” indicate that the alternative satisfies that performance measure.

Table 1: Screening Against Purpose 1 (Improve/Replace Bridge)

Alternative	Functional Obsolescence	Structural Deficiencies	Sufficiency Rating	Lifespan over 25 years
No Build				
Rehabilitation			X	X
Alternative 1	X	X	X	X
Alternative 2	X	X	X	X
Alternative 2A	X	X	X	X
Alternative 2B	X	X	X	X
Alternative 3	X	X	X	X
Alternative 3A	X	X	X	X
Alternative 4	X	X	X	X
Alternative 5	X	X	X	X

Engineering estimates project that, for the No Build Alternative, a weight limit would be required for the bridge by 2020. Based on its current condition, the route would be closed to all truck traffic by 2025 and closed to all traffic in 2030. For the Rehabilitation Alternative, repairs to the bridge are anticipated to extend the life an additional 15 years; the bridge would likely have to be closed to all traffic in 2045. Alternatives 1 through 5, which involve construction of a new structure, would result in an estimated service life of at least 75 years.

3.2. Improve or Maintain Cross-River Connectivity

To satisfy the second element of the project purpose, an alternative must maintain or improve a cross-river link between Cairo and Wickliffe. Three performance measures were developed to screen against this element of the project purpose:

1. Does the alternative maintain or decrease travel time between Wickliffe and Cairo?
2. Does the alternative maintain a linkage between Wickliffe and Cairo?
3. Does the alternative maintain a similar travel distance from Wickliffe to Missouri as provided today?

Table 2 summarizes how each alternative performs against these screening criteria.

Table 2: Screening Against Purpose 2 (Improve/Maintain Connectivity)

Alternative	Travel time: Cairo to Wickliffe	Link between Cairo & Wickliffe	Distance: Wickliffe to Missouri
No Build	6.7 miles	No	5.6 miles (US 60/62 Bridge)
Rehabilitation	6.7 miles	Yes	5.6 miles (US 60/62 Bridge)
Alternative 1	6.7 miles	Yes	5.6 miles (US 60/62 Bridge)
Alternative 2	6.6 miles	Yes	5.8 miles (US 60/62 Bridge)
Alternative 2A	6.5 miles	Yes	5.6 miles (US 60/62 Bridge)
Alternative 2B	6.4 miles	Yes	6.4 miles (US 60/62 Bridge)
Alternative 3	8.9 miles	Yes	11.2 miles (I-57 Bridge)
Alternative 3A	9.8 miles	Yes	16.0 miles (I-57 Bridge)
Alternative 4	10.6 miles	Yes	10.7 miles (I-57 Bridge)
Alternative 5	20.0 miles	Yes	20.3 miles (I-57 Bridge)

Cross-river connectivity during construction varies between alternatives.

- Under the No Build Alternative, there are no major construction activities, although the bridge would experience occasional lane closures and full closures for emergency repair work through 2030.
- Under the Rehabilitation Alternative, construction activities could last an estimated 12 months. During much of this time, the bridge would be limited to a single lane of traffic.
- Under Alternative 1, the existing bridge would be closed for superstructure reconstruction for an estimated 1 to 2 year period. During this time, vehicles would have to rely on alternative river crossings to travel between states. The nearest alternative crossings are the I-24 Bridge at Paducah (34 miles to the northeast) and the Dorena-Hickman Ferry (40 miles to the south).
- Under the remaining alternatives, the existing US 51 Bridge would be available as a cross-river connection during construction of a new Ohio River Bridge at a new location. This maintains the best cross-river connectivity option of the alternatives considered.

3.3. Improve Safety

To satisfy the third element of the project purpose, an alternative must address existing safety issues on the bridge and its approaches. Three performance measures were developed to screen against this element of the project purpose:

1. Does the alternative meet design requirements for stopping sight distance and headlight sight distance on the bridge and its approaches?
2. Does the alternative meet design requirements for horizontal alignment on the bridge and its approaches?
3. Does the alternative meet design requirements for lane width?

Table 3 summarizes how each alternative performs against these screening criteria. Cells marked with an “X” indicate that the alternative could be designed to satisfy that performance measure.

Table 3: Screening Against Purpose 3 (Improve Safety)

Alternative	Vertical Alignment	Horizontal Alignment	Lane Width
No Build			
Rehabilitation			
Alternative 1	X	X	X
Alternative 2	X	X	X
Alternative 2A	X	X	X
Alternative 2B	X	X	X
Alternative 3	X	X	X
Alternative 3A	X	X	X
Alternative 4	X	X	X
Alternative 5	X	X	X

3.4. Alternatives to Advance for Level 2 Screening

Table 4 summarizes the results of the previous sections, illustrating how well each of the alternatives satisfy the project purpose. As shown, two alternatives do not meet the project purpose: Rehabilitation and Alternative 5. In light of public interest in the Rehabilitation Alternative, it is recommended for further analysis; it also can serve as a baseline for comparison against other build alternatives. Alternative 5 is not recommended for additional evaluation.

Table 4: Alternatives Screening Against Purpose and Need

Alternative	Improve or replace the functionally obsolete/structurally deficient bridge	Maintain cross-river connectivity between Wickliffe, KY and Cairo, IL	Improve Safety on the bridge and its approaches
No Build	No	No	No
Rehabilitation	Somewhat	Yes	No
Alternative 1	Yes	Yes	Yes
Alternative 2	Yes	Yes	Yes
Alternative 2A	Yes	Yes	Yes
Alternative 2B	Yes	Yes	Yes
Alternative 3	Yes	Somewhat*	Yes
Alternative 3A	Yes	Somewhat*	Yes
Alternative 4	Yes	Somewhat*	Yes
Alternative 5	Yes	No**	Yes

* A connection is maintained although travel times/distances increase compared to the existing conditions.

** A connection is maintained but travel times/distances more than double compared to the existing conditions.

Alternatives 2, 2A, and 2B are located in close proximity and, at this conceptual level of detail, would serve the same function and result in similar impacts. Therefore, one alternative at this location was recommended to advance to the Level 2 screening, representing all three of these potential bridge locations. If a new bridge immediately upstream from the existing US 51 Bridge is recommended as the preferred alternative, designers should look at which alignment is the best fit in the next stage of the project development process.

Alternatives 3 and 4 are located in close proximity and, at this conceptual level of detail, would serve the same basic function and result in similar impacts. Alternative 3 would share the same river crossing location as Alternative 3A and the same approach as Alternative 4. Alternative 4 would require more new alignment, representing slightly greater environmental impacts than Alternative 3. To eliminate redundancy, it was recommended to advance Alternatives 3A and 4 but not Alternative 3 for Level 2 screening. Alternative 3A could be shifted south, closer to the railroad bridge; a wider buffer is shown at this location to account for this flexibility.

The following alternatives are recommended to advance for Level 2 screening: No Build, Rehabilitation, Alternative 1, Combined Alternative 2, Alternative 3A, and Alternative 4.

4. Level 2: Secondary Considerations Screening

For the five alternatives that advanced beyond the Level 1 screening, additional engineering details were developed. This includes typical sections, approach alignments, preliminary bridge type concepts and span arrangements, preliminary cost estimates, and more. Details of these efforts are presented in the *Engineering Considerations White Paper* and the *White Paper on Bridge Type Concepts*.

For the Level 2 screening, the five refined alternatives were screened against the secondary considerations identified in the Purpose and Need document (**Appendix B**). Information for each of these goals is presented in the following subsections, followed by a comparative evaluation matrix that rates the remaining alternatives against each of the criteria.

4.1. Cost Effective, Constructible Solution

Both State Departments of Transportation must balance limited funding to cover many important needs throughout the states. In order for this project to move to construction stages in a timely manner, it is important that the selected alternative be a cost effective solution that can be built. Four performance measures are associated with this consideration:

- Relative complexity of constructability issues – Alternatives were rated as high, medium, or low complexity based on conceptual engineering challenges associated with the identified location. For example, an alternative that has to negotiate rugged terrain would be more complex than an alternative crossing at a flatter area.
- Estimated construction cost – Planning-level cost estimates based on conceptual alternatives were prepared. Cost estimates include a range of typical sections (4-foot, 6-foot and 10-foot shoulders) based on a representative cable-stay bridge. Bridge type details are discussed further in the *White Paper on Bridge Type Concepts*.
- Ongoing maintenance cost – Alternatives were rated as high, medium, or low cost based on the relative level of maintenance investments that would be required to keep the bridge operational.
- Estimated service life – Projected useful life expectancies for each alternative were developed.

Further, user costs are also related to this metric. User costs are generally proportional to travel times/distances. **Section 3.2** discusses cross-river mobility during construction, identifying closure durations and detour lengths for each alternative. Although these costs cannot be directly combined with construction costs, they are a factor worth consideration when evaluating cost effectiveness of each alternative. Therefore a fifth screening criterion was added to the four above:

- User costs during Construction or Rehabilitation – Alternatives were rated as leading to high, medium, or low costs for motorists during construction or rehabilitation. For example, an alternative with a longer detour distance would result in higher user costs. Likewise, an alternative that requires motorists to detour to an alternative river crossing for a longer period of time would result in higher user costs than an alternative that requires motorists to detour for a shorter period of time.

4.2. Sensitive to Local Resources

The Study Area is home to numerous community and natural resources. Although all construction projects result in some level of impact upon the environment, the US 51 Bridge Project should minimize these impacts to the extent possible. Based on a 500-foot buffer around each conceptual alternative, estimates of potential impacts on a variety of resource types are measured under this consideration:

- Local Freight Routes
- Residential/Business Relocations
- Impacts during Construction
- Historic & Archaeological Resources
- Floodplains
- Parks/Wildlife Refuges
- Farmlands
- Boating Facilities
- Species Habitats
- Water Resources
- Wetlands
- Environmental Justice populations

It should be noted that the quantities presented in the evaluation matrix at the end of this chapter are based on the 500-foot wide corridor. Actual impacts of any alternative would be lower as the final roadway would not be 500 feet wide. A buffer is applied to each alternative to capture potential impacts in the vicinity so that designers have an envelope to work within during future phases of the project. For some alternatives, buffers widen at the river; however, average impacts are presented based on the 500-foot boundary. Maps in **Appendix C** overlay the alternatives and buffers over the maps presented in the *Environmental Overview Report*.

It should be noted that an evaluation of potential impacts on environmental justice populations (low income and minority groups) and threatened/endangered species' habitats will be completed in a future phase of analysis.

4.3. System Reliability

This measure is composed of two distinct elements. System reliability addresses both the predictability of travel times and delay due to incidents. First, the preferred alternative should provide a consistent travel time between Wickliffe and Cairo both during construction and after the project is completed. For screening criteria, each alternative will be evaluated based on its travel time both during construction and after construction.

Secondly, the preferred alternative should provide a river crossing that remains usable during unexpected incidents. Two screening criteria were developed to measure this concept:

- An alternative should provide a river crossing with adequate width so that traffic can be diverted around an incident (e.g. vehicle crash) on the bridge. For example, the total bridge width should allow cars to pass a stalled vehicle by traveling on the shoulder to reduce back-ups and delay.
- An alternative should meet FHWA seismic design guidelines. The study area is at risk for seismic activity due to its location within the New Madrid Seismic Zone.

4.4. Bicycle Mobility

Within the Study Area, the existing US 51 alignment in Kentucky is part of two designated bike trails. This screening criterion examines the feasibility of incorporating bicycle facilities as part of the improved river crossing.

4.5. River Navigation

The US Coast Guard determines required horizontal and vertical clearances for safe river navigation. The preferred alternative must meet these span clearances to ensure that the piers and bottom of the superstructure do not have a negative impact on commercial river traffic. Based on correspondence from the US Coast Guard in July 2013, this metric identifies which alternatives are recommended for further study.

Additional impacts on river navigation will be explored in future phases.

4.6. Evaluation Matrix & Next Steps

Table 5 presents each of the remaining alternatives, measuring each against the performance measures identified as secondary considerations in **Appendix B**. Impacts are based on 500-foot wide corridors; final impacts will be less severe as future design phases of work narrow the project footprint for the preferred alternative. Cells shaded green indicate those that perform best in a category; cells shaded orange indicate those that perform worst in a category.

Table 5: Screening Against Secondary Considerations

Performance Measure	No Build	Rehab	Alt 1	Combined Alt 2	Alt 3A	Alt 4
<i>Cost Effective, Constructible Solution</i>						
Complexity of Construction	Low	Medium	High	Low	Low	Low
Estimated Construction Cost (millions)	\$4	\$50 ⁺	\$210 - \$220	\$180 - \$210	\$350 - \$400	\$290 - \$330
Ongoing Maintenance Cost	High	Medium	Low	Low	Low	Low
Estimated Service Life	10-15 yrs	25 yrs	75 yrs	75+ yrs	75+ yrs	75+ yrs
User Costs during Construction or Rehabilitation Work	Low	Medium	High	Low	Low	Low
<i>Sensitivity to Local Resources</i>						
Duration of Bridge Closure (During Construction or Rehabilitation)	Low (1 wk/2yr)	Medium (2-3 mo)	High (1-2 yrs)	None	None	None
Estimated number of residential relocations	None	None	None	None	Some	None

Performance Measure	No Build	Rehab	Alt 1	Combined Alt 2	Alt 3A	Alt 4
Estimated number of business relocations	None	None	None	None	None	None
Potential impacts to EJ communities	TBD	TBD	TBD	TBD	TBD	TBD
Acreage within parks	None	None	None	None	None	None
Acreage in wildlife refuges	None	None	None	None	Boatwright, 160 acres	Boatwright, 30 acres
Proximity to known historic resources	US 51 Bridge*	US 51 Bridge*	US 51 Bridge*	US 51 Bridge*	US 51 Bridge*	US 51 Bridge*
Proximity to known archaeological sites	None	None	None	None	None	None
Maintain/improve truck access to river ports	Yes	Yes	Yes	Yes	No	Yes
Impacts to recreational boating facilities	None	None	None	None	None	None
Number of stream crossings	No Change	No Change	No Change	No Change	9	1
New Alignment in 100-yr floodplain (acreage)	No Change	No Change	Minor Increase	110 acres	360 acres	290 acres
New Alignment in wetlands (acreage)	No Change	No Change	Minor Increase	50 acres	220 acres	70 acres
Proximity to species habitats	TBD	TBD	TBD	TBD	TBD	TBD
New Alignment in prime/statewide farmlands (acreage)	No Change	No Change	Minor Increase	60 acres	340 acres	260 acres
<i>System Reliability</i>						
Travel time (Wickliffe to Cairo) during construction	Minor Increase	Increase	Increase	No Change	No Change	No Change
Travel time (Wickliffe to Cairo) after construction	No Change	No Change	No Change	Minor Decrease	Increase	Increase
Sufficient width to divert traffic during crashes or bridge maintenance	No	No	Yes	Yes	Yes	Yes
Meets FHWA seismic guidance	No	No	Yes	Yes	Yes	Yes
<i>Bicycle Mobility</i>						
Bike Path on Bridge	No	No	Feasible	Feasible	Feasible	Feasible
<i>River Navigation</i>						
Recommended for further study by USCG	N/A	N/A	No**	Yes	Yes	Yes

COMPARATIVE SUMMARY						
	No Build	Rehab	Alt 1	Combined Alt 2	Alt 3A	Alt 4
Alternative Length	0 mi	1.5 mi	1.5 mi	1.8 mi	8.1 mi	4.9 mi
Clear Roadway Width of Bridge	22.5 ft	22.5 ft	32-44 ft	32-44 ft	32-44 ft	32-44 ft
USCG recommended horizontal navigational opening	No Change	No Change	No Change	900 ft	1,200 ft	1,000 ft
Performs best in how many categories	15	12	13	19	14	16
Performs worst in how many categories	5	4	5	0	9	3
<p>⁺ Cost estimate does not include measures necessary for seismic retro-fit.</p> <p>* The historic US 51 Bridge will likely have to be demolished when a new bridge is built or as its condition deteriorates to unsafe levels unless another entity is identified to take over maintenance responsibilities.</p> <p>**This alternative would not be preferred and is not recommended by the USCG unless there is a solution to reduce the impacts to the navigation channel.</p>						

In terms of alternatives which provide a cost effective and constructible solution, the Rehabilitation and Combined 2 Alternatives provide the lowest cost options without compromising service life, increasing complexity, or adding user costs.

The No Build, Rehabilitation, and Combined 2 Alternatives are the most sensitive to local resources. Alternative 1 would result in the longest duration bridge closure, which would require motorists to detour to other river crossings. Alternative 3A would result in the most impacts: residential relocations, impacts to the Boatwright Wildlife Management Area, reduced port access, additional stream crossings, farmland acquisitions, and additional right-of-way within both the 100-year floodplain and wetlands. Alternative 4 would also require impacts to the Boatwright Wildlife Management Area, which is protected by Section 4(f) law.

In terms of system reliability, Combined Alternative 2 is the only option that maintains or reduces travel times, provides a usable river-crossing during incidents (e.g. crashes), and meets FHWA seismic design guidelines.

Any of the build alternatives in new locations provide a feasible link for incorporating a bicycle path.

Any new location build alternative except Alternative 1 was recommended for further study based on correspondence with the US Coast Guard.

5. Recommendations

In light of the screening process detailed in the previous sections, Combined Alternative 2 is recommended to advance for additional development. Combined Alternative 2 represents a range of potential crossing locations located upstream (north) of the current US 51 Bridge structures - within 2,000 feet of its present location. In future project development activities, designers should look at which alignment within this corridor is the best fit.

Combined Alternative 2 is approximately 1.8 miles in length and would require a horizontal clearance of 900 feet for the navigational channel. Construction is estimated to cost \$180-210 million dollars. The alternative was recommended as the Preferred Alternative for numerous reasons:

- The alternative satisfies the project purpose.
- It minimizes construction complexity, maintenance costs, and user costs during construction while providing an estimated 75+ year service life.
- It minimizes impacts to the human and natural environment of the alternatives considered. However, it will result in impacts to historic resources (i.e., the existing US 51 truss bridge), floodplains, wetlands, and prime/statewide importance farmlands.
- It maintains or reduces travel times, provides a usable river-crossing during incidents (e.g. crashes), and meets FHWA seismic design guidelines.
- It provides a feasible link for incorporating a bicycle path.
- At a conceptual level, it satisfies the US Coast Guard's concerns for river navigation.

In addition, Combined Alternative 2 satisfies resource agency concerns regarding construction closures by minimizing user costs and bridge closure periods. Combined Alternative 2 was most preferred by the public based on surveys returned at the May 2013 public meetings. It also satisfies several concerns expressed by the public:

- Constructing a replacement bridge at or near the existing location would minimize negative impacts and costs.
- Bypassing Cairo would have substantial negative impacts on the town.
- It is essential to maintain a connection between the states during construction.
- The bridge and its location at the confluence of the rivers are important to the area's history.
- The new bridge should be wider and have fewer curves.

Appendix A

Meeting Summaries & Key Stakeholder Correspondence



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5501 Kentucky Dam Road
Paducah, KY 42003

RE: Invitation to Become Participating Agency (pursuant to Section 6002 of SAFETEA-LU) for the US 51 Ohio River Bridge Study between Wickliffe, Kentucky and Cairo, Illinois.

Dear Mr. McGregor:

This letter is in response to your March 15, 2013 Invitation to become a participating agency for the US 51 Ohio River Bridge Study in Wickliffe, Kentucky. We accept your invitation to become a participant and Kentucky Department of Parks, Tourism, Arts and Heritage Cabinet, has designated the park manager of Wickliffe Mounds State Historic Site, Carla Hildebrand, as the preferred contact for this project study.

The Wickliffe Mounds State Historic Site, Kentucky Department of Parks, is located in Wickliffe, Kentucky, four miles from the proposed bridge study site. The bridge is a major highway linking the park to Illinois and Missouri.

When we look at where our visitors come from, Kentucky is the number one source. Missouri ranks second and Illinois ranks third in the number of visitors we receive each year, and so this bridge is a vital part of our economic impact.

I would be happy to attend the meeting on April 30th and to assist with this project in any manner you need. My contact information is below.

Sincerely,

Carla Hildebrand
Park Manager
Wickliffe Mounds State Historic Site
Phone: 270-335-3681
carla.hildebrand@ky.gov

City of Wickliffe

321 Court Street P.O. Box 175 Wickliffe, KY 42087

April 26, 2013

Mr. Mike Gregor, Project Branch Manager
Transportation Cabinet
District 1 Office
5501 Kentucky Dam Road
Paducah, Kentucky 42003

Mr. McGregor:

As Mayor of Wickliffe, I wanted to respond to your invitation to become a participating agency for the US 51 Ohio River bridge study between Wickliffe and Cairo, Illinois, and will attend the meeting on April 30, 2013.

Our main concerns for socioeconomic issues are:

1. Loss of business from the cessation of traffic through and to Wickliffe if traffic cannot be maintained if the bridge is repaired or shut down.
2. Our tourism at the Mounds State Park might be affected as well as other tourist revenues.
3. Extended hours of delay in the travel schedule for travelers and their avoidance of traveling on US 51 if the bridge is repaired and traffic is delayed 30 minutes or more intermittently.
4. Many Kentuckians work in Illinois and Missouri and we have land and farm operators that are Missourians and Illinoisans that flow into Kentucky for planting and harvest and Kentuckians that farm in Southeastern Missouri and Illinois. Surprisingly this group is significant and large implements flow continuously going and coming through the Ohio River Bridge for US Hwys 51 and 60. The bulk of our Kentucky harvested grains flow into granaries in Cairo, Mounds City, Illinois, and into Birds Point for Ohio River port barge facilities and in Missouri for the local Mississippi River grain loading ports. Any blockage without entry into Illinois or Missouri would be a strong economic disadvantage for the movement of grain to market, which is now a nine month process, if not a continuous process.
5. Many Wickliffe residents attend churches in either Illinois or Missouri and also it works the other way for Illinois and Missouri residents and pastors.

6. For Wickliffe business people Missouri and Illinois are more frequently due to our location at Illinois and Missouri at least equally as access to Paducah or Mayfield. Agricultural businesses and Ballard and Carlisle farmers mainly depend on the US 51 Bridge for implement repair and the delivery of fertilizer, seed, and farm implements. Most local farmers have business with farm vendors in all three states.
7. Commercial truck/semi traffic for the entire United States flows over the Ohio River Bridge on US 51 for long haul trucking to all points of the nation.
8. Trade between Cairo is minor is mostly food and liquor purchases due to the higher sales tax on retail items and the lack of retail stores in Cairo. Illinois Route 3 allows access to Cape Girardeau and Ag and commercial businesses in Southern Illinois. To a higher degree social and economic impacts would negatively impact Ballard County, Kentucky, Cairo, Illinois, and Charleston, Missouri, for family, church, food services spending and medical needs. Some in Wickliffe use Cape Girardeau and St. Louis medical facilities but not as significantly as Paducah, Mayfield, Nashville, and Memphis.

Item 3.

1. Highway 51 from Wickliffe to Cairo involves a dangerous road through wetlands with no shoulders and few pull-offs for vehicles and the road has a healthy share of large commercial truck traffic and many farm vehicles such as grain truck trailers and semis. There are constant wrecks on this two lane section that is occasionally inundated by river back waters and sometimes some road sections subside 2-4 inches causing control problems for all vehicles.
2. As an environmental concern there are wetlands and bottom lands that are used by eagles and most other wildlife along this route and river. Recreational wildlife issues for hunting and fishing and maintaining these recreational and tourist venues need to be maintained where possible. This strip of highway from Wickliffe to Cairo sustains many hunting clubs and fishing and deer hunting and turkey hunting tourism dollars and economic benefits to Ballard County and Wickliffe particularly. Our food establishments and motel and regional businesses enjoy benefits from this green-belt of waterways and recreation.

Item 4.

1. Purpose and Need
 - a. The bridge across the Ohio River should be replaced with a new bridge and the 3-4 mile stretch of Highway 51 from Wickliffe to the new 51 bridge should be completely rebuilt and the levy road built up to greatly improve safety for commercial truck traffic for semis, farm implements and grain trucks, and passenger cars. It is becoming a disgrace for a major entrance into Kentucky from and to Illinois I-57 and as a connector from

and to I-24, via US Highway 60, and US Highway 51 South and State Roads 121 and 286 from Mayfield and Paducah, respectively.

- a. Citizens beyond Paducah and Mayfield that are familiar with the Ohio River and Mississippi River bridges into or out of Missouri and Illinois would agree that the road and bridges, both the Ohio Bridge and the Mississippi Bridge, are a sign of our crumbling infrastructure and are highly dangerous. Many Kentuckians and Missourians would avoid Illinois completely but we realize the right-of-way might require its continued use for a new bridge. Cairo and Illinois are a minor part of the needs of Kentuckians and Missourians, except for the local traffic and farm traffic.
- b. Many Missourians come through Wickliffe use US 60 and US 51 as an east-west connector through Wickliffe to cut off miles of travel to access I-24 and I-55. This also increases traffic on US 62 and Hwy 286 to or from Wickliffe to reach the intersection of I-24, since it is a direct shot to I-24 in Paducah and the Lakes region and Purchase Parkway at Draffenville, Ky. The US 51 Ohio Bridge is used to access the Land Between the Lakes and the Kentucky and Barkley Lakes and return, through Hwy 60 and State Hwy 286 and its extension into Hwy 62, as the number of campers and boats towed through Wickliffe demonstrates.
- c. This section of Highway from Wickliffe to Cairo has been improved with a new bridge north of Wickliffe on Highway 51/60, "Veterans Bridge", but the highway built on the narrow levy North of Wickliffe is obviously a maintenance expense and serious safety problem. Anyone traveling the Kentucky part of US Highway from Wickliffe to the US 51 Bridge, for approximately three miles, would suggest that that roadway be rebuilt entirely for safety reasons. The highway is very unsafe with no shoulders and is a constant cause of wrecks, some that are fatal, as anything off the pavement results in a 20 foot plunge into bar pits beside the roadway. The road needs major rebuilding to avoid flood closings. We realize the challenges the state has with this levy road and that the road is a poor candidate for improvement due to the overflowing river and the cost of building a stable levy. The same can be said for the Mississippi River Bridge companion bridge that takes US Highways 62 and 60 into Missouri. If a new bridge is built, most Wickliffe residents would prefer a bridge with access around Wickliffe into Missouri and an exit for the Mississippi River Bridge into Illinois. Illinois has more fines for farm vehicles and passenger cars and use this short span into Missouri as a profit center, where Missouri and Kentucky are not proactive with fines.
- d. Engineering to maintain commercial and passenger car traffic between the three states presents a problem, unless a new bridge is built parallel to the existing bridge or in a new location. A new bridge into Illinois on US 51, at the existing right-of-way from Wickliffe into Cairo seems to present the cheapest alternative and will allow us to maintain local traffic to Cairo and Missouri, albeit on unsafe and poor two lane roads. A bridge from Wickliffe into Missouri leaves a scenario that creates continued maintenance issues with old bridges still intact for local Cairo and Illinois traffic, which appears ridiculous and costly.
- e. Conversely, a new bridge south of Wickliffe would avoid some wildlife and environment issues possibly but in any scenario there are no good options in

dealing with the flooded plains and rivers in this stretch of US 51. Most local Kentucky, Missouri, and Illinois residents that work at New Page's Paper Mill or James Marine, or the Economy Boat Store cannot afford the added fuel costs and time lost for driving an additional fifty or eighty miles into Wickliffe or around through Metropolis into Missouri or Illinois for our residents that work there. Over 200 people will be affected. The only local supermarket is supplied from Missouri and is owned by a Missouri company.

- f. The connectors of good roads to complement a new Ohio River Bridge near Cairo are not there. The Kentucky section from Wickliffe on Hwy 51 to the Ohio Bridge is as bad as the Missouri US Hwy 60 portion going from the Mississippi River Bridge to Wyatt and on to Charleston, Missouri. Keeping the flow of local traffic between the three states from Wickliffe would be in the best interests of Wickliffe and this region of Kentucky. A new Ohio River bridge is a positive solution and a plan to improve the levy roads into Missouri and into Kentucky would provide safer and more usable roads for commerce. Repairing the Bridge is a "stop gap" solution that will defer the problem and safety issues "down the road".
- g. While many would like to avoid Illinois there is a paramount need for Wickliffe residents to have a safe access into both States, especially Cairo, Illinois. The Wickliffe Fire Department does have a mutual aid agreement with Cairo's Fire Department for example. Many Kentuckians work in the Cairo area and travel north on Illinois SR 3 to access Cape Girardeau, Missouri, to shop and use their medical facilities.



Kentucky Transportation Cabinet - District 1
Mike McGregor, PE
5501 Kentucky Dam Road
Paducah, KY 42003
Telephone: 270.898.2431

Shipping Address

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- 3
- 4
- 5

Public Meeting Information

Public Meetings will be held in Alexander County, Illinois, and Ballard County, Kentucky, on May 20, 2013, and May 21, 2013, respectively. The project team invites all interested parties to attend the open house style public meeting in either community. The same information will be available at both meetings. Attendants will be able to see current proposed alternatives, review the project timeline, discuss issues with the project team, and express their opinions on the project. **Please note this planning study is the start of an extended process and no construction activities are planned or funded at this time.**

Kentucky Public Meeting

Ballard County Chamber of Commerce & Tourism
Community Center
547 West Kentucky Drive
LaCenter, KY 42056
May 21, 2013
4:00 - 7:00 PM

Illinois Public Meeting

Cairo High School
5201 Sycamore Street
Cairo, IL 62914
May 20, 2013
4:00 - 7:00 PM



US 51 Ohio River Bridge Study

On February 11, 2013 the Kentucky Transportation Cabinet announced the kick-off of a study to look at options for improving or replacing the US 51 Ohio River Bridge – also known as the Cairo Bridge – between Wickliffe, Kentucky and Cairo, Illinois.



Background on the Bridge

The bridge was constructed by the Cairo Bridge Commission and opened to traffic as a toll facility on November 11, 1936. Tolls were removed 12 years later when highway agencies for Kentucky and Illinois took over maintenance of the structure. The bridge is at Ohio River navigation mile point 980.4. The 76-year-old structure, which carries US 51, US 60, and US 62, is officially termed “functionally obsolete” because it does not meet current traffic standards. The driving width of the bridge deck is less than 23-feet and it

carries a high percentage of commercial truck traffic. The nearest alternate upstream river crossing is the Interstate 24 Ohio River Bridge at Paducah, KY, which requires a nearly 2-hour detour. The nearest crossings downstream are the Dorena-Hickman Ferry, and the I-155 Mississippi River Bridge between Dyersburg, TN, and Caruthersville, Mo, which requires a minimum 2-hour detour. The bridge carries about 5,400 vehicles per day across the Ohio River. This bridge also provides a connection to the US 60/US 62 Mississippi River Bridge between Illinois and Missouri.



Project Information

Several options will be considered for the US 51/US 60/US 62 river crossing including:

- 1) A no-build or do-nothing alternative
- 2) Replacement of the bridge at its current location
- 3) Feasibility of a new bridge at a new location
- 4) Rehabilitation of the existing bridge

The purpose of the planning study is to identify the preferred alternative(s) to be considered in the next phase of project development – Preliminary Engineering and Environmental Studies. It should be noted that the planning study is the start of an extended process and that no construction activities are planned or funded at this time. This project will only evaluate the US 51/US 60/ US 62 river crossing and is not a part of any larger and more regional I-66 Corridor Study.

KYTC, in cooperation with IDOT and FHWA, are leading this planning effort. CDM Smith of Lexington, KY, will coordinate a team of six firms to provide engineering and environmental services, including Michael Baker, Inc. and Palmer Engineering. All three firms have worked on other major bridge projects in the area and along the Ohio River.

The Cairo Bridge provides a valuable transportation link for nearby communities in Kentucky, Illinois, and Missouri, as well as for cross-country travel. The primary objective of this study is to identify options for a constructible and affordable bridge that will maintain the reliability of this important crossing well into the future.

Information regarding this project will be presented in Alexander County, Illinois, and Ballard County, Kentucky, through public meetings on May 20, 2013 and May 21, 2013, respectively. The study team looks forward to working with the public and other project stakeholders to identify the most appropriate solution for the US 51 Ohio River crossing. The study team will also coordinate with local officials, public agencies, and representatives from other key stakeholders to ensure their input.

In coming weeks and months, project team members may be visible in your community; conducting traffic counts and investigating environmental and community resources in the study area. In addition, the team will review collected data and develop options for the bridge.

A project website is under development and will be reached via a link on KYTC's District 1 site at <http://transportation.ky.gov/district-1/>. Once established, the website will focus on study updates, meeting information, and public documents.





Meeting Summary
Agency Coordination Meeting
US 51 Bridge over the Ohio River
Six Year Plan Item # 1-100.00 and 1-1140.00

KYTC District 1 Office
April 30, 2013 at 10:00 AM CDT
5501 Kentucky Dam Road in Paducah, KY
Conference Room, plus web/phone conference

An Agency Coordination Meeting was held on April 30, 2013 at 10:00 AM for the US 51 Ohio River Bridge Project. The meeting was held at the Kentucky Transportation Cabinet (KYTC) District 1 Conference Room in Paducah, Kentucky. Participants were also given the option to join via webinar. The meeting agenda is attached.

Kentucky Transportation Cabinet (KYTC) Attendees Included:

- | | | |
|-------------------|-----------------|--------------------|
| – Mike McGregor | – Blake Beyer | – Peter Goodmann* |
| – Jim LeFevre | – Tim Foreman* | – Stephen Wiggins* |
| – Jessica Herring | – Steve Ross* | – Doria Watson* |
| – Susan Oatman | – Sreenu Gutti* | – Carol McKenzie* |

Illinois Department of Transportation (IDOT) Attendees Included:

- | | |
|------------------|-----------------|
| – Joe Zdankiewkz | – Carrie Nelsen |
| – Charles Stein | – Karen Shoup* |

Agency Attendees Included:

- Stacey Courtney, Purchase Area Development District (ADD)
- Jennifer Beck-Walker, Purchase ADD
- Vickie Viniard, Ballard County Judge/Executive
- Carla Hildebrand, Wickliffe Mounds
- Lynn Hopkins, Mayor City of Wickliffe
- John Meyer, City of Cairo
- Tyrone Coleman, Mayor City of Cairo
- Shawn Miller, DLG
- Rex Wilburn, SIDEZ

US 51 Agency Meeting Summary

April 30, 2013

Page 2

- Tabatha Smith, SIDEZ
- Crystal Davenport, Southern Five Regional Planning District
- Candy Eastwood, Shawnee Community College
- Bob Reichert, 1st State Bank of Olmsted
- Clint Green, Pulaski County Development Association
- Nathan Kent, Kentucky State Police, Mayfield Post
- Clyde Elrod, Ballard County Industrial Development Board
- Terry Simmons, Ballard County Economic and Industrial Development Board
- Brooke Parker, KY Energy and Environmental Cabinet*
- Dan Stoelb, KY Department of Fish and Wildlife*
- George Gilbert, KY DEP Division of Waste Management*
- Holland Spade, KY Cabinet for Economic Development*
- Jesse Miller, US Department of the Interior, Fish and Wildlife Service*
- Kerry Fulcher, Ballard County Schools*
- Sara Hines, KY State Nature Preserves Commission*
- Terry Savko, IL Department of Agriculture*
- Joe Forgacs, KY Division of Air Quality*

Consultant Attendees Included:

- Samantha Wright, CDM Smith
- Leonard Harper, CDM Smith
- Stephanie Blain, Palmer Engineering*

**Joined by webinar*

Each participant received the following:

1. A copy of the Meeting PowerPoint Slides;
2. The Meeting Agenda;
3. The Draft Purpose and Need Statement;

These items were provided to webinar participants via email before the meeting.
A summary of the meeting follows.

1. Welcome/Introduction

Samantha Wright, project manager for CDM Smith, opened the meeting by welcoming attendees and giving a brief overview of the purpose of the project.

All project team members and resource agencies introduced themselves.

2. Project Overview

Samantha provided an overview of the project, including the study area, the history of the bridge and key work tasks. She noted that is a scoping study for bridge rehabilitation/replacement project. There will be no design or construction work completed as part of this study. Currently a Draft Purpose and Need, Environmental Overview, and Conceptual Alternatives are being developed. The goal of the study is to recommend one alternative in August 2013 for analysis under the National Environmental Policy Act (NEPA) in the next phase of work (if funds are authorized).

Samantha explained that the study area was developed to include all reasonable river crossing options for the bridge rehabilitation/replacement.

3. Project Coordination with Agencies

Samantha provided a brief overview of the NEPA process and the role of Agencies in the project. It is expected that this planning study will be the foundation of the next phase of work. If NEPA is initiated, this project could be included through the Planning and Environmental Linkage (PEL) rules designated in MAP-21. FHWA and Agency concurrence is required for this study to become a PEL document.

Samantha also reviewed the general project schedule and the Agency coordination points as part of this phase of work, including 1) the initiation letters sent out in March and April, 2) the April 30th meeting, and 3) a third coordination point later in the summer before the preferred alternative is identified.

4. Purpose of Project

Samantha provided an overview of the bridge structure itself, including the span arrangement, bridge type, and the basic terminology associated with the bridge. The recent evaluation by the KYTC indicates that the bridge is eligible for Federal rehabilitation funds because it is considered Functionally Obsolete (the geometry does not meet current design standards) and it has a Sufficiency Rating below 50.0 (a composite measure of the deck, superstructure, and substructure condition, along with other factors).

There is a rehabilitation project scheduled for this summer on the bridge, primarily to repair some of the bridge deck stringers and some of the joints in the truss structure. This will cause disruption to local traffic, with truck detours starting around June 10th and extending for about 70 days. Passenger cars will still be able to use the bridge during the repairs.

Samantha also reviewed the traffic and safety information for the bridge and approaches; future traffic growth is expected to be about 0.5% per year through the year 2040. This would result in a future traffic volume of about 6,200 vehicles per day, which would indicate that a two-lane bridge would be adequate for future traffic.

The Purpose for this project is to replace or rehabilitate the US 51 Bridge, and is based on the Needs identified through the study: 1) improve or replace the functionally obsolete bridge, 2) maintain a cross-river connection from Wickliffe, KY to Cairo, IL, and 3) improve safety on the bridge and its approaches. Samantha also reviewed the screening criteria to be used for identifying the preferred alternative; the agencies were invited to provide comments on the Purpose and Need for the project and on the draft Screening Criteria for the project alternatives.

5. Next Steps

There will be two public meetings held for the project in May:

- May 20th from 4-7 p.m. at the Cairo High School, in Cairo, IL and
- May 21st from 4-7 p.m. at the Ballard Center Community Room in LaCenter, KY.

The project team will also follow up with the Agencies later in the summer prior to finalizing the preferred alternative.

6. Questions and Answers

Questions and comments received during the meeting included the following:

- What kind of restrictions will be in place with the rehab work this summer?

This will require truck detours for about 70 days starting around June 10th. There will be a 7-foot wide lane restriction on the bridge itself.

- Will the recommendations from this project be affected by the I-66 project?

At this time, KYTC is looking at this as a bridge replacement project, exclusive of I-66; however, any number of issues could affect the future direction the project. IDOT is starting an independent study of I-66.

- Will the new bridge be two lanes?

Yes, the traffic analysis from this study shows that two lanes provide adequate cross-river capacity for existing and future traffic.

- What portion of the KY approach will be looked at as part of this project? The entire KY approach between Wickliffe and the bridge is a safety concern.

This study includes about a mile of the KY approach south of the bridge, to just south of the major curve.

- The weigh station on the KY side of the bridge closed in 2008 and more truck traffic now uses this route. Ballard County would like to have this weigh station back.

KYTC does not have jurisdiction over the weigh station locations; however, this is a point of entry into KY, and it is worth mentioning as a local concern.

- What are the plans for the Mississippi River Bridge?

The floor beams were recently replaced in 2011, but IDOT is concerned about the structure. With the I-57 Bridge in place, it is difficult to justify replacing the US 60/62 bridge at this time.

- Can the US 51 bridge be repaired or will it have to be replaced? Has the decision been made to get rid of the existing structure?

The project team is currently looking at options for repair and replacement. There has been no decision yet on whether or not the existing structure will be removed.

- Maintenance of traffic, during this summer's repairs, but also for the long-term, is a major concern for the local communities. The bridge is used for farming operations, access to jobs, church, etc...

We understand the local importance of the bridge and will do our best to accommodate local traffic.

- Are you following the NEPA guidelines for this project?

This study is pre-NEPA; however, if the project moves forward, this study will likely be included through a PEL for the NEPA phase of the project. We have started our Agency coordination to provide continuity if the project does move forward into Preliminary Design and Environmental Studies (NEPA).

- What about freight and commercial trucks?

The project team may want to consider adding this to the supporting information in the project Purpose and Need.

- This bridge is a lifeline for farming operations in Kentucky. Farmers need this bridge to get to Cairo and Mound City. Repairs on the bridge will be a major issue this summer and in the future. This is also true for the NewPage paper mill, which gets supplies from Illinois.

We appreciate these concerns.

From: McGregor, Mike (KYTC-D01) [Mike.McGregor@ky.gov]
Sent: Monday, May 06, 2013 11:47 AM
To: 'Lynn Hopkins'
Cc: McGregor, Mike (KYTC-D01); Wright, Samantha J; Harper, Leonard S.
Subject: RE: Ohio River Bridge Study Meeting Response

Follow Up Flag: Follow up
Flag Status: Flagged

Mayor Hopkins,

Thank you for following up our meeting with your thoughts, ideas and concerns. I am copying Samantha Wright and Len Harper on my response so we can make sure and include your thoughts in the project record. In regards to a connection between Kentucky and Missouri, we do not currently have a bi-state agreement with Missouri as our bridge crossing is with Illinois. The funds for the construction of a new river crossing will likely be federal bridge replacement funds. As to whether the funds will come 50% or 100% from Kentucky's share of those funds as yet to be determined. The project team will of course take into consideration your comments as well as the comments of the public in the upcoming public meetings.

Thank you,

Michael P. McGregor, P.E.

Transportation Branch Manager

for Project Development

Office of Highway District One

5501 Kentucky Dam Road

Paducah, KY 42003

O: 270-898-2431

C: 270-994-1908

From: Lynn Hopkins [mailto:wickmayor@brtc.net]
Sent: Thursday, May 02, 2013 10:09 AM
To: McGregor, Mike (KYTC-D01)
Subject: FW: Ohio River Bridge Study Meeting Response

I enjoyed the meeting for the study for the Ohio River Bridge project.

I have a more thorough understanding and some questions.

The main revelation to me was the statement from the Illinois Dept. of Highways representative about "not seeing any future for a new bridge for US Hwy 60 over the Mississippi River into Missouri from Illinois. In fact, it seemed that the bridge is doomed. Without that Mississippi River Bridge for US Hwy 60, then Kentucky traffic will be forced through Cairo, Illinois proper to the I-57 Bridge over the Mississippi at North Cairo off Illinois SR 3. This adds time and maybe 8-10 miles on the trip for Kentuckians into Missouri and for others that want to go West to Charleston and Wyatt, to access I-57 and I-55 West into Missouri. Some farm owners and implements in the Missouri and Kentucky southeastern sections near Cairo and Wickliffe will be adversely affected and a much larger longer flow of farm implements and semi-truck traffic that will then flow through the Cairo city limits, rather than through US Hwy 60 over that bridge.

When using the Mississippi River Bridge near the two rivers confluence area, rather than moving north to the I-57 Bridge north of Cairo, and adhering to the 30 mile an hour speed limits in Cairo, considerable time is lost going into Missouri. Wickliffe citizens would be better off with a Kentucky-Missouri bridge close to the South end of the existing Hwy 60 Mississippi River Bridge which would be a move for the future when that Mississippi Bridge doesn't exist. At that time, traffic could flow to I-57 at Charleston, Missouri which would be 15 miles, saving time and fuel rather than going around Cairo which is the only other alternative. The question is, since the Mississippi River Bridge for US Hwy 60, is doomed and as inadequate as the US 51 Ohio River Bridge, then do we hit I-57 north of Cairo or at Charleston, Missouri, as the only access to Missouri. I bet most of the traffic now is between Missouri into or out of Kentucky.

Would Kentucky have to front all the money for a new Bridge into Missouri to replace the Hwy 51 Ohio River Bridge or is the shared expense for Kentucky with a Missouri Bridge or an Illinois Bridge the same? Is it one-half Missouri and one-half Kentucky if we go directly into Missouri or for the Kentucky/Illinois Ohio River Bridge, on US Hwy 51, a 100% Kentucky and Federal expense into Illinois?

A scenario where traffic flows through Wickliffe and US 51 traffic has to flow north to a Barlow or mid-Wickliffe/Barlow Ohio River location be more feasible than the current US 51 Ohio River Bridge location before crossing over the Ohio River to intercept the I-57 at north Cairo Bridge intersection. Can we close the levy road US 51 from Wickliffe and make it a Ballard County road along the Mississippi River.

The impact would be more negative for the State Park and a couple of food places and Cairo traffic at one or two food places and a couple of liquor stores. The down side is that Cairo probably has more to lose and this could finally kill its few businesses while causing growth at north Cairo. The Barlow downside is the environmental impact when leaving the existing road right-of-ways and construction through pristine river low lands.

Obviously, looking ahead, any closing of the Mississippi River Hwy 60 Bridge, will create more traffic time by forcing traffic to use the Mississippi River Bridge north of Cairo to access Wickliffe and US 51 South of Wickliffe.

At the same time, it will move traffic off the difficult levy marginal State Roads into Missouri going to Wyatt and

Charleston, and the levy road portion of US Hwy 51 north of Wickliffe. I don't think Wickliffe depends on much

of the commercial traffic and Cairo and Illinois might benefit with some increased traffic but I don't see it! Grain

traffic would not significantly be affected in my opinion as most Illinois grain loading facilities are in North Cairo, Suburbandale, and Mounds City, Illinois.

Lynn Hopkins,
Mayor
City of Wickliffe
(270) 335-3557

Public Involvement Meeting Summary

US 51 Ohio River Bridge Study

Public Involvement Meeting #1

Cairo High School

Cairo, Illinois

4:00 p.m. to 7:00 p.m. (CST), May 20, 2013

Public Involvement Meeting #2

Ballard Center – Community Room

LaCenter, Kentucky

4:00 p.m. to 7:00 p.m. (CST), May 21, 2013

There were two public involvement open house meetings held on Monday, May 20, 2013 from 4:00 p.m. to 7:00 p.m. (CST) at the Cairo High School, 5201 Sycamore Street, Cairo, Illinois and on Tuesday, May 21, 2013 from 4:00 p.m. to 7:00 p.m. (CST) at the Ballard Center, 547 West Kentucky Drive, LaCenter, Kentucky 42056. The following is a summary of these public meetings.

As attendees arrived, they were asked to sign-in and were given a project brochure and questionnaire. Attendees were invited to view the exhibits and ask questions to KYTC and consultant staff. Copies of the questionnaire, project brochure, and exhibits are included in Section 2. According to the meeting sign-in sheets, there were 76 attendees at the Public Meeting #1 in Alexander County, Illinois and 58 attendees at the Public Meeting #2 in Ballard County, Kentucky.

At the close of the meeting, attendants could turn in any completed questionnaires or were given the option of mailing them back by June 1, 2013. A total of 33 public comment questionnaires were completed at the Public Involvement Meeting #1 and 11 at the Public Involvement Meeting #2. An additional 76 public comment questionnaires were received at a later date.

The public meetings closed at 7:00 p.m. (CST)

Public Involvement Meeting #1: The following Kentucky Transportation Cabinet (KYTC) and consultant staff personnel were in attendance:

Keith Damron

Mike McGregor

David Davis

Jessica Herring

Samantha Wright

Len Harper

KYTC – Central Office

KYTC – District Office

KYTC – District Office

KYTC – District Office

CDM Smith

CDM Smith

Gary Sharpe
Chuck Wood
J.B. Williams
Aaron Stover

Palmer Engineering
Palmer Engineering
Michael Baker
Michael Baker

Public Involvement Meeting #2: The following Kentucky Transportation Cabinet (KYTC) and consultant staff personnel were in attendance:

Jim LeFevre
Mike McGregor
Susan Oatman
Jessica Herring
David Davis
Blake Beyer
Samantha Wright
Len Harper
Gary Sharpe
Will Conkin
J.B. Williams
Aaron Stover

KYTC – District Office
KYTC – District Office
KYTC – District Office
KYTC – District Office
KYTC – District Office
KYTC – District Office
CDM Smith
CDM Smith
Palmer Engineering
Palmer Engineering
Michael Baker
Michael Baker

Public Questionnaire Summary

US 51 Ohio River Bridge Study

Distribution of Responses by County:

<i>Response</i>	<i>Public Meeting (#1) Alexander County, Illinois</i>	<i>Public Meeting (#2) Ballard County, Kentucky</i>
Alexander County, Illinois	65	6
Pulaski County, Illinois	9	1
Williamson County, Illinois	1	
Mississippi County, Missouri	2	
Stoddard County, Missouri	1	1
Cape Girardeau Co., Missouri	1	
Butler Co., Missouri		1
Ballard County, Kentucky	4	23
Hickman County, Kentucky	1	
Graves County, Kentucky	1	1
Carlisle County, Kentucky	1	1

1. How did you hear about this meeting?

Response	Public Meeting (#1) Alexander County, Illinois	Public Meeting (#2) Ballard County, Kentucky
Television	29	15
School-reach	8	
E-mail	4	1
Word of mouth	20	9
Mail	4	3
Radio	6	1
Newspaper	15	8
Advertisement	3	

2. My property or interest in the project is primarily:

Response	Public Meeting (#1) Alexander County, Illinois	Public Meeting (#2) Ballard County, Kentucky
Residential	65	16
Commercial	21	13
Farm	6	10
Industrial	12	7
Commuter	29	15
Education	5	
Church	3	
Forestry		1
Medical	1	
Government Agency	1	
State Trooper	1	

3. I travel US 51 between Wickliffe, Kentucky and Cairo, Illinois:

Response	Public Meeting (#1) Alexander County, Illinois	Public Meeting (#2) Ballard County, Kentucky
Multiple times daily	15	4
Once a day	5	4
Once a week	30	14
2-3 times a week	7	3
Several times a week	7	3
2-3 times a month	8	1
Few times a year	1	3

4. What do you feel is the most important objective for improvements to the US 51 Ohio River Bridge?

<i>Response</i>	<i>Public Meeting (#1) Alexander County, Illinois</i>	<i>Public Meeting (#2) Ballard County, Kentucky</i>
Improve Safety	39	14
Maintain cross-river connectivity	47	18
Improve/replace the functionally obsolete bridge	36	16
Navigation	1	
Development	1	
Relocate		1
Eliminate overweight semis	1	
Improve travel time to I-57	1	

5. Which alternative Alignment do you feel is best for the US 51 Ohio River Bridge in the future?

<i>Response</i>	<i>Public Meeting (#1) Alexander County, Illinois</i>	<i>Public Meeting (#2) Ballard County, Kentucky</i>
No Build/Repair	9	2
Alternative 1	38	13
Alternative 2, 2A, or 2B	48	9
Alternative 3 or 3A	1	2
Alternative 4	3	5
Alternative 5	2	3

6. Do you have specific locations or areas of concern for which you would like to comment?

Public Meeting #1 – Alexander County Responses:

- US 51 South of the KY bridge! The road should be elevated to avoid future closures of any remodeled or newly constructed bridge. If the issue is connectivity, then a closed road means a closed bridge!
- I believe the new bridge should be constructed in the same area. This would provide connectivity with our adjacent towns and cities in Kentucky (e.g. Wickliffe, Westvaco, LaCenter etc.). Also moving the bridge farther north would hurt business and commerce in the town of Cairo. I see no major benefit with 4 or 5A. This will also hurt the farmers on both sides of the bridge.
- This should be a 3 state program with Missouri. The Mississippi River bridge is an additional consideration on upgrading the Ohio River bridge. This area needs a better access going east from Illinois or Missouri going east to Kentucky. Connecting

to I-57 with a four lane would help this area with business development. Currently going east to Paducah is the only direction that does not have a four lane traffic. Four lane between Paducah and I-57 would improve the traffic flow. If the bridge is rebuilt at or close to the current location, would still involve using the road from Wickliffe which can flood which would make the new bridge unusable. The Mississippi River Bridge is old and I probably in worse shape than the Ohio River bridge. If the Mississippi River bridge is shut down then the traffic would to go through Cairo which is not ideal for truck traffic. There are a lot of farmers in this area which farm in all three states and are constantly using these bridges to move equipment from one state to the other.

- I strongly believe that the bridge needs to be replaced by a structure as close in proximity to it as possible. This should be the most cost effective replacement and alternative as the environmental impact will be in the same area as the current bridge is.
- Alternative two would be the best. Have additional concern on levee road off bridge to Wickliffe, roadway always in need of repair. Areas off bridge in flood zone areas will continue to be a problem. Any bridge sites close to current bridge would be the best. I come from Missouri over the other bridge on sixty over the current bridge.
- See attached position from Shawnee Community College. (This is a letter from President Tim Bellamey of the Shawnee Community College.)
- Do not bypass Cairo!!
- Do not by-pass Cairo, Illinois!!
- Whoever the powers that be that will decide on what to do with this bridge project – if you plan to move it down from Cairo blow the old one down for our safety. To me it seems the bridge was built to keep maintaining because when eighteen wheelers came into existence someone should had would went back to the drawing board to reinforce it before now or widen it especially if it was a toll road for twelve years. Keep the old one and try to expand it as much as feasibly possible.
- Do not bypass Cairo!!
- Please do not bypass Cairo, See!
- Build a new bridge at the same location.
- I think it's very convenient to have both bridges together, it's historical with the presence of the Confluence, it's of great significance that the town doesn't suffer from the removal of the bridge to this area and traffic in Cairo is essential to business and growth. If you put the bridge north people won't come into town, they'll just truck on down the interstate. Tourism is one of the only ways small towns in the "real" southern Illinois can generate funds. Please don't do anything to hurt the town. Thank you.
- We need a new bridge for safety reasons. We also have many people whose use of the bridge is for economical and medical reasons. If we do build a new bridge we need to be able to use the old bridge to get to hospitals, doctors, jobs, food, shopping, etc. This location of the existing bridge has historical value. The old toll House, the fact there was also a ferry that transported people. My grandparents

came to Illinois by way of ferry. We need a new bridge and we need to keep it in the same general area if at all possible.

- I feel the bridge should remain in the same place with the adequate repairs or improvements done. If the bridge was relocated, it would greatly hurt the town of Cairo. Many teachers are from Kentucky and we need for them to have access to their jobs.
- I would like to see a new bridge built in the same place. This will close our city of Cairo down.
- I would like to see a new bridge built at the current location. The bridge that runs to Wickliffe and Cairo is much needed and plays a vital part to the residents of Kentucky and Illinois as well. It would devastate the citizens to have to travel a different route just to get to Kentucky or Illinois.
- I have only one request, which is to keep the bridge in the location that it's at. Yes, I would like for a new bridge to be constructed but just in the same location. It would hurt a lot people that travel that way for their jobs.
- I would like to see a new bridge next to the old one. A new bridge else-where would make Cairo a graveyard, it would take what few jobs we have in Bunge, Farron Lumber, A.D.M. GCB and others. We are hunger for more jobs not "less". A new bridge else-where we would need a "buy out". We are barely surviving now.
- Cannot put a bridge upriver of the railroad bridge. The railroad bridge is difficult to make already.
- Keep bridge where it is now. If it has to be built in another place then it should be beside the railroad bridge. Because we can't afford to lose Bunge Corp. or New Page in Kentucky. Build a new bridge in the same place as the old one.
- First of all, I see the need for a bridge at the south side of Cairo crucial for all three states. There are farmers and employees at New Page in Kentucky and Bunge, Cairo. Maybe find a way to limit or re-route eighteen wheelers to lessen the wear and tear. It is crucial to local traffic.
- I feel that if the present location is replaced it would be devastating to the town of Cairo and its immediate surrounding communities. The Cairo area is presently attempting to revitalize itself through grants and community support and this project of relocating the bridge between Cairo and Wickliffe, Kentucky would be a devastating blow. Replacing the location of the existing bridge is not in the best interest of the Southern Illinois area at all. It appears to me that this may be more politically motivated by politicians of other larger towns in our area (Paducah and Cape Girardeau, Missouri) more so than any other motive. It certainly does not sever the town of Cairo and the smaller communities around us anything short of making us a complete ghost town. If one would thing back just a few years ago during the flood what the gentleman from Missouri commented concerning Cairo, it is evident that plans or items such as moving this bridge location and other plans are to make Cairo a distant memory of the past. I am very unhappy that anything of this nature would even be in the mind of politicians and people who their own personal agendas to press this idea forward. Shame! Shame! Shame! Why would anyone want to step on a town that is already down but is trying to pull itself back up? This is not the right thing to do.

- I feel it might benefit development of Cairo flow of traffic if it were to connect to I-57. So combine 3A and 4. Cairo would be bypassed but I feel with development of gas stations at the new road entrance of Route 3, tax dollars will increase income for Cairo. Also other industries may want to move in at Cairo due to ease of traffic bypassing Cairo. Bypassing Cairo won't downgrade the town. Improvements in accessibility should bring less headaches and more attention to this area. Cairo would be a central spot gateway/interchange for three states.
- I think it is absolutely imperative that the bridge be constructed adjacent to its current location. As a Kentucky resident and Cairo Superintendent, I use the bridge multiple times daily. Every day trucks, tractor trailers and passenger vehicles cross the bridge for a variety of purposes. West Vaco / New Page at Wickliffe have hundreds if not thousands of trucks daily transporting raw goods to for the paper mill. Additionally, countless motor vehicles cross the Cairo bridge to access Bunge Corporation. Finally, Cairo needs every single car, truck or van that passes through our small community to continue to pass through. Our community appreciates the willingness of the Kentucky Transportation Cabinet to engage the stakeholders in these critical conversations.
- This conversation needs to be between three states – Kentucky, Illinois, and Missouri – and include both the Ohio River bridge and the Mississippi River bridge. This is a regional problem involving two bridges and to not approach that way is very, very shortsighted. Such an oversight will, in the end, waste a lot of money and produce a solution that is far less than optimal.
- Of the alternatives listed those located closest to the present bridge are best because of the historical significance to the confluence of the two rivers. Also the number of tourists coming through Cairo would be reduced and have a negative economic impact.
- Alt's 1-2B are not benefiting the user/taxpayer in improved access to I-57, US51 or US37. Alt 4 and 5 opens area for future development and improvement, overall better access to all.
- Please do not close the bridge while the new bridge is being constructed. This would increase my commute from 25 minutes to 2 hours each way. It would be particularly difficult in the winter months.
- We need the bridge to stay in the same location with a rebuild or repair. I personally use the bridge about twice a week for church purposes. However, if it is moved the impact on Cairo would be devastating. The traffic brings economic boost to the city. Also, residence that live in the city and work in Kentucky would either have to move or face great transportation cost in order to get to work.
- No comments, I'm 97 years.
- I would like for the bridge to remain in its current location. If the bridge closes, the city of Cairo will be non-existent. Many of our children's teachers live in Kentucky and the bridge is vital to their everyday life.
- I have selected alternative 2, 2a, or 2b because it would be the closest route for Cairo residents along with being the least expensive option. The new bridge needs to be wider than the existing bridge because of the heavy 18-wheel traffic. It also

needs to be designed straighter with no dangerous curves. Thank you for the opportunity to express my concerns.

- I think that it is imperative to maintain the connection between Cairo and Wickliffe as close to what it presently is for several reasons. People from the Illinois side of the river go into Kentucky to purchase cheaper gas, cigarettes, etc. People from both Kentucky and Illinois have friends and family on either side of the river. I would not want to see bridge relocation anywhere north of Cairo because it severely hurt the towns of Cairo and Wickliffe economically. The present geographic location of the bridge allows traffic from Illinois, Kentucky and Missouri to migrate from one state to the other in a very short period of time for goods and or services. Any location other than the present location would severely limit the travel of vehicles from all directions. This could and probably would mean the demise of the town of Cairo. It might be an advantage for a few people to relocate the bridge somewhere north of the Cairo but it would devastate the town of Cairo which is already fighting just to survive. In the event of a natural disaster and the north exit from Cairo was blocked, citizen would certainly need the bridge from Cairo to Wickliffe and the bridge leading into Missouri in order to have a safe and orderly evacuation.
- My concern is that the original bridge is really too old, and needs to be replaced. Like anything, metal gets old, along come metal fatigue. And I don't want to see something seriously happen, like bridge collapse. Plus if you build a new bridge alongside the old bridge you could connect the new bridge with the best part of highway 51. Closer to the new mile long bridge. The deterioration of 51 will get worse with continue flooding. The water is eating away underneath the roadway, so by connecting a new bridge with the best part of highway 51 and the mile long bridge. You solve two problems and eliminate the extra cost of major work on 51 which could collapse. And you have a preexisting road with 51, 60, and 62.
- One area of concern, for me, is the stretch of highway (US 51) between Wickliffe, KY and the bridge. For years KY – IL resident have dealt with the fact that when the Ohio River reaches 52' – 55' etc. this stretch of highway is underwater... Is there or will there be any consideration of this in the early planning.
- I am IL State Police District 22 Safety Education officer. The meeting was very informative. We support the KYTC on this project and if I can be of assistance in future please contact me.
- We will not on way out here. But we want the town keep the businesses in Cairo, IL. We have own hospital here at all we use KY, MO way out emergency. So I think you'll build a new bridge.
- My family lives in Western, KY. It would be difficult for us/them.
- Family lives in Western, KY. It would be difficult for us/them. Ideal situation would be to build new bridge close to original then tear down old bridge like they did in Cape Girardeau. Choices 3, 4, and 5 would hurt economy of Cairo.
- The existing bridge or a location of proximity is important for the following reasons: Continued connection of Cairo and Wickliffe. Commuter workers. Physician appointments. Economic impact (without bridges on south end of Cairo there is no chance of redevelopment). Wickliffe would also be cut off from potential development. In addition southeastern Missouri would have a negative economic

factor due to loss of the bridge which connects to bridge into Missouri with negative impact on Wyatt, Charleston. River navigation is more difficult according to barge operators at alternative 3, 4 and 5.

- You already have existing approaches and #1 needs and other land to be bought (\$ savings). Keep Cairo and Wickliffe viable. Lots of money spent on museum so let's let people use it.
- Cairo is a historical mark. Please keep the bridge to where people travel through Cairo, ILL. Cairo has so much potential.
- I travel across this bridge twice a day going to and from work. The current bridge is unsafe and needs to be replaced and widened. The road from the bridge to Wickliffe is also very unsafe and needs widening. I believe the alternative 2B would be the best choice because there would be less of a curve at the end of the bridge. Keeping the bridge at the south end of Cairo is best for me because I work in Cairo. It would also be the least costly and would be beneficial to commuters coming from and to Missouri.
- At a time when all forms of government in our nation are struggling financially replacing a bridge is a large undertaking. The most recent bridge replacement in our area was the bridge linking Missouri and Illinois at Cape Girardeau, MO. The bridge was built parallel to the old bridge. No additional lands were needed or precious farm land destroyed to build the new bridge saving the taxpayers money. I was surprised to see destroying miles of farm land an option for replacing the bridge at a time when so many are concerned about the environment and wildlife. The current location of the bridge has served the area well for nearly eight decades. It's also convenient for anyone driving from Missouri to Kentucky including farmers who travel this route with machinery almost daily. Relocating the bridge will just be a greater expense. Why destroy farm land when it's not necessary? How large a bridge would have to be built? Much of the area proposed in the alternative areas north of Cairo flood almost annually. Relocating the bridge at a greater expense to the taxpayers is just another example of the incompetence of government spending more than is necessary. It may be true that the bridge needs to be replaced but please do not change the location.
- I feel that, if the bridge is removed altogether it would hurt Cairo and Wickliffe. I do think we need new bridge because most of the older bridges are in disrepair. I'm hoping a new bridge will make it safer.
- Alt #1 or #2 would be a much better choice. The bridge is a vital commercial route between S. Illinois and W. Kentucky, most definitely needs to be improved to handle current commercial vehicles. Alt #3-5 would have a detrimental economic impact to both Cairo and Wickliffe from reduced traffic through the communities. These alternatives would also have a negative impact on commercial navigation and barge dock facilities. They would span the U.S. Army Corps of Engineers levees, which would increase the bridge length required. The top of the levee is a public road which would cause issues and additional costs. Alt #4 appears very close to the Goose Pond Pumping Station which provides dewatering and flood protection for the area north of Cairo.
- Straight approach to the bridge.

Public Meeting #2 – Ballard County Responses:

- For now repair bridge – because it would destroy our property. What makes most sense is Alternative 3.
- I think Alternative 3 would be best because it would disturb wetland least of the new bridge construction. 1, 2A, 2B are no good because the old Missouri bridge would still need to be crossed, it is in bad shape and is very narrow. A new bridge that would provide good access to the I-57 Bridge would be best. It would keep large trucks from having to go through Cairo and the #3 location is a shorter crossing over the Ohio River than the #4 crossing location. #5 location is not good because it would disturb and disrupt wet land wild life and the road would have to be raised from Barlow to Illinois because of high water events in the river bottom lands.
- If you build at the current location there is still an issue with the Illinois bridge. The alternative 4 is a bypass around Cairo and tied into the I-55 bridge which I feel is a much better option for heavy trucks.
- Existing bridge is too narrow, too steep and has a bad curve on the Kentucky side. Any new bridge would be acceptable if wider and safer.
- New bridge. New era. Look to future to benefit the most people.
- Build beside old bridge.
- Existing levee needs complete work over.
- There should be a new bridge. The old bridge is obsolete. It doesn't matter how many repairs that are made to the existing bridge you still have an old bridge. Why was the meeting changed to the Ballard Center instead Wickliffe as the judge requested?
- The road from Wickliffe to the bridge is a big hazard. Fix it first! Where is the money to build a new bridge?
- Whatever is done, the road to it needs attention, under water often and is a safety problem. Wider bridge, new access. Should have taken the money wasted on Mayfield to Murray 4 lane and spent on the bridges!
- The only feasible option is to go as near the old bridge as possible. You could bypass all the environmental concerns.
- The levee road on Kentucky side needs improvements. The bridges are good but the road continues to settle and pull a vehicle into the existing path of the settling pavement. Alternate 3 and 4 would be my choice as to bypass Cairo, Illinois.
- I hope we get funding for this project and I see a new bridge completed in my lifetime.
- Many people in Kentucky (in the Wickliffe and surrounding areas) work in Illinois and Missouri. Additionally, Newpage of Wickliffe has many Missouri and Illinois residents as employees. I think with gas prices as they are, we should consider the economic impact moving the bridge location would have on these people. I think we should have meeting in Wickliffe in the afternoon so people who work in Illinois and Missouri could attend and those who live there and work could attend. I don't think this meeting was held where it should have been for maximum advantage to the people.
- The economic impact on this community would be greatly impacted by moving the location of the traffic in a negative way. I worked at "Wistrace" now Newpage and

many years. The impact of moving the bridge would impact employees of the mill in a negative way. Please have an additional meeting in Wickliffe!

- Meeting should have been in Wickliffe where it impacts people the most. Moving the bridge would hurt people in their pocket books! Gas is so high! People in Ballard Co. work at the prison, work in Cape G. and many other places in Cairo like Bunge, so it would hurt these people. Think about it! Why would you ever consider moving it?
- The roads are so narrow going thru Cairo. Alternative 4 route would work be safer and easier for all big truck traffic. Anyone wanting to do business in Cairo would still be able to get there. Alt 4 might even help increase interstate commerce, because most people I know don't even want to drive thru Cairo. And the levee between Wickliffe and bridge really needs work.
- #4
- I would like to see a new bridge to replace the old one for safety and to replace the obsolete one that is there now.
- I have in-laws that live in Nashville and use the connection to Wickliffe to get to Paducah. Both the existing Missouri and US 51 bridge are in need of repair/replacement. Alt 4 appears to give the best access to I-57 and would be the cheapest and most environmentally friendly option out of 3A, 4 and 5. The direct access to I-57 would seem important for truck traffic and keep heavy traffic off of Cairo streets. I hope the project proceeds in the near future.
- Apparently you didn't want comments from the people who are the most affected by this bridge (New Page, truckers, barge lines, etc.) since the decision was made to hold the meeting in LaCenter instead of the logical location which is Wickliffe.
- I was very disappointed the first meeting was not held in Wickliffe because the LaCenter prevented people who are most affected from participating. A prime example is people who work at NewPage that live in Illinois and Missouri; also loggers who come to the area daily from those states, and people from Wickliffe area who work in Cairo. Here are some suggestions for the next meeting place: Ballard Co. Courthouse – Wickliffe (county seat) Our County Judge Executive had recommended. Wickliffe City Hall – large meeting room located there. Union Hall (Paperworkers) located on Highway 286 in Wickliffe. Family Life Center at 1st Baptist Church (very large facility). Conference room at New Bridge located at Wickliffe. I trust the "Levee Road" will also be improved – hopefully long before a new bridge is built.
- I own property in Western Kentucky and travel frequently across into Ballard County. It would be much more difficult for me if alternative 3-5 were chosen. Plus my VA clinic and dentist's office are in KY.
- Need to preserve commercial traffic flow through this region to Paducah, KY from Sikeston, MO. This is an underdeveloped traffic network for truck traffic. Congestion at T intersection on HWY 51 to Wickliffe needs to be remedied as well. This is a potential corridor to I-24 but Ohio bridge is wanting in maintenance attention. Carriers regularly carry gross loads at or near legal limit of 80,000 lbs. Lane width and stability discourage traffic moving east. Many of our carriers choose to go south and bypass Kentucky altogether from the west on I-57, US HWY 60 and I-55. Many have trucks go either north to Illinois to I-64 and I-70 or south to I-40 through

Tennessee. Until east/west traffic is addressed from at least Paducah west, this will always be economically challenged part of your state. My facility ships more than 28,000 truckloads per year from Bloomfield, MO. Sikeston, Charleston and East Prairie is home to several thriving local truck fleets in Missouri. There are no commercial carriers domiciled in Eastern Kentucky but you have rail and port service. I would make this project a high priority for economic viability. We would easily double truck and commercial traffic that no goes other locations.

- If the bridge is moved out of Cairo area, it will hurt the businesses and traffic, also people who work here from Kentucky.
- Area of concern: curve of present bridge in which semis tend to cross into other lane.

Appendix B

Purpose & Need Statement

US 51 Purpose & Need and Screening Criteria

1.1. Introduction and Project History

The US 51 Bridge carries US 51, US 60, and US 62 traffic across the Ohio River between Wickliffe, KY and Cairo, IL. The US 51 Bridge is also known as the Wickliffe-Cairo Bridge or simply, the Cairo Bridge. It is located near the confluence of the Mississippi and Ohio Rivers, at Kentucky milepoint 7.372 along US 51 and at Ohio River navigation milepoint 980.4.

The US 51 Bridge carries approximately 5,400 vehicles (including 35% trucks) across the Ohio River each day. Approximately half a mile further south, US 60/62 leads to the US 60/62 Mississippi River Bridge and Missouri. The nearest alternate river crossings are the I-24 Ohio River Bridge upstream at Paducah, KY; the I-57 Mississippi River Bridge, northwest of Cairo; and the I-155 Mississippi River Bridge downstream near Caruthersville, MO (downstream).

Constructed by the Cairo Bridge Commission as a toll facility, the US 51 truss bridge was opened to traffic in 1938. Tolls were removed from the crossing on November 11, 1948, when the highway departments of Kentucky and Illinois took over maintenance of the structure. The two lane structure is 22.6 feet wide curb-to-curb, with an approaching roadway width of 24 feet, including shoulders.

1.2. Project Purpose: What Should the Project Accomplish?

The primary purpose of the project is to rehabilitate or replace the existing US 51 Ohio River Bridge in order to:

- Improve or replace the functionally obsolete/structurally deficient bridge;
- Maintain cross-river connectivity between Wickliffe, KY and Cairo, IL; and,
- Improve safety on the bridge and its approaches.

The purpose is based on several observed needs, discussed in the following subsections.

1.3. Project Need: What is the Problem?

The following discussion describes the primary factors that demonstrate the need for action. These factors correspond to the main elements of the Project Purpose statement.

1.3.1. Project Need: Improved Bridge Structure

Several concerns have been identified with respect to the US 51 Bridge structure, including the following:

- The existing bridge width of about 22.5 feet does not meet current state or national standards for road widths and clearances defined for bridges in the *Geometric Design of Highways and Streets* published by the American Association of State Highway and Transportation Officials. For this reason, the US 51 Bridge is designated as Functionally Obsolete, meaning the historic design is not consistent with its current use.
- The condition of highway bridges is routinely inspected and rated as part of the National Bridge Inventory. Based on the 2010 inspection, the US 51 Bridge has a sufficiency rating of 39.8, rated out of 100 possible points. Bridges with a sufficiency rating less

than 50.0 are eligible for replacement with federal funds under the Federal-Aid Highway Bridge Replacement or Rehabilitation Program.

- The bridge can carry all legal loads (i.e., vehicles within the size and weight limitations for US highways) at this time, but permit loads (i.e., special permits issued by KYTC for oversize or overweight vehicles) are not allowed. Oversize and overweight vehicles must use an alternate river crossing. Because the original design load for the bridge is less than today's current design standards, the US 51 Bridge is rated Structurally Deficient.
- It is anticipated that bridge repairs and/or improvements will be required to maintain the bridge at the existing load rating over the next 25 years. To maintain the existing bridge for the next 25 years, rehabilitation work is needed on the bridge deck, structural steel, and paint system. In addition, potential needs to address bridge scour, seismic loading, and barge impacts have also been identified. Technical information is presented in the *US 51 Bridge Deficiencies White Paper*.

The identified project need is to provide an improved bridge structure that meets current state and national design standards and that can serve modern vehicle and traffic needs, including anticipated 2040 vehicle volumes.

1.3.2. Project Need: Cross-River Connectivity

Maintaining cross-river connectivity is important to the local communities and businesses in the Wickliffe, Kentucky-Cairo, Illinois area. The following cross-river factors demonstrating the need for continued cross-river connectivity have been identified:

- Approximately 5,400 vehicles per day use the existing river crossing between Wickliffe, KY and Cairo, IL. About 35% of the daily traffic is made up of commercial vehicles.
- Employers and commuters rely on the bridge for access to workforce and jobs. Six of the major local employers in Wickliffe and Cairo employ approximately 1,100 people from Kentucky, Illinois, and Missouri. The six companies include NewPage Paper Mill, James Marine, Community Health and Emergency, American Commercial Lines, Delta Center and Daystar Care Center. According to county data from the 2006-2010 *American Community Survey* collected by the US Census Bureau, 109 residents of Ballard County commute into nearby Illinois or Missouri counties. Additionally, an estimated 145 residents in nearby Illinois and Missouri counties commute into Ballard County, Kentucky. The US 51 bridge provides the most direct link for these commuters.
- Local farming operations rely on the bridge to transport crops and farming equipment between states. During the traffic counts completed in January 2013, over 150 farm, grain, and logging trucks were observed using the bridge over an 8-hour period. During this same period, one oversize load was observed using the bridge to transport a mobile home; however, this size load is not permitted.
- The US 51 Bridge provides access for emergency response and health services for local residents and between major facilities, including Missouri Delta Medical Center in Sikeston, MO; St. Francis Medical Center in Cape Girardeau, MO; and both Western Baptist and Lourdes Hospitals in Paducah, KY.

There are alternative river crossings in the project region, but the travel distances do not make these crossings viable choices for local traffic. Other major river crossings include the following:

Ohio River (upstream, between KY and IL)

- US 45 Bridge at Paducah, KY (37 miles northeast of US 51 Bridge)
- I-24 Ohio River Bridge at Paducah, KY (34 miles northeast of US 51 Bridge)

Mississippi River (upstream from confluence with Ohio River, between IL and MO)

- I-57 Bridge northwest of Cairo, IL (7 miles northwest of US 51 Bridge)
- US 60/US 62 Bridge south of Cairo, IL (1/2 mile south of US 51 Bridge)

Mississippi River (downstream, between KY/TN and MO)

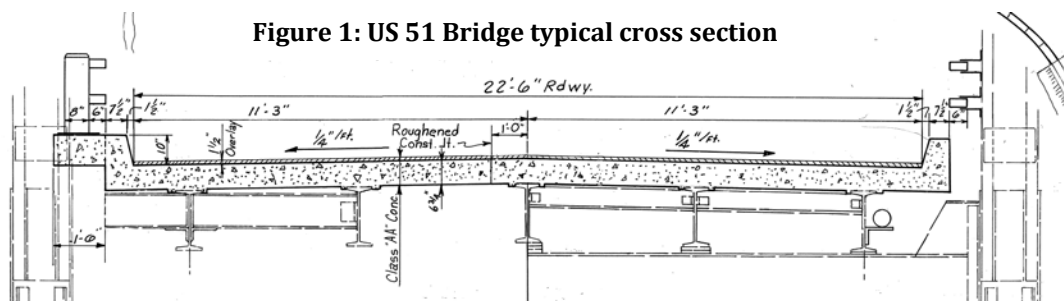
- Dorena-Hickman Ferry (40 miles south of US 51 Bridge)
- I-155 Bridge near Caruthersville, MO (84 miles south of US 51 Bridge)

The identified project need is to maintain convenient, efficient cross-river connectivity between the communities of Wickliffe, KY and Cairo, IL. If the US 51 Bridge were not available for local traffic, the detour trip between Wickliffe and Cairo increases from 7 miles to 80+ miles per direction.

1.3.3. Project Need: Safety

Substandard geometric conditions on the existing US 51 Bridge and its approaches present safety concerns, including the following:

- During 2008-2012, 18 crashes occurred on the bridge and its approaches, between the sharp curve on the KY side and the first intersection on the IL side. The primary crash types observed are single vehicle collisions (i.e., a single car hitting the guardrail) and opposite direction sideswipes (i.e., cars traveling in opposite directions that brush against one another broadways).
- The typical section of the bridge includes two 10-foot wide lanes, two 1'-3" wide shoulders, and curbs. The cross section is illustrated in **Figure 1**. This 22.5-foot width does not meet current state or national standards for road widths and clearances defined for bridges. The predominant crash types observed (single vehicle collisions and sideswipes) reflect the correlation between narrow lanes and safety.



- The 24-foot wide bridge approach widths are also substandard and pose the same safety concerns.

- One of the sag vertical curves on the Illinois approach does not meet the criteria in AASHTO's *A Policy on Geometric Design of Highways and Streets*, 2011, for headlight sight distance. This curve limits how far ahead drivers can see at night.
- The Kentucky approach has a substandard horizontal curve that is currently posted at 20 mph. This location has been identified as a high crash spot with a critical rate factor of 1.13, where crashes are occurring more often than can be attributed to random chance.
- Anecdotal evidence also indicates that truck mirror sideswipes and near-misses are common on the bridge, but not often reported. Approximately 35% of the traffic using the bridge is commercial trucks.

The identified project need is to improve the US 51 bridge and its approaches to meet current standards to resolve the existing safety issues.

1.4. Screening Criteria for Purpose and Need

To evaluate how well each alternative meets the Project Purpose and addresses identified Needs, screening criteria have been developed corresponding to the Project Purpose and Need. These are presented in **Table 1** below.

Table 1- Purpose and Need Screening Criteria

Purpose	Screening Criteria	Performance Measure
Improve or replace functionally obsolete/structurally deficient bridge	Improve river crossing	<ul style="list-style-type: none"> - Addresses functional obsolescence (y/n) - Addresses structural deficiencies (y/n) - Improves sufficiency rating (y/n) - Anticipated lifespan of proposed improvement (<25 yrs, >25 yrs)
Improve or maintain cross-river connectivity	Improve/maintain a cross-river link between Cairo and Wickliffe	<ul style="list-style-type: none"> - Maintains or decreases travel time between Wickliffe and Cairo (distance) - Maintains linkage between Wickliffe and Cairo (y/n) - Maintains similar travel distance between Wickliffe and Missouri (distance)
Improve safety	Address existing safety issues on bridge/approaches	<ul style="list-style-type: none"> - Meets design requirements for stopping sight distance on bridge and approaches¹ (y/n) - Meets design requirements for horizontal alignment on bridge and approaches¹ (y/n) - Meets design requirements for lane width (y/n)

¹ Approaches will be defined for each alternative, as appropriate

The US 51 Bridge Project is intended to rehabilitate or replace the existing US 51 Ohio River Bridge and its approach roadways (as needed), in order to eliminate its current functional deficiencies and safety issues and maintain cross-river linkage between Wickliffe, Kentucky, and Cairo, Illinois.

1.5. Other Project Goals and Considerations

In addition to the primary purposes for the project, a number of secondary goals and considerations have been identified. These factors describe other values, issues, and concerns that may be considered

as the project moves forward, and are subject to change based on input received through the agency coordination and public involvement processes.

A preliminary list of secondary considerations is shown in **Table 2** along with potential measures that describe how an alternative might address these factors.

Table 2 – Secondary Considerations

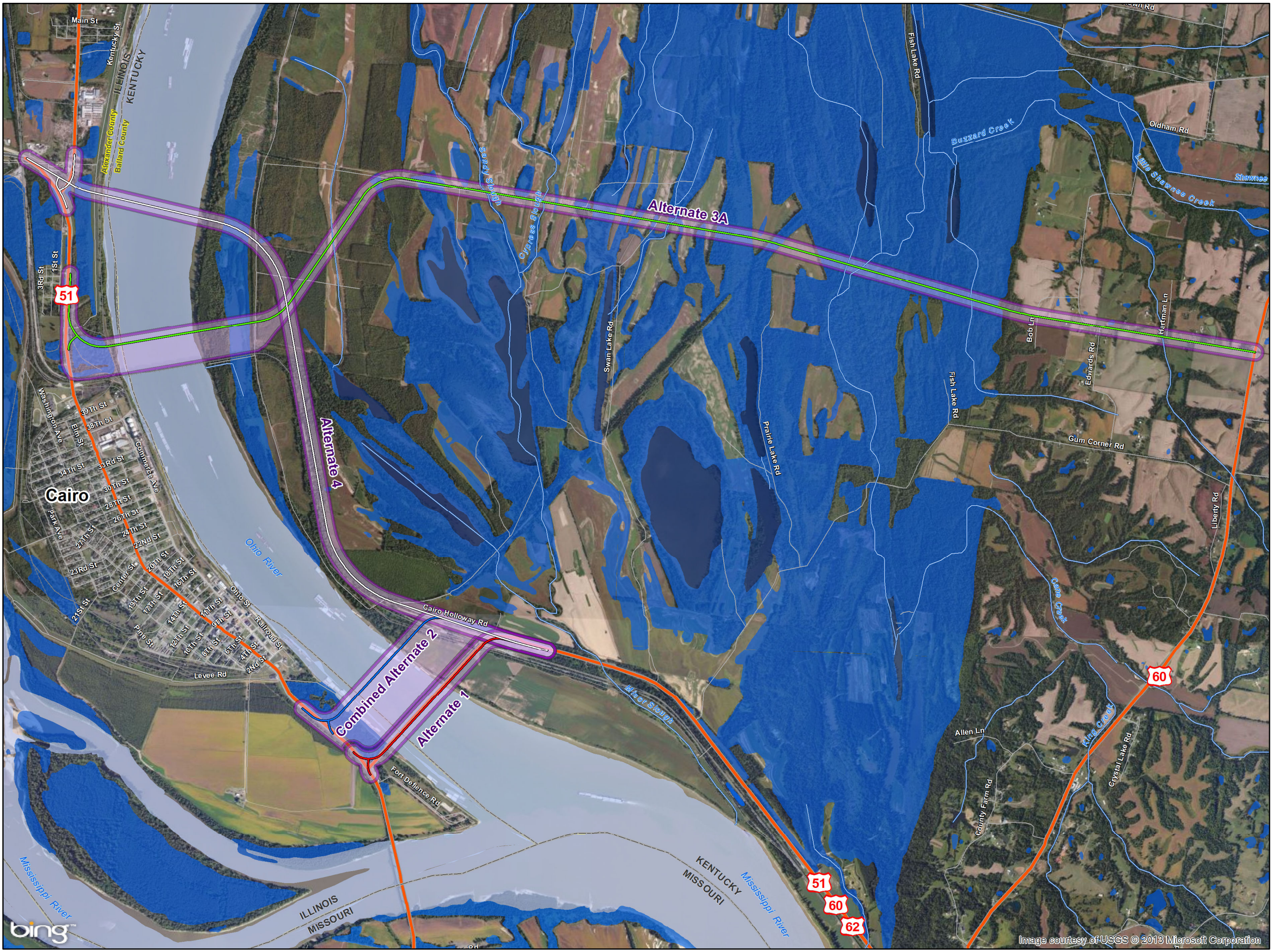
Factor	Screening Criteria	Performance Measure
Cost-effective, constructible solution	Provides constructible solution	- Relative complexity (high, med, low)
	Minimizes maintenance and construction costs	- Estimated construction cost - Relative maintenance costs (high, med, low) - User costs during construction (high, med, low) - Estimated service life
Sensitive to local resources	Support local freight routes	- Maintain/improve access to ports? (y/n)
	Minimize disruption to Wickliffe and Cairo	- Duration of bridge closure - # business/residential relocations
	Minimize disruption to historic resources	- Proximity to known historic resources - Proximity to known archaeological resources
	Minimize human and natural environmental impacts	- Acreage in floodplain - Park impacts - EJ populations - Farmlands - Recreational Boating Facilities - Species habitats - stream crossings - Wetlands - Wildlife management areas
System reliability during/after construction	Consistent travel time	- Travel time from Wickliffe to Cairo during construction - Travel time from Wickliffe to Cairo after construction
	Decreased delay due to incidents on bridge	- Sufficient width to divert traffic? (y/n) - Meets FHWA seismic design guidelines (y/n)
Provide safe cross-river mobility for bicyclists	Connect to existing/planned paths	- Provides bike path on bridge?
Provides for commercial river navigation	Addresses horizontal and vertical span clearances criteria provided by United States Coast Guard (USGC)	- Recommended for further study by USCG? (y/n)

Appendix C

Alternative Environmental Maps



**US 51
Ohio River Bridge
Floodplain**



Interstate

US Highway

State Highway

Local Road

Railroad

State Boundary

County Boundary

Streams

Alternate 1

Alternate 2A

Alternate 3A

Alternate 4

Buffer

Wetlands

Lacustrine

Palustrine

Riverine

N

0 1,000 2,000 Feet

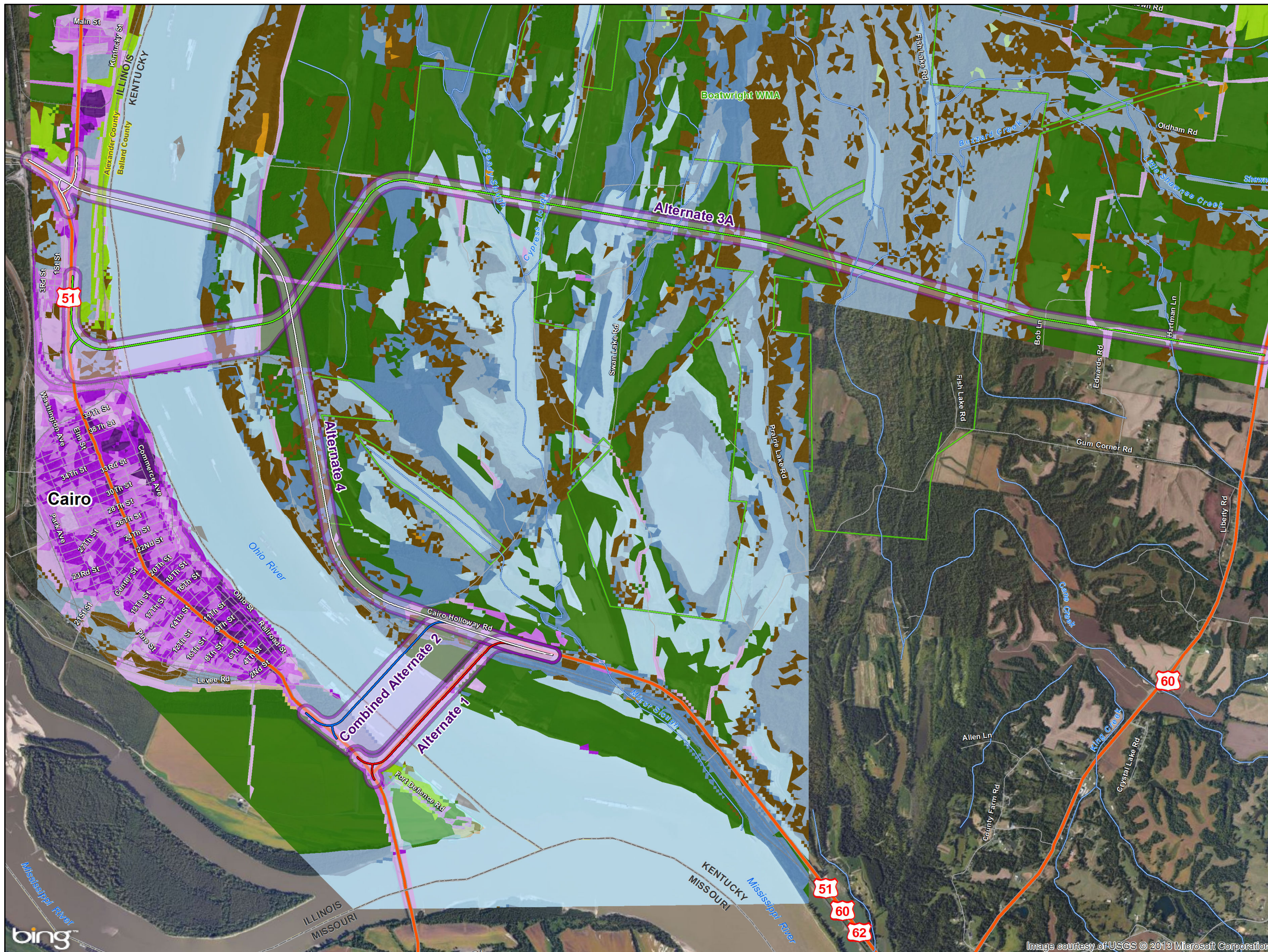
0 0.5 1 Miles

US 51

Ohio River Bridge

Hydrology

Image courtesy of USGS © 2013 Microsoft Corporation



-  Interstate
 US Highway
 State Highway
 Local Road
 Railroad
 State Boundary
 County Boundary
 Streams
 Alternate 1
 Alternate 2A
 Alternate 3A
 Alternate 4
 Buffer
Landuse
 Barren Land (Rock/Sand/Clay)
 Cultivated Crops
 Pasture/Hay
 Shrub/Scrub
 Developed, High Intensity
 Developed, Medium Intensity
 Developed, Low Intensity
 Developed, Open Space
 Deciduous Forest
 Evergreen Forest
 Mixed Forest
 Grassland/Herbaceous
 Emergent Herbaceous Wetlands
 Woody Wetlands
 Open Water
 Wildlife Management Area



Age Group	Number of People
18-24	~100
25-34	~200
35-44	~400
45-54	~600
55-64	~800
65-74	~1,200
75+	~1,800

A horizontal number line is shown with three tick marks labeled 0, 0.5, and 1. The segment between 0 and 0.5 is filled with black. The segment between 0.5 and 1 is filled with white. The word "Miles" is written at the far right end of the line.

US 51
Ohio River Bridge
Landuse

Image courtesy of USGS © 2013 Microsoft Corporation



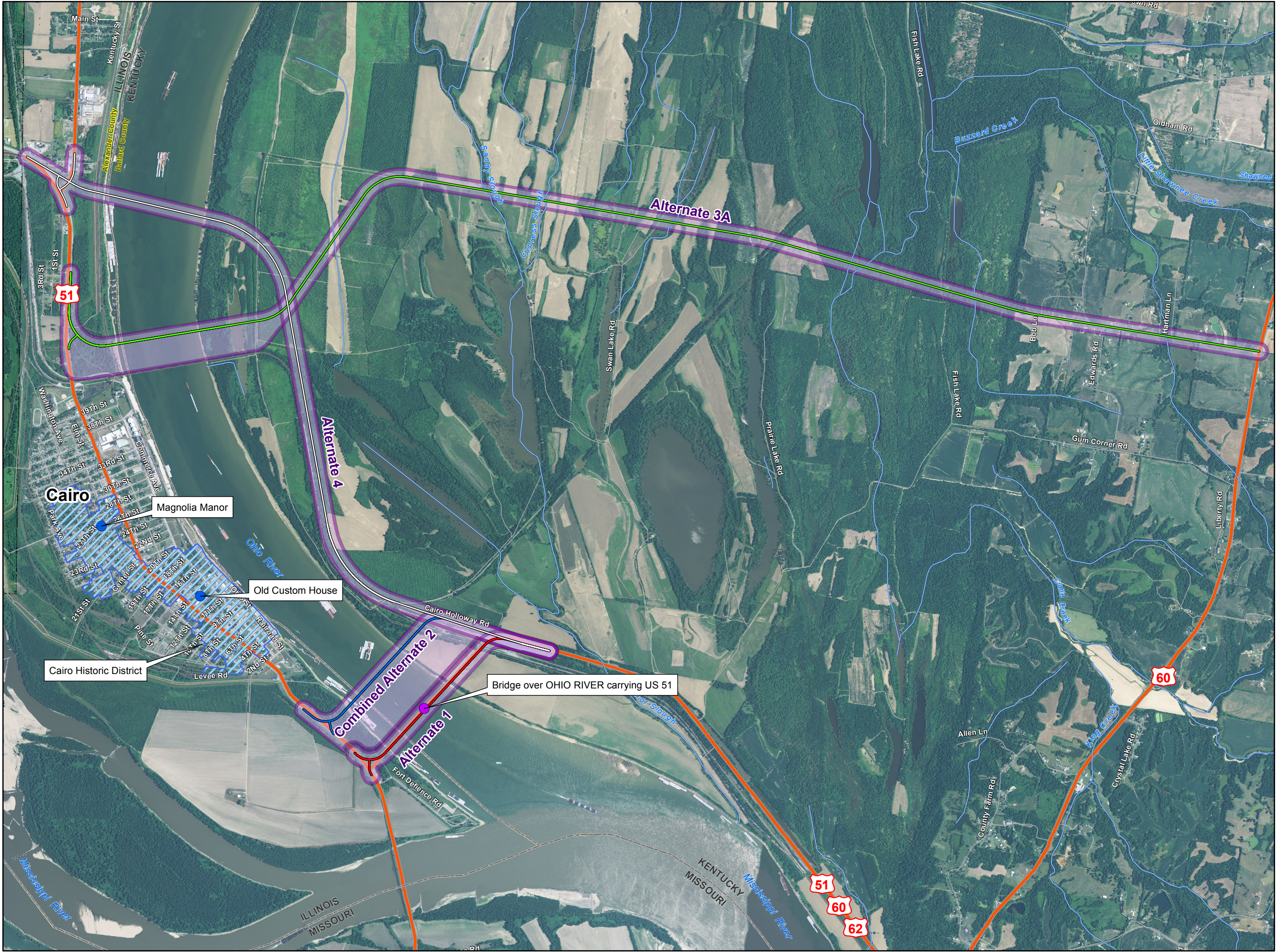
- Interstate
- US Highway
- State Highway
- Local Road
- Railroad
- State Boundary
- County Boundary
- Streams
- Alternate 1
- Alternate 2A
- Alternate 3A
- Alternate 4
- Buffer
- Community Resources
 - Airport
 - Boat Ramp
 - Cemetery
 - Health Facility
 - Park
 - School
- Major Employers
 - Industrial Area
 - Marine Transportation



0 1,000 2,000 Feet

0 0.5 1 Miles

US 51 Ohio River Bridge Community Resources



- Interstate
- US Highway
- State Highway
- Local Road
- Railroad
- State Boundary
- County Boundary
- Streams
- Alternate 1
- Alternate 2A
- Alternate 3A
- Alternate 4
- Buffer
- NR Districts
- Listed on the NR
- Eligible for Listing on the NR



0 1,000 2,000 Feet

0 0.5 1 Miles

US 51 Ohio River Bridge Historic Resources

