

**ENVIRONMENTAL
ASSESSMENT**

and

**FINDING OF
NO SIGNIFICANT IMPACT**



**Missouri Route 5
Camden County, Missouri**

Hurricane Deck Bridge
JOB NUMBER J5P2188



and

Missouri Department of Transportation



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August 2011



FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT

FOR

MISSOURI ROUTE 5, CAMDEN COUNTY, MISSOURI

HURRICANE DECK BRIDGE

JOB NUMBER J5P2188

The FHWA has determined that this project will not have any significant impact on the human environment. This finding of no significant impact is based on the attached environmental assessment, which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the attached environmental assessment.

9/2/11
Date

Raymond J. Casey, P.E.
Responsible Official

Program Development Team Leader
Title



Finding of No Significant Impact

23 CFR 771.121

Missouri Department of Transportation/Federal Highway Administration

REGION	STATE PROJECT NO.	PROJECT TITLE, ENVIRONMENTAL DOCUMENT TYPE
Missouri Division	J5P2188	Missouri Route 5, Camden County, Missouri Hurricane Deck Bridge Environmental Assessment

INCLUDES PROGRAMMATIC SECTION 4 (f) and MEMORANDUM OF AGREEMENT FOR MITIGATION OF ADVERSE EFFECTS

DECISION

The Federal Highway Administration, Missouri Division, approved the *Missouri Route 5, Camden County, Missouri, Hurricane Deck Bridge, Job Number J5P2188, Environmental Assessment (EA)* on June 21, 2011. Notice of the EA's availability was sent to agencies and the document was made available for public review on June 29, 2011. The EA was available at seven locations in the Lake area, at the MoDOT Central District office, and electronically through the central district website at http://www.modot.mo.gov/central/HurricaneDeckBridge_EA.htm.

The Selected Alternative to solve the transportation problems associated with the Route 5 Hurricane Deck Bridge is the existing location alternative. The selected alternative will replace the historic but deficient bridge with a new two-lane bridge in the same location. The pier caps on the existing piers will be reconstructed and a delta truss structural system will be used. This alternative will maintain traffic on Route 5 during construction with only short-term interruptions to establish temporary roadway tie-ins and to move the newly constructed bridge into place atop the existing piers. The selected alternative will result in removal of the existing, historic bridge after construction of the new structure.

The selected alternative was identified through public and agency involvement along with assessment of socioeconomic and environmental consequences. The public hearing was held in accordance with established MoDOT procedures. The department has considered possible social, economic, and environmental effects of the proposed improvements. No additional project impacts have been identified beyond those described in the original EA documentation.

The project is consistent with local planning goals and objectives, and there are no potential conflicts of interest on this project.

PUBLIC AND AGENCY REVIEW/COMMENT ON EA

Public Comments

A location and design public hearing for the project was held July 28, 2011, at the Sunrise Beach Fire Protection District Administrative Building (30 Porter Mill Springs Road) in Sunrise Beach from 4:00 to 6:30 p.m. Sixty-three people attended the hearing. Comment sheets were available for attendees to provide written feedback and five of these forms were submitted. A —virtual” public hearing was also available via the project's website, where the EA and public hearing displays were posted for viewing by those not able to attend the public hearing in person. The on-line public hearing received 43 visits and

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generated three comments. Comments on the EA were accepted through August 8, 2011. The issues identified at the hearings and during the open comment period are discussed below.

- ▶ Commenter likes plan to build the new bridge on existing piers but wonders whether there would be a cost savings by constructing the existing piers for future expansion now while the construction equipment is available at the construction site.

Since the construction will reuse the existing piers, the equipment that would be needed to bore additional, new piers will not be at the project site. There are no additional funds to support an expansion now.

- ▶ Commenter suggests that MoDOT consider adding a pedestrian /bicycle lane to the bridge.

Observations and surveys show very little non-motorized use of the existing bridge. The new bridge will have seven-foot shoulders that will safely accommodate pedestrians and bicyclists. It will be wide enough to add a pedestrian/bicycle lane if needed in the future.

- ▶ Commenter states project looks good in feasibility and cost analysis, looks forward to seeing it built.

MoDOT appreciates support for the project.

- ▶ Commenter does not support building the new bridge on the existing 80-year-old piers, feels it is too much of a gamble and a waste of tax dollars.

The existing piers were extensively inspected and tested by a nationally known engineering firm. In addition, coring and sounding of the rock adjacent to and under the piers was conducted to ensure there is an adequate foundation for the new bridge. The existing bridge piers and rock foundation are in excellent condition. The test results and engineering analysis say the existing piers will support the new bridge for more than 75 years. Based on this analysis, MoDOT decided to reuse the existing piers in order to lower construction costs.

- ▶ Commenter suggests installing stoplights at both ends of the bridge so that when future repairs must be done, there is no need to install temporary signals.

It is impractical to install signals permanently for a temporary situation. The new bridge should require very few lane closures, only for normal maintenance activities such as flushing salt off the deck, deck sealing, and normal inspections.

- ▶ The Camdenton R-III School Transportation Director requests the school to receive advance notice of the bridge closing so that extra days can be incorporated into the school calendar to eliminate the need to run alternate bus routes during the closure. The school district finalizes the calendar for the next school year in February.

Once MoDOT awards the project and gets the contractor's project schedule, the school will be contacted.

- ▶ Commenter asks whether MoDOT will consider paying/reimbursing motorists for the Lake of the Ozarks Community Bridge toll charge during the bridge closure, noting that \$30–40 in tolls plus cost of additional gas for the lengthy detour is a major expense for those with low-paying jobs.

MoDOT is looking into this possibility but no decision has been made at this time.

- ▶ Commenter voices concern about the annual Shootout boat race in August and the possibility of a high-speed powerboat hitting the bridge.

MoDOT has no control over the location of the Shootout. That is the responsibility of the Water Patrol and the event organizer. MoDOT values the well-being of employees and customers and does not compromise safety.

- ▶ Commenter is concerned about proximity of traffic to the Sunset Palms condominium closest to Route 5 if the temporary bridge is built downstream and asks where will the temporary bridge be

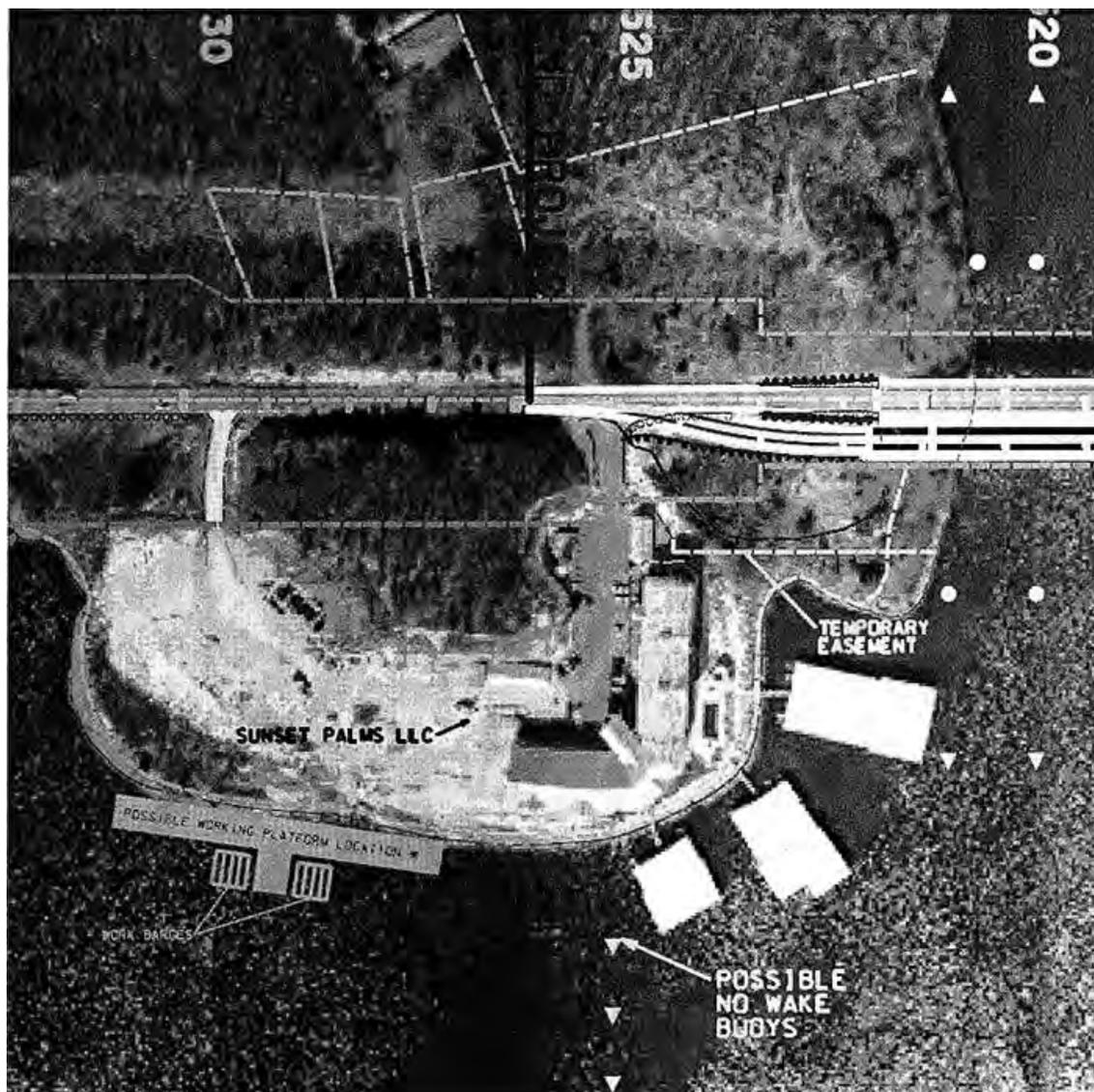
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located, will it cut through Sunset Palms property, and can it be built upstream.

Commenter has additional questions: will vegetation on the southeast side of the bridge be replaced or will rock and concrete be the only view, how long will the construction take, and will residents be able to exit the Sunset Palms parking area out of the main gate to Highway 5 both during and after construction.

Finally, commenter asks whether there will be any other impacts on the residences of Sunset Palms in both construction and the completed phases.

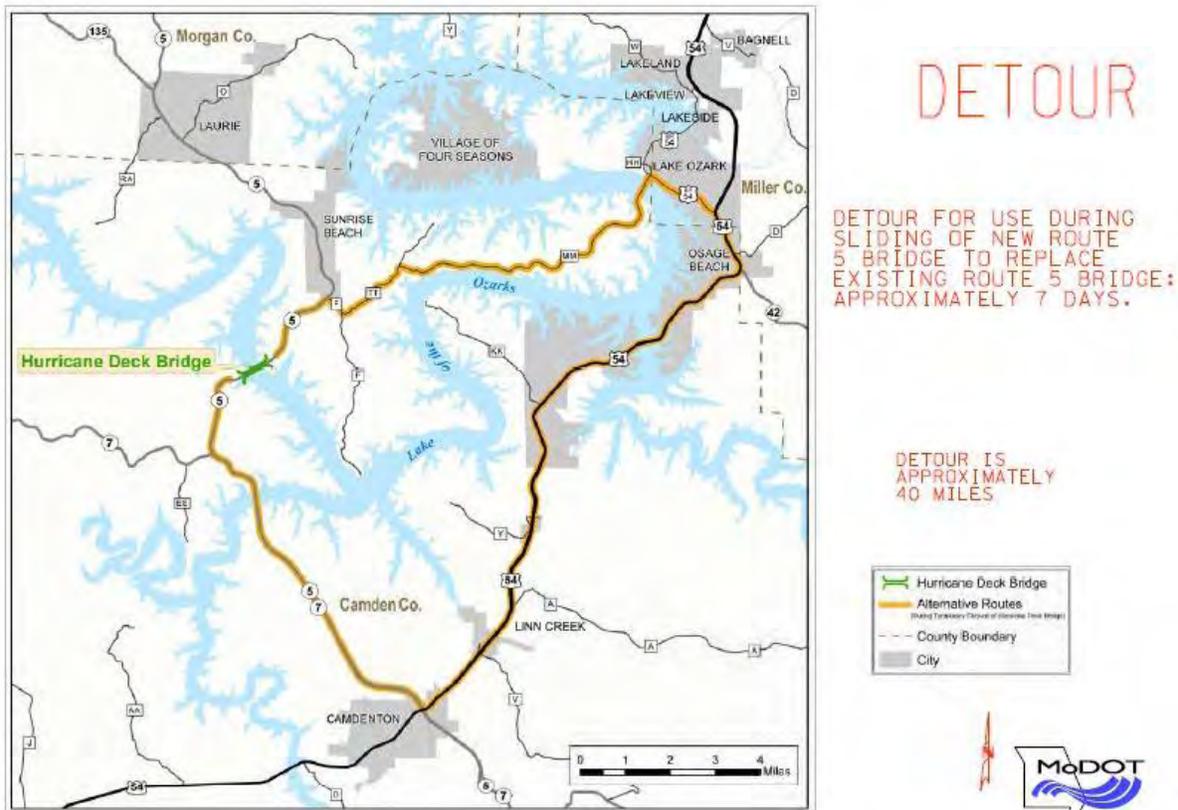
MoDOT proposes building the temporary bridge downstream from the current bridge. After the new bridge is completed on the temporary piers, traffic will be moved onto the new bridge. The old bridge will then be taken down and the existing piers will be modified. When the existing pier work is complete, Route 5 will close for two to seven days while the new bridge is moved onto the existing piers. Once the move is completed, MoDOT will open the new bridge to traffic and remove all temporary piers and roadway. The project will require a temporary easement from Sunset Palms property for construction. Although it is possible for the contractor to decide to build upstream, MoDOT currently believes the downstream location is best. The diagram below shows the construction layout.



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The extent of vegetation clearing needed in this area will not be determined until construction begins. Under a temporary easement, MoDOT must restore the property to the condition required by the agreement with the property owner. MoDOT expects construction to start early in 2012 and take about two years. Residents will be able to exit the Sunset Palms parking area out of the main gate to Highway 5 both during and after construction.

When completed, the new bridge will be in the same location as the existing bridge. There should not be any change from today's experience other than a wider bridge to enjoy. During construction, there will be minimal delays to shift traffic from the old bridge to the new bridge. As previously mentioned, Route 5 will be completely closed for approximately two to seven days while the new bridge is shifted onto the existing piers. See detour route below. Traffic control on the Lake will require a no wake zone through the bridge



area and possibly at other locations, depending on how the contractor plans to erect the new bridge. The drawing shows a possible location at the condominium property and whether or not this location is used is up to the contractor and the property owner.

Agency Comments

- ▶ The Missouri Department of Natural Resources (MDNR) submitted comments on the EA in an August 12, 2011, letter. Regarding the EA discussion of wetlands and waters of the U.S., the agency states that one-tenth of an acre is the Nationwide Permit 14's notification threshold and values noted in any nationwide permit requirements are either for determination of minimum impact and/or the notification level required with the nationwide permit program versus the project falling under an individual permit. The department has no minimum for determining mitigation. If a project is found to adversely impact water resources, mitigation may be required depending on the type and amount of impact." The MDNR further remarks that without a specific location for the construction staging area and an anticipated amount of adverse wetland or stream impact, the department cannot say for certain that no mitigation would be required through the Clean Water Act Section 401 Water Quality Certification (certification)."

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MDNR notes that MoDOT's Municipal Separate Storm Sewer (MS4) permit, MO-R040063, which was not mentioned in the EA, works in concert with the land disturbance permit to ensure proper site design, Best Management Practices, and post-construction water quality protection. The agency expresses concern about possible lead contamination during bridge demolition and potential impacts to the Lake's water quality. Finally, the MDNR lists some best management practices for solid waste disposal, particularly when the construction staging area is removed.

Based on discussion with the Corps and impact analysis, MoDOT anticipates that this project will qualify for a Nationwide Permit 14 (NWP 14) and therefore the thresholds mentioned apply. As such, when the Corps determines a NWP applies, MDNR must certify without condition per Mo Revised Statutes. Regarding construction staging, under the conditions of the NWP 14 there are no thresholds for temporary impacts and all temporary impacts must be restored to their previous condition.

MoDOT has two general permits for storm water runoff from MoDOT property and activities—MO-R040063, the Municipal Separate Storm Sewer (MS4) permit and MO-RI00007, the Missouri State Operating Permit for land disturbance. These permits ensure that Missouri's clean water standards are met. MoDOT's comprehensive stormwater management program requires that all construction or maintenance projects disturbing one acre or more use Best Management Practices (BMPs) for erosion control. The program goals are to reduce discharge of pollutants to water bodies, protect water quality, meet defined water quality requirements, and control the quantity of storm water discharge.

As stated on page 32 of the EA [final paragraph in section 14) HAZARDOUS WASTE SITES], there will be no lead paint removal from the bridge prior to demolition. The existing structure was sandblasted to remove paint from all accessible surfaces in preparation for repainting in 1985. Although there are likely inaccessible parts of the structure on which some lead paint remains, the potential release of lead into the water from the demolition will not exceed water quality standards.

SUMMARY OF IMPACTED RESOURCES:

1) FARMLAND IMPACTS

The selected alternative is located within the 600-foot-wide corridor of the Route 5 EIS Preferred Alternative (—"Expressway" Alternative #2). It will require slightly more than half an acre of new right of way and easements. Acreage potentially eligible for farmland impact evaluation within "Expressway Alternative #2" was rated for the 1997 EIS and received a cumulative point rating of 119, significantly less than the 160-point threshold established for farmland protection.

Parts of the project area are also within city limits or the land within it is devoted to non-agricultural use, falling under the Farmland Protection Policy Act (FPPA) definition of "land committed to other uses." For these reasons, farmland impact will not be reevaluated.

2) COMMUNITY IMPACTS

There will be few social impacts associated with the selected alternative, as the new bridge will be in the same location as the existing bridge. No changes are anticipated to neighborhoods or community cohesion, travel patterns and accessibility, community facilities, or to any special groups such as elderly, disabled, minority, and transit-dependent persons.

The selected alternative will not have any permanent, adverse impact on economic growth and development nor will it negatively affect the region's competitive position. A new bridge will increase travel efficiency and reliability, thus improving the community's position for economic growth and development.

Although temporary disruptions in travel patterns and travel time may occur during construction, the long-term benefits of a new bridge should far outweigh short-term impacts. Overall, the selected alternative

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will benefit access to public services by eliminating delays from traffic stoppages to accommodate oversized vehicles and agricultural equipment and decreasing closures due to maintenance.

Right-of-way Acquisition and Easements

The selected alternative will require slightly more than half an acre of new right of way and easements, impacting three parcels, and will use an additional 6.58 acres of existing right of way. It will not result in any residential displacements. If any additional temporary easements are needed to provide contractor access for machinery and personnel, impacts will be addressed as the bridge and roadway details are finalized.

It is anticipated that an Ameren Missouri permit will be needed to accommodate the bridge over the Lake.

Conclusion

The selected, existing location alternative is not anticipated to result in any long-term negative effects within the vicinity of the Hurricane Deck Bridge. Local traffic patterns may be disrupted during construction and there may be short-term, localized impacts to noise and air quality but inconvenience to residents and the traveling public will be minimized. MoDOT will work with community and area residents to aid in identifying possible impacts as well as solutions associated with the proposed project. The surrounding region will benefit from a new bridge improving travel efficiency and reliability at the Hurricane Deck crossing.

3) WETLANDS AND WATERS OF THE U.S.

The selected, existing location alternative will affect only a single water resource—Lake of the Ozarks. With the reuse of the four piers of the existing bridge, this project is anticipated to result in less than 0.5 acre of permanent impacts to waters of the U.S. and temporary impacts associated with accessibility to the Lake and the use of temporary piers to support the new construction. Any work in the designated navigational waterway falls under Section 10 of the Rivers and Harbors Act, which generally allows only the absolute minimum of temporary obstruction to the navigable channel and requires that there be no permanent impacts to the channel.

A Section 404 permit from the U.S. Army Corps of Engineers (COE) and a Section 401 Missouri Department of Natural Resources (MDNR) certification will be needed prior to construction. The selected alternative is expected to qualify for a Nationwide Permit 14 because of the minimal nature of the impacts associated with this activity. Mitigation for the proposed bridge construction is not expected at this time.

The No-Build is the least intrusive alternative.

Only Practicable Alternative Finding

In accordance with Executive Order 11990, this project avoids to the extent possible long- and short-term adverse impacts associated with the destruction or modification of wetlands. The proposed action includes all practicable measures to minimize harm to wetlands that may result from such action.

The selected alternative is anticipated to have less than 0.5 acre of permanent impacts to waters of the U.S. FHWA has determined that the selected alternative comprises the least environmentally damaging, practicable alternative that meets the project purpose.

4) NAVIGABLE WATERWAYS

The selected alternative will be constructed in a manner that will not interfere unreasonably with Lake navigation. An anticipated temporary reduction in channel width will not require U.S. Coast Guard (USCG) review and approval. Navigation will be maintained through one span of the bridge for the duration of construction. The Lake of the Ozarks is, by definition, a navigable waterway for purposes of regulation under Section 404 of the Clean Water Act (CWA). Because the Lake is not a commercially navigable waterway, the USCG has determined that the agency does not need to issue a Section 10 permit.

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The selected alternative will involve demolition of the existing bridge, with potential impact to waterway users associated with blocking the channel through the span for short periods of time. The spans will be dropped into the Lake and then salvaged. If the existing bridge is demolished during the summer season, use of the Lake near the bridge will be slowed during demolition, but one span of the bridge will always remain open for navigation. The Water Patrol monitors the demolition on site to provide a safe environment during the span blasting and salvage and this operation is anticipated to have minimal impact on through traffic on the Lake.

Recreational use of the Lake near the bridge may be reduced both during construction and demolition activities, as recreational users will most likely avoid the construction site for safety concerns.

5) FLOODPLAIN IMPACTS

The selected alternative will cross approximately 2200 feet of the Lake of the Ozark's 1% (base) floodplain using the existing bridge's piers. Since the selected alternative will not add any new permanent feature or have any discernible effect on the Lake's 1% (base) floodplain, MoDOT anticipates that a SEMA floodplain development permit will not be required. However, MoDOT will obtain a permit should it be determined that a permit is needed.

Only Practicable Alternative Finding

The selected alternative was determined to provide the best solution for the project needs and to have a lower environmental impact. There will be no increase in base flood elevations attributable to the implementation of this project. Ameren Missouri operates the Osage Hydroelectric Project (Lake of the Ozarks) under a 2007 license from the Federal Energy Regulatory Commission (FERC). The utility manages the Lake's elevation using a series of daily target elevations over the course of a year as a guide for normal operations. The Osage Project also assists with flood control through Ameren's shoreline management activities and other programs.

The proposed action conforms to applicable state of Missouri and local floodplain protection standards.

6) THREATENED AND ENDANGERED SPECIES

The selected alternative will involve some tree clearing. MoDOT environmental staff conducted a site visit during the winter of 2010. The amount of tree clearing needed is minimal and there are no known records of Indiana bats within five miles of the alternatives (MDC Heritage Database) so the potential for impact to this species is low. The entire area that needs to be cleared will be surveyed during the design phase of the project. If any suitable trees are found within the project limits, MoDOT will allow tree clearing only between November 1 and March 31, while the bats are hibernating in caves.

Although no bald eagle nests were observed near the project corridor during any site visits, MDC's Heritage Database shows a record of a nest approximately 1.5 miles southeast of the existing bridge. The selected alternative for this project is located well outside the protection zone for this species and no impact to any known bald eagle nests is expected. However, new nests are constructed every year, and one could potentially be constructed closer to the project limits between now and the time construction begins. If that occurs, MoDOT will conduct the appropriate consultations with the FWS and MDC.

The selected alternative will involve minimal work in the shallow water along the shoreline and thus there should be minimal impact to aquatic species, especially spawning fish. Most of the work will occur from barges out in deep water. Water levels under this bridge are deep, in places up to 85 feet. The construction contract will contain a provision that will not allow construction in shallow water during spawning season.

7) HISTORIC AND ARCHAEOLOGICAL SITES

The selected alternative will result in the removal/demolition of the Hurricane Deck Bridge, thus having an "adverse effect" on the historic structure. The SHPO concurred on March 8, 2011, with the MoDOT's

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Section 106 finding that the Hurricane Deck Bridge No. K0961 is eligible for listing on the NRHP and the proposed replacement will have an "adverse effect" on the bridge. An executed Memorandum of Agreement (MOA) among the Federal Highway Administration, MoDOT, and SHPO accompanies this NEPA decision document. The MOA details the mitigation measures that MoDOT will complete before the bridge is removed as well as identifying how any unanticipated discoveries will be handled.

Two archaeological sites (23CM40 and 23CM72) in the vicinity of the Hurricane Deck Bridge were determined eligible for listing on the NRHP. Based on the nature of these sites, the selected alternative will be designed to prevent negative impacts to the sites.

8) PUBLIC LANDS & POTENTIAL SECTION 4(f)/SECTION 6(f) PROPERTIES

The Route 5 Hurricane Deck Bridge is a historic resource protected under Section 4(f). A programmatic Section 4(f) evaluation accompanies this NEPA decision document because the selected alternative will have an "adverse effect" on the NRHP-eligible bridge.

There are no other Section 4(f) or Section 6(f) issues associated with this project.

9) CONSTRUCTION IMPACTS

Construction of the selected alternative will result in some short-term, temporary adverse impacts near the proposed action, including noise, dust, and pollutants discharged by construction equipment as well as impacts to motorized and non-motorized traffic and to businesses in the area. Generally, these kinds of short-term impacts are among the most readily mitigated impacts. Pollution control measures outlined in the Missouri Standard Specifications for Highway Construction will be used to minimize impacts associated with the construction of any alternative; these measures pertain to air, noise, and water pollution as well as traffic control (e.g., detours) and safety measures. Best management practices will be employed to minimize or mitigate potential impacts.

Ameren Missouri operates the Osage Hydroelectric Project (Lake of the Ozarks) under a 2007 40-year license from the Federal Energy Regulatory Commission (FERC). The use and occupancy of Ameren Missouri's project lands and waters for the proposed bridge replacement will require a permit from the utility prior to construction.

Two potential work sites near the existing bridge, one on the north shore and one on the south shore, were included in the EA. However, use of either site is optional and the contractor may pursue other locations at their cost (arrangement with property owner, evaluation of impacts, and application to Ameren). Areas outside MoDOT right of way used for work sites will be under temporary easements and will be restored to their original contours and revegetated after completion of the project.

The staging areas for assembling the selected alternative's delta trusses will be constructed from sheet piling with clean rock fill behind the piling to form a 100-foot long causeway approximately 40 feet wide. The causeway will likely extend in shallows to the shoreline for easy cleanup and will be removed from the lake after construction is completed. Possible minor dredging for the barges may occur adjacent to the shore to minimize the area of work platform in the lake. Any dredged material will be disposed of outside MoDOT right of way and away from the shoreline. Impacts to the Lake will be temporary and the shoreline will be restored to its original contours and revegetated.

For the anticipated January 2012 project award date, construction of the work platform may occur in summer or fall of 2012 or later in spring of 2013. It is expected to take a couple of weeks and will be scheduled during normal working hours, with no night work. The construction contract will contain a provision that will not allow construction in the water during spawning season.

Use of the north shoreline work site option will require removing docks along one property owner's shoreline. Approximately 12,500 cubic yards of fill will be needed to construct the work platform. This area of the lake is used primarily for recreation.

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The south shoreline work platform option will be 88 feet from the closest building of a condominium development and 52 feet from a walkway along the shoreline. This location will require approximately 12,000 cubic yards of fill. Recreation is the primary use for this area of the lake.

The north shoreline work platform will be visible from the Lake for a distance of 1.3 mile west (upstream) and 2.0 miles east (downstream). The south shoreline work platform location is in a cove and will be visible only from the north shore of the Lake, for a distance of 1.0 mile east of the site. Since the work pads will be located along the shore, they are expected to blend into the background at distances greater than 1 mile. The delta frame assemblies will extend 70 feet above the work platform and will be around 250–280 feet long with girders attached.

Because MoDOT plans to maintain traffic on the old bridge during construction of the new bridge, there should be only minimal disruptions to vehicular traffic. Some day- or night-time lane closures will be needed to construct roadway connections between Route 5 and the temporary new bridge location, but MoDOT will require the contractor to flag traffic during these times and to keep back-ups to a minimum. Moving the replacement structure from the temporary pilings onto the reconstructed, existing piers will require closing Route 5 at the bridge for a period of two to seven days.

Constructing a new bridge will have some impact on traffic in the immediate area as the contractor's personnel work around the project site. Vehicles bringing materials in and out will add to the existing traffic. A Traffic Management Plan (TMP) will be developed during project design. A TMP lays out a set of coordinated traffic management strategies to manage the work zone impacts. Proposed strategies for managing traffic on this project include staging construction to impact traffic as little as possible, conducting active public information and outreach, scheduling high-impact work for hours of off-peak traffic, installing temporary traffic control devices, and possibly enlisting the help of law enforcement, if necessary.

MoDOT will send a news release to local newspapers and radio stations giving local commuters information about construction activities that could affect their daily travels. MoDOT also publishes construction-related news releases and information on its web site at www.modot.org for those who have Internet access.

Barges will be used on the Lake throughout the bridge construction work, which is expected to take two years to complete. It is anticipated that with the exception of halting water traffic for demolition of the old bridge, one span will be open to navigation throughout the construction period. MoDOT will coordinate with the Water Patrol to schedule the time and duration of any closures.

Contractors must comply with all federal, state, and local laws and regulations to protect air quality during construction. They must also work within the requirements of their operating permits issued through the Missouri Department of Natural Resources. Exhaust emissions from construction equipment will be controlled in accordance with emission standards prescribed under state and federal regulations. Any burning, when permitted, will be conducted in accordance with applicable local laws and state regulations.

Contractors are required to control fugitive dust to keep it from leaving the project limits, just as they must make efforts to control soil particles that stormwater tends to carry away.

To reduce the impacts of construction noise, MoDOT has special provisions in the construction contract requiring that all contractors comply with all applicable local, state, and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. Construction equipment will be required to have mufflers constructed in accordance with the equipment manufacturer's specifications. Loud construction activities such as pile driving and bridge demolition will be restricted to daylight hours. Possible nighttime activities could include pouring concrete deck (to avoid excessively high daytime temperatures) and, for preferred, existing location alternative, sliding the bridge.

Suitable roosting trees for the federally listed endangered Indiana bat will be removed during the period between November 1 and March 31 to avoid possible direct impacts to Indiana bats during the summer maternity season.

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The Missouri Department of Natural Resources (MDNR) regulates the control of runoff from land disturbance. Erosion control measures must be put in place before land clearing begins. MoDOT's Pollution Prevention Plan provides for temporary erosion and sediment control measures that will be included within construction contract specifications. Careful refueling practices will limit spills of gasoline and diesel fuels. Oil spills can be minimized by frequent checks of construction equipment.

Several utilities are located either within or outside the right of way off either end of the bridge. The selected alternative will have minimal to no impact on existing utilities. Details of utility disposition will be determined during project design. MoDOT's utility engineers and representatives of the utilities will work out details of individual utility adjustments on a case-by-case basis.

COMMITMENTS:

Note to reader—the Environmental Assessment for this project erroneously contained a commitment regarding engineering analyses of floodplain impacts. Since Ameren Missouri manages the Lake's elevation with its Osage Hydroelectric Project, such analyses would be inapplicable for this project.

Design

Based on the nature of archaeological sites 23CM40 and 23CM72, the bridge will be designed to prevent negative impacts to either site.

The entire area that needs to be cleared will be surveyed during the design phase of the project. If any suitable Indiana bat roost trees need to be removed for construction, MoDOT will only allow those trees to be cleared between November 1 and March 31.

The required removal of approximately one to three feet of the existing rock face along Route 5 at the base of the slope from station 521+50 to station 525+00 will be accomplished from the existing roadway by chipping away the rock face. The construction contract will include a job special provision specifying that no heavy vehicles will be placed on the slope above the existing road cut.

The entire area south and west of the bridge within the project limits will be designated as off-limits to all MoDOT contractor activity, equipment, and vehicular or foot traffic during the project activities.

A Traffic Management Plan (TMP) will be developed during project design.

Impacts associated with any additional temporary easements (other than those evaluated in this EA) needed to provide contractor access for machinery and personnel will be addressed as the bridge and roadway details are finalized.

Right of way

MoDOT will acquire all properties needed for this project in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 as amended (Uniform Act; 42 U.S.C 4601), and other regulations and policies as appropriate. MoDOT will provide relocation services to all impacted households without discrimination under guidance of the Uniform Act.

Permits

MoDOT will obtain a Section 404 permit from the COE and a Section 401 Missouri Department of Natural Resources (MDNR) water quality certification prior to construction.

Since the selected alternative will reuse the existing bridge's piers and will not add any new permanent feature or have any discernible effect on the Lake's 1% (base) floodplain, MoDOT anticipates that a floodplain development permit will not be required. However, MoDOT will obtain a permit from SEMA should it be determined that a permit is needed. MoDOT will also secure a permit from Ameren Missouri

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for the use and occupancy of the utility's Lake of the Ozarks hydroelectric project lands and waters prior to construction.

Traffic handling

Traffic on Route 5 will be maintained with only short-term disruption to move the newly built structure and reconnect the roadway.

MoDOT will require the contractor to flag traffic during day- or night-time lane closures needed to construct roadway connections between Route 5 and the new bridge location (either temporary or permanent) to keep back-ups to a minimum.

Prior to each week's scheduled work, MoDOT will send a news release out to local newspapers and radio stations giving local commuters information about construction activities that could affect their daily travels.

Navigation

Two sets of buoys will be used to control navigation during construction. Additional informational signs and arrows to clearly mark the boat lane are expected.

With the exception of halting water traffic for demolition of the old bridge, one span will be open to navigation throughout the construction period. MoDOT will coordinate with the Water Patrol to schedule the time and duration of any closures as well as for the —Shoot Oütboat race held every August.

Temporary power or lights will be used to maintain navigational lighting when MoDOT's electrical service line on the bridge for navigational lighting is disconnected during construction.

Construction

Construction of the work platform is expected to take a couple of weeks and will be scheduled during normal working hours, with no night work.

Any dredged material will be disposed of in an upland location off MoDOT right of way. All necessary measures will be undertaken to minimize turbidity. Impacts to the Lake will be temporary and the shoreline will be restored to its original contours and revegetated.

The construction contract will contain a provision that will not allow construction in the water along the shoreline during spawning season.

Special provisions in the construction contract require contractors to comply with all applicable local, state, and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site.

Construction equipment will be required to have mufflers constructed in accordance with the equipment manufacturer's specifications.

Loud construction activities such as pile driving and bridge demolition will be restricted to daylight hours.

MoDOT will comply with MDNR's stormwater regulations. MoDOT will implement its Soil and Water Pollution Prevention Plan, which provides for temporary erosion and sediment control measures that will be included within construction contract specifications.

All construction activities will comply with the existing rules and regulations of governmental agencies having jurisdiction over streams and water supplies in the area.

Pollution control measures outlined in the Missouri Standard Specifications for Highway Construction will be used to minimize impacts associated with the construction of any alternative; these measures pertain

HURRICANE DECK BRIDGE FINDING OF NO SIGNIFICANT IMPACT

to air, noise, and water pollution as well as traffic control (e.g., detours) and safety measures. Best management practices will be employed to minimize or mitigate potential impacts.

Emissions from construction equipment will be controlled in accordance with emission standards prescribed under state and federal regulations.

The contractor will remove from the project, burn, or otherwise dispose of materials resulting from clearing and grubbing, demolition, or other operations (except materials to be retained). In lieu of open burning, the contractor will attempt to harvest marketable timber, use mulched timber for erosion control, and compost excess mulch. Any burning, when permitted, will be conducted in accordance with applicable local laws and state regulations.

If previously unknown, regulated solid or hazardous wastes are found during construction activities, the MoDOT construction inspector will direct the contractor to cease work at the suspect site. The construction inspector will contact the appropriate environmental specialist to discuss options for remediation. The environmental specialist, the construction office and the contractor will develop a plan for sampling, remediation, and continuation of project construction. Independent consulting, analytical, and remediation services will be contracted if necessary. The Missouri Department of Natural Resources will be contacted for coordination and approval of required activities.

There will be no lead paint removal from the superstructure prior to demolition.

Post-construction

All temporary structures, roadway, work pads, and piers will be removed upon project completion and affected areas will be restored to their original, pre-construction contours and revegetated.

REQUIRED PERMITS:

This project will require obtaining a Section 404 permit from the COE and a Section 401 Missouri Department of Natural Resources (MDNR) certification prior to construction. The selected, existing location alternative is expected to qualify for a Nationwide Permit 14 because of the minimal nature of the impacts (less than 0.5 acre of permanent impacts to waters of the U.S.) associated with this project. Mitigation for the proposed bridge construction is not expected at this time. The permit application is typically submitted during the project's design phase.

Although the Hurricane Deck Bridge EA stated that MoDOT would obtain a SEMA floodplain development permit for the project, it is anticipated that the selected alternative will not require a floodplain development permit since it will reuse the existing bridge's piers and will add no new permanent feature or have any discernible effect on the Lake's 1% (base) floodplain. Should it be determined that a permit is needed, MoDOT will obtain a permit from SEMA.

Ameren Missouri operates the Osage Hydroelectric Project (Lake of the Ozarks) under a 2007 40-year license from the Federal Energy Regulatory Commission (FERC). The utility is responsible for managing development activities for the 1,150 miles of Lake of the Ozarks shoreline within the hydroelectric project boundaries to ensure such activities are consistent with the FERC license. Per Ameren Missouri's shoreline management plan filed with FERC, the utility issues permits to manage the multiple resources and uses of the Lake's shoreline while protecting the environment and recreation values and addressing the needs of the public. The proposed bridge replacement project will require a permit from Ameren Missouri for the use and occupancy of the utility's hydroelectric project lands and waters prior to construction.

APPENDICES

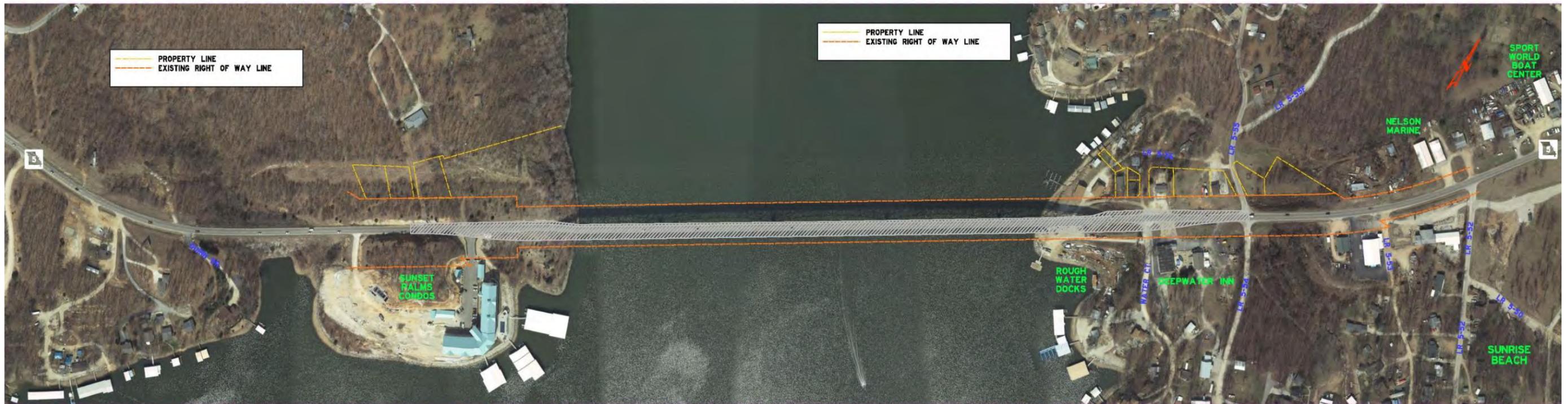
Appendix

- (1) Selected alternative aerial view
- (2) EA Notice of Availability
- (3) Agency and public comment on EA

Attachments (following Appendices):

- (1) Programmatic Section 4(f) Evaluation
- (2) Memorandum of Agreement for Mitigation of Adverse Effects
- (3) Information To Accompany the Memorandum of Agreement

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SELECTED ALTERNATIVE

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NOTICE OF AVAILABILITY

Environmental Assessment: Hurricane Deck Bridge

Missouri Route 5 Camden County, MO

The Missouri Department of Transportation and the Federal Highway Administration are pleased to announce the availability of the *Missouri Route 5, Camden County, Missouri, Hurricane Deck Bridge, Job Number J5P2188, Environmental Assessment (EA)*. The EA will be available for public review on June 29, 2011. The EA was prepared in accordance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act, 23 CFR 771, and regulations of the Council on Environmental Quality, to provide guidance in determining the appropriate actions needed to address the structurally deficient bridge.

Public Review: Public involvement is considered to be an important component of a successful planning process. An electronic version of this document can be found on MoDOT's website at <http://www.modot.org/central>. This site provides access to the EA and related documents on public review. Users of the site are encouraged to submit comments on this document while it is available for public review. Written comments can be mailed to:

**Mr. David Nichols, Chief Engineer
Missouri Dept. of Transportation
P.O. Box 270
Jefferson City, MO 65102**

Please have all comments submitted no later than **August 8, 2011**.

The EA will be available for review at the Camden County Commissioner's Office; Sunrise Beach City Hall; Camden County Library in Camdenton; Camden County Library in Sunrise Beach; Bank of Versailles (113 East Newton, Versailles); Greenview Bank (8774 N. State Highway 5, Camdenton); the Missouri Department of Transportation Camdenton Project Office (93 Morgan St., Camdenton); and MoDOT Central District Office (1511 Missouri Blvd., Jefferson City), and on the world wide web as indicated above. A limited number of CDs containing the EA will also be available at each of the public review sites, with additional CDs obtainable by request from MoDOT at the address above. The EA includes a programmatic Section 4(f) evaluation for the historic bridge and a draft Memorandum of Agreement (MOA) for mitigation of adverse effects to the bridge. If you have any additional questions concerning this announcement, please contact Ms. Peggy Casey, Program Development Team Leader, FHWA Division Office, 3220 West Edgewood, Suite H, Jefferson City, Missouri 65109, or at (573) 638-2620.

NOTICE OF PUBLIC HEARING

A public hearing concerning the replacement of the Route 5 Hurricane Deck Bridge will be held on July 28, 2011, at the Sunrise Beach Fire Protection District Administrative Building, 30 Porter Mill Springs Road, Sunrise Beach, Mo. 65079 from 4 to 6:30 p.m. The hearing will offer an opportunity for citizens to learn more about the proposal and to provide oral and written comments on the project.

Proposed Project: Built more than 75 years ago, the existing Route 5 bridge is structurally deficient and does not meet current American Association of State Highway and Transportation Officials (AASHTO) standards for shoulder width. The bridge's poor condition excludes routine overweight trucks and superloads from using it to cross the Lake. Rust is eating through the steel truss members and gusset plates. The bridge's age and condition create an ongoing need for maintenance, with substantial expense to taxpayers and great inconvenience for the traveling public.

Because of its condition, the Hurricane Deck Bridge is on a 12-month inspection cycle (MoDOT's typical bridge inspection frequency is 24 months) and requires increasing levels of maintenance activity. The structure's design (truss is located under the deck/roadway rather than above the deck/roadway as most trusses are) makes maintenance difficult and work on the bridge often requires closing one lane, which impedes traffic flow and presents a safety concern for workers because of the structure's narrow width. Over the last 10 years, it has been reduced to one lane or closed an average of 8–10 days per year for inspection and maintenance efforts. Over the past six years, MoDOT's average annual expenditure for the Hurricane Deck Bridge has been in excess of \$115,600.

The preferred alternative would replace the historic but deficient bridge with a new two-lane bridge in the same location. The new bridge would be designed to meet current MoDOT standards and AASHTO national standards for lane width and vehicular load and would meet AASHTO standards for shoulders. It would be 38 feet wide with two 12-foot travel lanes and two 7-foot shoulders and would allow the future addition, if the need arises, of bicycle/pedestrian accommodations protected by a concrete barrier. Traffic on Route 5 would be maintained during construction with only short-term interruptions to establish temporary roadway tie-ins and to move either the newly constructed bridge or the existing structure. This alternative would result in removal of the existing, historic bridge after construction of the new structure.

The proposed improvement crosses roughly 2200 feet of the Lake of the Ozark's base floodplain. Minimal, if any, additional impact to the base floodplain is anticipated following completion of construction and removal of the temporary piers and roadway approaches. Permanent impacts to waters of the U.S. are expected to be limited to placement of bridge piers in the Lake of the Ozarks.

Permanent impacts to wetlands/waters of the U.S. are anticipated to be less than 0.5 acre, which should qualify for U.S. Army Corps of Engineers (COE) Nationwide Permit #14. Any work in the designated navigational waterway falls under Section 10 of the Rivers and Harbors Act, which generally allows only the absolute minimum of temporary obstruction to the navigable channel and requires that there be no permanent impacts to the channel. Construction activities in the Lake of the Ozarks will require a Missouri State Emergency Management Agency (SEMA) floodplain development permit as well as a permit from Ameren Missouri for the use and occupancy of the utility's Lake of the Ozarks hydroelectric project lands and waters. Concerns relating to these regulatory permits should be expressed at this hearing.

All written comments that are to be included in the public hearing record must be received at the Missouri Dept. of Transportation, P.O. Box 270, Jefferson City, MO 65102, no later than August 8, 2011.



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

www.dnr.mo.gov

August 12, 2011

Mr. David Nichols
Chief Engineer
Missouri Department of Transportation
P.O. Box 270
Jefferson City, Missouri 65102

Re: Draft Environmental Assessment for Missouri Route 5 (Hurricane Deck Bridge),
Camden County, Missouri

Dear Mr. Nichols:

The Missouri Department of Natural Resources (department) appreciates the opportunity to review the Draft Environmental Assessment (DEA) for the Hurricane Deck Bridge Replacement on Missouri Route 5 in Camden County. The department offers the following comments for consideration.

Water Protection

Page 23, Wetlands and Waters of the U.S.: The last sentence in the third paragraph states that 'in general, mitigation for impacts is required as part of the permit if permanent impacts are greater than one-tenth of an acre.' The one-tenth of an acre is Nationwide Permit 14's notification threshold. The values noted in any nationwide permit requirements are either for determination of minimum impact and/or the notification level required with the nationwide permit program versus the project falling under an individual permit. The department has no minimum for determining mitigation. If a project is found to adversely impact water resources, mitigation may be required depending on the type and amount of impact.

Page 24, Wetlands and Waters of the U.S.: Without having a specific location for the construction staging area and an anticipated amount of adverse wetland or stream impact, the department cannot say for certain that no mitigation would be required through the Clean Water Act Section 401 Water Quality Certification (certification). As the project progresses, please keep the department informed.

Mr. David Nichols
August 12, 2011
Page 2

Additional Permit to Note: MoDOT also holds a Municipal Separate Storm Sewer (MS4) permit under MO-R040063, which is not mentioned in the Environmental Assessment. The MS4 permit works in concert with the Land Disturbance Permit to ensure proper site design, Best Management Practices as well as post-construction water quality protection.

Page 24, Navigable Waterways: The DEA does not describe in detail the method to be used in demolishing the old bridge, nor its impacts to the river and its water quality should the preferred alternative be constructed. Given that the bridge was constructed in 1934-1936, the likelihood that lead paint is present is significant, though the threat of lead contamination may have been mitigated during the two most recent rehabilitation projects. At some point during the design / build process, MoDOT should demonstrate that the demolition of the old bridge will not cause water quality violations in the Lake of the Ozarks.

Solid Waste

Best practices in solid waste disposal should be utilized during project construction, particularly when dealing with removal of the construction staging area. These practices should include:

1. No waste may be buried on-site except for certified clean fill. Certified clean fill includes: uncontaminated soil, rock, sand, gravel, asphaltic concrete and unpainted concrete, cinder blocks, and brick. Clean fill must not contain protruding metals or demolition debris. Please note that any material used for clean fill must adhere to the requirements of a 404 Permit and 401 Certification if it is to be placed into the jurisdictional waters of the United States (see below for contact information).
2. All the waste generated from the demolition/construction activities must be recycled, reused or taken for proper disposal at a permitted landfill or transfer station. The waste must not be stockpiled at an alternate site for separation at a later time.
3. Solid wastes encountered during excavation activities must be properly managed.

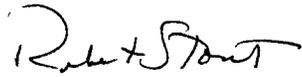
The following technical bulletin would be good to pass along to project contractors: "Managing Construction and Demolition Waste". The bulletin is PUB2045, dated 10/2008 and can be found on the department's web site at <http://dnr.mo.gov/pubs/pub2045.pdf>

We appreciate the opportunity to provide comments for the Draft Environmental Assessment (DEA) for the Hurricane Deck Bridge Replacement on Missouri Route 5, Camden County, Missouri. If you have any questions or need clarification, please contact me or Ms. Jane Beetem, phone number (573) 751-3195. The address for correspondence is Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102. Thank you.

Mr. David Nichols
August 12, 2011
Page 3

Sincerely,

DEPARTMENT OF NATURAL RESOURCES

A handwritten signature in black ink, appearing to read "Robert Stout". The signature is written in a cursive style with a large initial "R" and "S".

Robert Stout
Chief of Policy

RS:bjj

PROGRAMMATIC SECTION 4(f) EVALUATION

HISTORIC BRIDGES

PROJECT NUMBER T5P2188 RTE. 5 COUNTY Camden

SECTION 4(f) RESOURCE Hurricane Deck Bridge (No. K0961)

REVIEWED BY Peggy J. Casey TITLE Program Development Team Leader

APPROVED BY Peggy J. Casey DATE 8/18/11

This project and its impacts have been determined to meet the following criteria for a Programmatic Section 4(f). Sufficient documentation exists in the project file to support this determination. Note: Any response in a bracket requires additional information prior to approval. Consult Programmatic 4(f) Evaluation signed July 5, 1983 by FHWA's Office of Environmental Policy.

APPLICABILITY

- | | Yes | No |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 1. Will the bridge be replaced or rehabilitated with Federal funds? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Will the project require the "use" of an historic bridge which is on or eligible for listing on the National Register of Historic Places? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Will the project impair the historic integrity of the bridge either by demolition or rehabilitation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Has the bridge been determined to be a National Historic Landmark? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

ALTERNATIVES CONSIDERED

- | | | |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|
| 1. The do nothing alternative has been studied and is considered not to be feasible and prudent for reasons of maintenance and safety. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|

- | | Yes | No |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----|
| 2. The building on new location alternative without using the old bridge has been studied and has been determined to be not feasible and prudent for reasons of terrain; and/or adverse social, economic or environmental effects; and/or engineering and economy. | <u>X</u> | [] |
| 3. Rehabilitation of the existing bridge without affecting the historic integrity of the bridge has been studied and has been determined to be not feasible and prudent for reasons of structural deficiency and/or geometrics. | <u>X</u> | [] |
| 4. Relocation of the existing bridge has been studied and found to be not feasible and prudent because either the bridge's historic integrity would be adversely affected or no responsible party could be found to accept responsibility for the bridge. | <u>X</u> | [] |

MEASURES TO MINIMIZE HARM

- | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----|
| 1. For bridges that are to be rehabilitated, the historic integrity of the bridge is preserved, to the greatest extent possible, consistent with unavoidable transportation needs, safety, and load requirements. | <u>NA</u> | [] |
| 2. For bridges that are to be rehabilitated to the point that the historic integrity is affected or that are to be moved or demolished, the FHWA has ensured that fully adequate records are made of the bridge in accordance with the Historic American Engineering Record (HAER) standards, or other suitable means developed through consultation. | <u>NA</u> | [] |
| 3. For bridges that are to be replaced, the existing bridge is made available for an alternative use, provided a responsible party agrees to maintain and preserve the bridge. | <u>X</u> | [] |
| 4. For bridges that are adversely affected the FHWA, SHPO, and ACHP have reached agreement through the Section 106 process on Measures to Minimize Harm and those measures are incorporated in the project. | <u>X</u> | [] |

**MEMORANDUM OF AGREEMENT
FOR MITIGATION OF ADVERSE EFFECTS**

TO HISTORIC PROPERTY: Hurricane Deck Bridge (K0961) on State Route 5 over Lake of the Ozarks in Camden County, Missouri.

UNDERTAKING: Replace the existing bridge with a new structure. Camden County, Route 5, MODOT project J5P2188.

STATE: Missouri.

AGENCY: Federal Highway Administration.

WHEREAS, the Federal Highway Administration (FHWA) has determined that replacement of the Hurricane Deck Bridge (K0961) will have an adverse effect on the bridge, which has been determined eligible for inclusion to the National Register of Historic Places (NRHP), and has consulted with the Missouri State Historic Preservation Office (SHPO) pursuant to the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the FHWA has notified the Advisory Council on Historic Preservation (Council) of its adverse effect determination and the Council has chosen not to participate in this Memorandum of Agreement (MOA); and

WHEREAS, the Missouri Highways and Transportation Commission (MHTC), acting by and through the Missouri Department of Transportation (MODOT), has been invited to participate in the preparation of and be a signatory to this MOA; and

WHEREAS, to the best of the FHWA's knowledge and belief, no human remains, associated or unassociated funerary objects or sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001), are expected to be encountered; and

NOW, THEREFORE, FHWA and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations.

STIPULATIONS

FHWA shall ensure that the following measures are carried out:

1. The MHTC, acting by and through MODOT, shall develop archival documentation to the following specifications:
 - a. 8X10 inch high-resolution black and white digital images printed on archival paper sufficient to fully document overall views and details of the historic bridge. Photographs will be taken and processed according to standards for photographs

accompanying NRHP documentation. Digital compact discs with all views will be provided.

- b. A historic narrative and technical descriptions for the historic bridge.
- c. A copy of the original construction plans for the historic bridge.

The final documentation shall be provided to the SHPO along with archival digital discs containing the TIFF images and report PDF. Additional copies shall be provided to appropriate local historical groups, and retained by MODOT. Bound copies and/or CDs of the final documentation also will be available to others upon request.

- 2. The MHTC, acting by and through MODOT, shall consult with the SHPO to determine the appropriate approach and method for marketing Bridge K0961 as per the Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) Section 123(f). A waiver of advertisement also shall be discussed. The MHTC, acting by and through MODOT; the SHPO; and the FHWA shall agree to the approach and method prior to implementation.

If ownership of the bridge (or a portion thereof) is transferred to another party, the transfer deed may include preservation covenants that require the new owner to move and maintain the bridge in accordance with the “Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitation of Historic Buildings.” The proposed reuse plan and specifications will be forwarded to FHWA for review and approval in consultation with the SHPO; and MHTC, acting by and through MODOT. If no party is found to take possession of the existing bridge, it may be replaced.

- 3. If modifications to the project activities result in an adverse effect to any NRHP eligible archaeological site, the FHWA shall consult with the SHPO and appropriate Indian Tribes to resolve the adverse effects, consistent with guidance provided in 36 CFR § 800.6, through the implementation of an Archaeological Data Recovery Plan(s) developed in accordance with the Council’s “Recommended Approach for Consultation on the Recovery of Significant Information from Archaeological Sites” (64 FR 27085-87 published in the Federal Register on May 18, 1999), the Council’s Handbook on Treatment of Archaeological Properties, and the Secretary of the Interior’s Standards for Archaeological Documentation.
- 4. Within one year after carrying out the terms of the MOA, the FHWA shall provide to all signatories a written report regarding the actions taken to fulfill the terms of the agreement.
- 5. If any signatory proposes that this agreement be amended, the FHWA shall consult with the other parties of this agreement. Said amendment shall be in writing, governed in accordance with 36 CFR 800.6, and executed by all parties to the Memorandum of Agreement.

6. If any signatory determines the terms of the MOA cannot be carried out, the signatories shall consult to seek amendment. If the MOA is not amended, any signatory may terminate it. If the MOA is terminated, the FHWA shall execute a new MOA or request the comments of the Council.
7. Three (3) copies of this signed MOA will be provided, one to each signatory. One (1) signed copy will be transmitted to the Council for inclusion in their files, and one (1) signed copy will be retained by the MODOT Historic Preservation Unit.
8. Failure to carry out the terms of this MOA requires that the FHWA again request the comments of the Council in accordance with 36 CFR Part 800. If FHWA cannot carry out the terms of the agreement, it shall not take or sanction any action or make any irreversible commitment that may affect historic properties until such time as the Council has been given the opportunity to comment on the full range of project alternatives which might avoid or mitigate any adverse effects.
9. This agreement shall commence upon having been signed by the FHWA and SHPO and shall be null and void if its terms are not carried out within five (5) years from the date of its execution, unless the FHWA and SHPO agree in writing to an extension for carrying out its terms.

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Execution of this Memorandum of Agreement, and carrying out its terms, evidences that the FHWA has afforded the Council an opportunity to comment on the replacement of the Hurricane Deck Bridge (K0961) and its effects on historic properties, and that FHWA has taken into account the effects of the project on historic properties, in accordance with Section 106 of the National Historic Preservation Act.

Signed:

FEDERAL HIGHWAY ADMINISTRATION:

By: Raymond J. Casey Date: 8/18/11
Title: Program Development Team Leader

THE MISSOURI STATE HISTORIC PRESERVATION OFFICE:

By: Mark A. Miller Date: 8/17/11
Title: DSHPO

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION:

By: [Signature] Date: 8-11-11
Title: Chief Engineer

Attest:
Dana Kause
Commission Secretary

Approved as to form:
[Signature]
Commission Counsel

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**INFORMATION TO ACCOMPANY
THE
MEMORANDUM OF AGREEMENT
FOR MITIGATION OF ADVERSE EFFECTS**

TO HISTORIC PROPERTY: Hurricane Deck Bridge (K0961) on State Route 5 over Lake of the Ozarks in Camden County, Missouri.

UNDERTAKING: Replace the existing bridge with a new structure. Camden County, Route 5, MODOT project J5P2188.

STATE: Missouri.

AGENCY: Federal Highway Administration.

I. Project Description

The primary purpose of this project is to replace the historic Hurricane Deck Bridge K0961 over Lake of the Ozarks. MODOT rehabilitation project J5P0905 was planned for 2011 and included bridge rehabilitation, repairs, and painting; but was removed from the Statewide Transportation Improvement Program (STIP). MODOT bridge replacement project J5P2188 was then added to the STIP. In-depth inspections revealed the superstructure of the historic bridge is in poor condition, the bridge is nearing the end of its 75-year useful service life, and it does not meet current MODOT standards for shoulder width and vehicular load.

An earlier December 10, 1997 Final Environmental Impact Statement (FEIS) for a 40-mile-long Route 5 improvement was to build a new companion bridge west of the existing historic bridge and use the existing roadway and bridge in place. The current Environmental Assessment (EA) considers the likely demolition of the historic bridge, and examines alternatives within a 600-foot-wide corridor. Since the Hurricane Deck Bridge is eligible for inclusion to the National Register of Historic Places (NRHP), a Programmatic Section 4(f) evaluation will be required, along with an MOA stipulating measures to mitigate the project's "adverse effect" to the historic structure. No other historic resources were identified to be impacted by the project. (Appendices A and C).

II. Public Involvement Summary

An online virtual public meeting was held for the project from February 28 through March 15, 2011. MODOT received written comments from 50 individuals with about 270 visits to the web page. Overall 96% favored replacement of the historic bridge with a new structure while 4% favored using the historic structure in place and doing a rehabilitation. In addition, 12 people were in favor of building an entirely new bridge, 12 people were in favor of the slide options, and 19 people just wanted the crossing structure upgraded, regardless of approach. One private citizen requested additional information about the bridge's condition and the scope of the original rehabilitation project, and the inquiry was treated as a request under the Sunshine Law, and the material was supplied. He also asked about the Section 106 status of the project and later

requested to be a Section 106 consulting party for the project. MODOT and the FHWA discussed his request and agreed to it. MODOT will continue regular press releases to advise the public about the project and historic bridge, and meet with local groups upon request. (Appendix B).

In addition to the continuation of public involvement, and with the review and approval of the Missouri State Historic Preservation Office (SHPO), marketing letters were sent out to regional planning organizations, county commissioners, city halls, chambers of commerce, state and federal agencies, and other groups; with information packets containing location maps, photographs, and historic and structural information for the existing historic Hurricane Deck Bridge K0961. The letters informed the groups that the bridge was determined eligible for the National Register of Historic Places, and that MODOT has proposed to replace it with a new structure. (The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) Section 123(f) states: “prior to the demolition of a historic bridge, the State shall market (sell or donate) the bridge to a state or local government, agency or responsible private entity”). As part of this mitigation process, MODOT has made the steel superstructure of Bridge K0961 (or portions thereof) available for adaptive reuse, to any government or group willing to move, re-erect, maintain, and assume legal and financial responsibility for the structure. (Appendix B).

In January of 2011 tribal governments of the Choctaw Nation of Oklahoma, Delaware Nation of Oklahoma, Ponca Tribe of Nebraska, and Osage Nation of Oklahoma were contacted and provided with project information and an invitation to attend the interagency scoping meeting. These tribes had previously indicated tribal interest in the project area.

The Delaware Nation requested further information on the project, which was later provided to them. They stated that the location of the project does not endanger known sites of interest to the Delaware Nation and that the project may continue as planned. They requested, however, that they and the appropriate state agencies be contacted immediately in the event the project inadvertently uncovers an archaeological site or object(s). Additionally, all construction and ground disturbing activities should be halted until the tribe and state agencies are consulted.

Osage Nation requested additional information and consulting party status in all agreements regarding historic preservation made as a result of the undertaking as well as the opportunity to participate in a one-on-one consultation concerning the project. In April of 2011, FHWA, and MODOT met with representatives of the Osage Nation in Joplin, Missouri, for a one-on-one consultation. The Osage Nation was concerned that previously provided project information indicated possible impacts to a nearby sensitive archaeological site. The Osage Nation was pleased to hear that recent project decisions have eliminated possible impacts to the site. The Osage Nation presented no other objections or concerns with the project and requested an opportunity to visit the project area and archaeological site with tribal representatives. In May of 2011, MODOT staff met with the Osage Nation Tribal staff on-site to review the project and inspect the archaeological site.

After the on-site meeting the Osage Nation made three requests, which MODOT agreed with: 1) the required removal of approximately one to three feet of the existing rock face along Route 5 at

the base of the slope from station 521+50 to station 525+00 will be accomplished from the existing roadway by chipping away the rock face, 2) the construction contract will include a job special provision specifying that no heavy vehicles will be placed on the slope above the existing road cut, and 3) the entire area south and west of the bridge within the project limits will be designated as off-limits to all MODOT contractor activity, equipment, and vehicular or foot traffic during the project activities. (Appendix B).

A public meeting was held on July 28, 2011, at the Sunrise Beach Fire Protection District Headquarters on Porter Mill Spring Road, and a corresponding virtual public meeting was held on line from July 28 through August 8, 2011. About 63 people attended the meeting in person and MODOT received 5 written comments. With 43 visits to the web page over a 12-day period, 3 additional comments were received by email. A total of 12 individual comment points were received and reviewed, and MODOT responses will be documented in the EA (Appendix B).

III. Summary of Previous Work

A major bridge rehabilitation was conducted in 1985 including a new steel grid deck, double tee girders, substructure repairs, and painting. (The deck was last resurfaced in 2006). By March 15, 1993 Clayton Fraser's Missouri Historic Bridge Survey had inventoried the Hurricane Deck Bridge, which had been evaluated eligible for the NRHP in his 1989 Preliminary Determinations of Eligibility study. On May 20, 1996 the Missouri SHPO issued their opinion that the bridge is eligible for listing on the NRHP under Criterion C in the area of Engineering. The Record of Decision (ROD) for the FEIS was issued on December 10, 1997. (The MOA stipulating mitigation measures for the adverse effect to the historic bridge and other historic properties had been signed on September 23, 1996). A Section 106 evaluation for bridge replacement Project J5P2188 was submitted to the SHPO on March 2, 2011, and on March 8, 2011 the SHPO concurred that the Hurricane Deck Bridge is eligible for the NRHP and that the project would have an "adverse effect" on the historic structure. An online virtual public meeting was held for the project from February 28 through March 15, 2011. Beginning on April 21, 2011 the existing historic bridge superstructure was advertised for adaptive reuse at a new location; responses were requested within an eight week period. A public meeting was held on July 28, 2011, at the Sunrise Beach Fire Protection District Office, and a corresponding virtual public meeting was held on line from July 28 through August 8, 2011. (Appendices B and C).

IV. Description of the Historic Property

Hurricane Deck Bridge K0961R over Lake of the Ozarks: Built 1934-35 at a cost of \$650,000, Bridge K0961R is a five-span steel continuous Warren cantilevered deck-truss with two concrete deck-girder approach spans at each end. It measures 2,280 feet long with a roadway width of 28 feet curb-to-curb. The bridge is on the Missouri Historic Bridge List and was determined to be eligible for the National Register of Historic Places as per the opinion of the Missouri State Historic Preservation Office on May 20, 1996: "It is eligible for listing under Criterion C in the Area of Significance ENGINEERING to wit: It is an impressive multiple-arched, cantilevered bridge built to span the Lake of the Ozarks."---"The bridge received the 1936 American Institute

of Steel Construction's Most Beautiful Bridge Award. Along with its beauty and attractiveness of setting, the bridge is an outstanding long-span example of a bridge-type uncommon in Missouri." Constructed by the W.A. Ross Construction Company and the Stupp Brothers Bridge and Iron Company, the Hurricane Deck Bridge is the last of its kind in the State, and one of only three steel deck-truss bridges built at Lake of the Ozarks. The other two, the Grand Glaize Bridge (J0832) and the Niangua Arm Bridge (K0510A) have been replaced with new structures. All build alternatives and variations considered in the EA will result in the removal/demolition of the Hurricane Deck Bridge, and will have an "adverse effect" on the historic structure. Additional structural and historical information is in Appendices C and D.

V. Adverse Effect on the Historic Property

This project will result in replacing the existing Hurricane Deck Bridge with a new crossing structure. The bridge is eligible for the NRHP, and this action constitutes an "adverse effect" to the structure as described in 36 CFR 800.3 (b) (1) (4) of the National Historic Preservation Act.

VI Summary of Alternative Courses of Action

The alternatives initially considered included a No-Build (rehabilitation) alternative, an Existing Location build alternative with four variations, and an Adjacent East Location build alternative. The 1997 ROD-selected Adjacent West Location build alternative (\$26 million estimated cost) was also still under consideration. However as the current EA was being developed, it was determined that two of the four variations, and the Adjacent West Location build alternative could result in adverse impacts on two archaeological sites. Therefore these options will not be further evaluated and are dropped from consideration.

Three alternative courses of action are retained for this project. These include the No-Build (rehabilitation) alternative, the Existing Location build alternative with two variations, and the Adjacent East Location build alternative. These will be evaluated in detail in the EA.

The **No-Build (rehabilitation)** alternative (\$6 million estimated cost) would continue the original plan for rehabilitation and extend the bridge's service life to an additional ten years. It would replace the railing, strengthen truss members and supports, replace damaged members, and repaint the entire bridge. This would not include any new, major construction. This alternative would retain the existing historic bridge and not alter the bridge's narrow width. After rehabilitation, no other improvements would occur beyond normal bridge maintenance. Because of the age and condition of the existing bridge, rehabilitation and routine maintenance are very costly and only serve as a short-term solution. Also, the need for tighter weight restrictions would be likely within 10 years of the rehabilitation, and the bridge could require closure within 20 years.

This alternative would retain the existing historic bridge and have no significant environmental impacts, but would not correct existing deficiencies or meet MODOT's current standards for vehicular load. It would not meet today's national standard for requiring full-width shoulders on

bridges of over 1000 feet in length so that disabled vehicles do not block the flow of traffic, and it would not allow for the addition of a protective barrier to accommodate bicyclists and pedestrians. Costs would increase as the deterioration of major elements reach critical levels and cause more frequent impacts to the traveling public.

The No-Build (rehabilitation) alternative does not meet the project needs or address existing deficiencies. It will be retained in the EA as a baseline for evaluation of the other alternatives.

The **Existing Location** build alternative (\$23 million estimated cost) would provide a new bridge where the existing historic bridge is now located. Two variations are being considered. Temporary pilings would be erected east of the existing bridge. Then either the historic bridge would be slid laterally 35 feet onto the pilings to carry traffic while a new bridge is built on the existing bridge piers, or the new bridge would be constructed on the pilings while traffic is maintained on the existing bridge. In the first case, the historic bridge would be demolished once the new bridge is opened to traffic. In the second case, the historic bridge would be removed when the new bridge is finished, and the new bridge would then be slid onto the existing piers and connected to the reconstructed approaches. Weekend closures would be needed to slide bridge structures, and a temporary Route 5 bypass would be constructed on the north and south ends of the temporary detour structure.

This alternative would satisfy the project purpose and need, reuse some existing infrastructure to minimize environmental impacts, and disrupt Route 5 traffic only minimally during construction. The expected service life of the crossing structure would be increased to 75 years. It would allow for the addition of protective barriers to accommodate bicycles and pedestrians, but would remove the existing historic bridge superstructure.

The **Adjacent East Location** build alternative (\$25 million estimated cost) would replace the existing historic bridge with a new two-lane bridge approximately 51 feet east of the current location (centerline to centerline; 15 feet from inside edge of existing bridge to inside edge of new bridge). When the new structure is ready to tie into the existing roadway, the historic bridge would be demolished. The new bridge would be roughly the same length as the existing bridge, and have nine piers plus two end bents.

This alternative would satisfy the project purpose and need, disrupt Route 5 traffic only minimally during construction, and could increase the service life of the crossing to 100 years. It would allow for the addition of a protective barrier for bicycles and pedestrians, but would remove the existing historic bridge.

Conclusions: Both proposed build alternatives would maintain a direct Route 5 connection across the Lake of the Ozarks during construction. Because the Existing Location alternative and the Adjacent East Location alternative would use different structural systems, the Existing Location would cost about \$2 million less than the Adjacent East Location, and would require very little new right of way acquisition.

MODOT has designated the Existing Location alternative as the Preferred Alternative to solve problems associated with the Route 5 Hurricane Deck Bridge. The Preferred Alternative would

replace the existing deficient bridge with a new two-lane bridge in the same location. This alternative would maintain traffic on the existing bridge during construction, construct the new bridge on temporary pilings next to the existing historic bridge, remove the structure, and slide the new bridge onto the existing piers. The Preferred Alternative was identified through public and agency involvement along with assessment of socioeconomic and environmental consequences. The selected alternative will not be finalized until comments from resource agencies and the public are fully evaluated and addressed.

Removal of the historic bridge will be accompanied by mitigation of the adverse effect to the historic bridge with data recovery, through photographic and historical documentation as determined in consultation with the Missouri SHPO and FHWA. Also, the bridge will be marketed and advertised as available for adaptive reuse at a new location. This mitigation will be initiated well in advance of the commencement of construction activities.

VII. Proposed Action

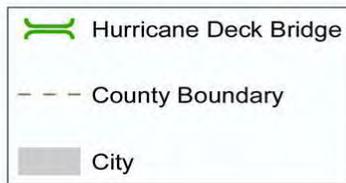
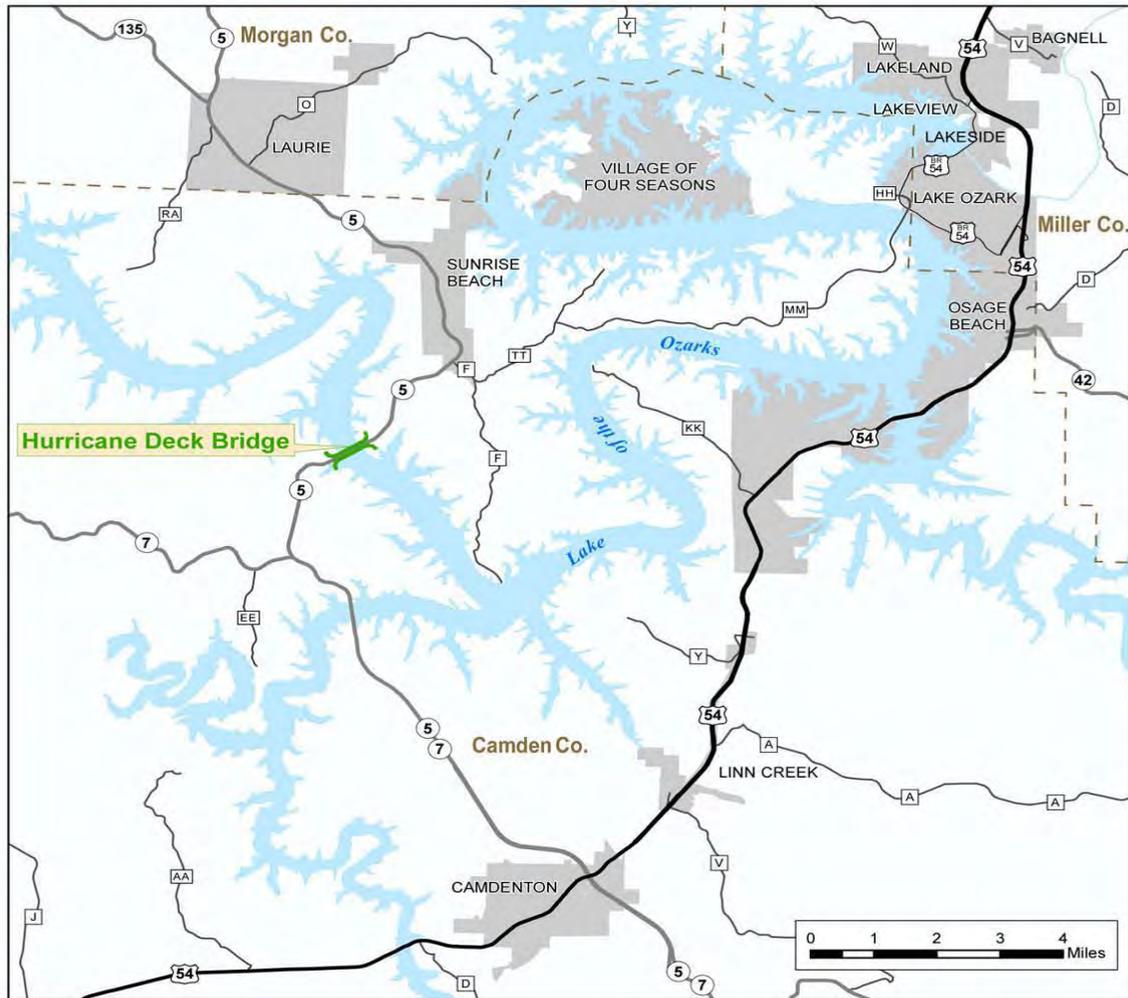
The proposed actions for the archival documentation and marketing for reuse of the historic Hurricane Deck Bridge (K0961), and proposed actions if modifications to project activities result in an adverse effect to any NRHP eligible archaeological site, are listed in the Stipulations of the Memorandum of Agreement, which this document accompanies.

VIII. List of Appendices

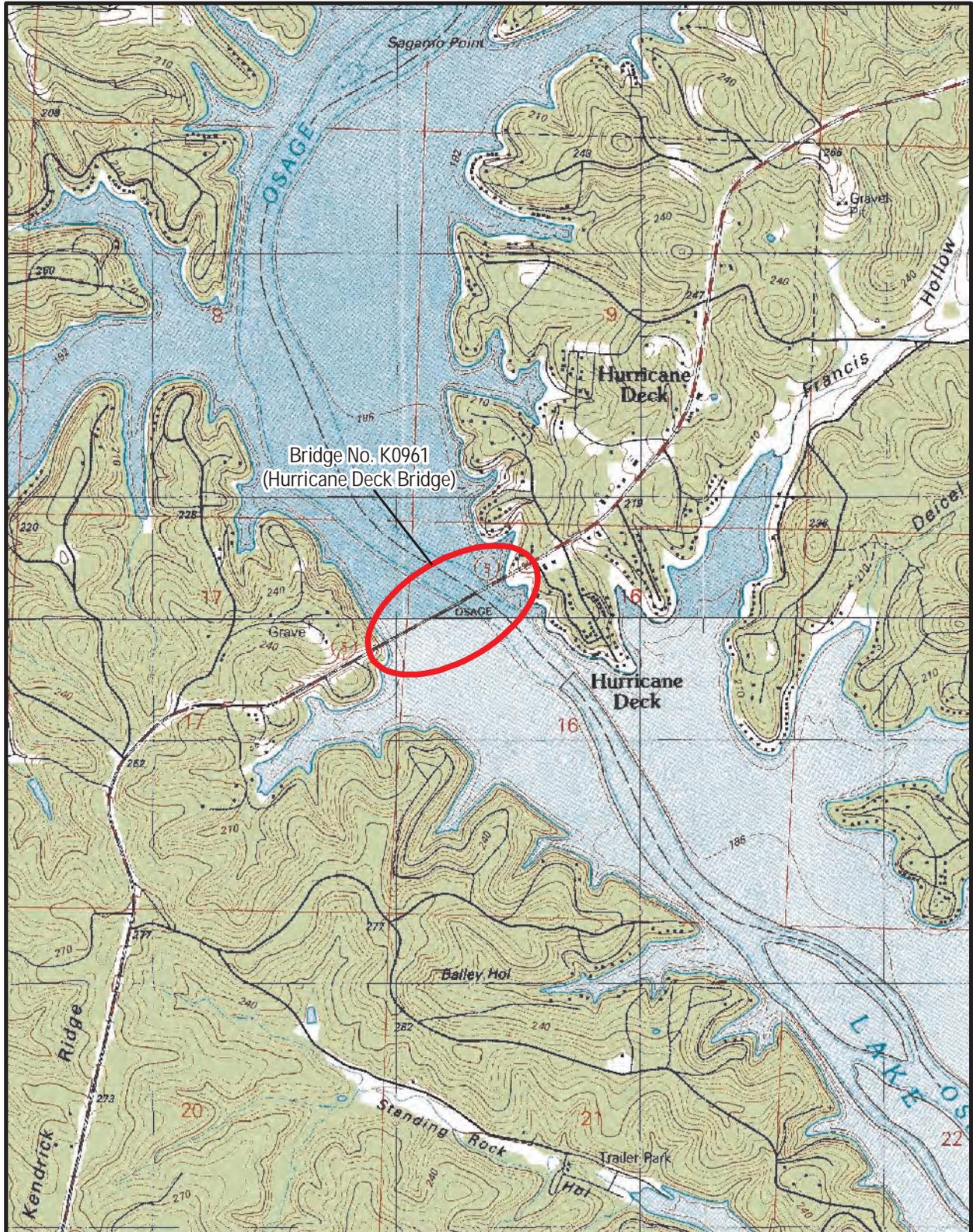
- A. Location Maps for the Hurricane Deck Bridge.
- B. Public Involvement.
- C. Correspondence and Coordination.
- D. Photographs of the Hurricane Deck Bridge.

Appendix A
Location Maps for the Hurricane Deck Bridge.

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Missouri Route 5 Hurricane Deck Bridge Location



Adapted from U.S.G.S.
 Sunrise Beach 1983 &
 Green Bay Terrace 1983
 Missouri 7.5' Quadrangles



Camden County
Route 5
MoDOT Job No. J5P2188
Bridge No. K0961

Appendix B
Public Involvement.

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Route 5 Bridge at Hurricane Deck



The project is within the known breeding range of the federally endangered Indiana bat (*Myotis sodalis*). MoDOT will implement provisions to avoid impacts to this species.

Historic Hurricane Deck Bridge No. K0961R:

Replacement of the Route 5 Bridge over Lake of the Ozarks at Hurricane Deck in Camden County, Missouri will have an "adverse effect" on the existing bridge, which is eligible for the National Register of Historic Places (NRHP).

Built 1934-35, Bridge K0961R is a five-span steel continuous cantilevered Warren deck-truss with two concrete deck-girder approach spans at each end. It measures 2,280 feet long with a roadway width of 28 feet. The bridge received the 1936 American Institute of Steel Construction's Most Beautiful Bridge Award. The Hurricane Deck Bridge is the last of its kind in the State, being one of only three of that type built in Missouri.

Mitigation of the "adverse effect" will be undertaken as stipulated in a Memorandum of Agreement signed by two State and two Federal Agencies:

- Documentation: Archival photographs and historical documentation will be prepared for curation at the James C. Kirkpatrick State Information Center in Jefferson City.
- Advertisement for Adaptive Reuse: The bridge superstructure will be offered to potential recipients who must agree to accept title, preserve the bridge and features which make it historic, and assume all legal and financial responsibility.
- Additional Measures will be discussed in consultation with the State and Federal agencies, and other interested parties.



Historic Hurricane Deck Bridge (K0961R) Information:

Replacement of the Route 5 Bridge over Lake of the Ozarks at Hurricane Deck in Camden County, Missouri will have an "adverse effect" on the existing bridge, which is eligible for the National Register of Historic Places (NRHP).

Built in 1934-35, Bridge K0961R is a five-span steel continuous cantilevered Warren deck-truss with two concrete deck-girder approach spans at each end. It measures 2,280 feet long with a roadway width of 28 feet curb-to-curb. The bridge is on the Missouri Historic Bridge List and was determined to be eligible for the NRHP as per the opinion of the Missouri State Historic Preservation Office on May 20, 1996: "It is eligible for listing under Criterion C in the Area of Significance ENGINEERING to wit: It is an impressive multiple-arched, cantilevered bridge built to span the Lake of the Ozarks. Completed in 1935, it was designed by Sverdrup & Parcel Consulting Engineers of St. Louis. The bridge received the 1936 American Institute of Steel Construction's Most Beautiful Bridge Award. Along with its beauty and attractiveness of setting, the bridge is an outstanding long-span example of a bridge-type uncommon in Missouri." The Hurricane Deck Bridge is the last of its kind in the State, being one of only three steel Warren cantilevered deck-truss bridges built in Missouri. The other two, the Grand Glaize Bridge (J0832) and the Niangua Arm Bridge (K0510A) have been replaced with new structures. All proposed build alternatives will have an "adverse effect" on the historic structure.



The "adverse effect" to the historic bridge will require a two-party MOA for mitigation in the form of archival photographs and historic documentation to be submitted to the State Historic Preservation Office (SHPO) for curation. The bridge also will be advertised for adaptive reuse at a new location, and the Federal Highway Administration (FHWA) will be asked to approve a Programmatic Section 4(f) Evaluation for the project. Additional mitigation measures will be discussed in consultation with the SHPO and FHWA.

Contact:

- Nicole Hood at 573-526-6997 or nicole.hood@modot.mo.gov for project information
- Randy Dawdy at 573-526-3591 or randall.dawdy@modot.mo.gov for historic bridge information

Bridge History



In addressing historic bridges in Missouri, the term "bridges" collectively refers to both public and privately owned highway, railroad, and pedestrian bridges, viaducts, and culverts. Historic bridges are listed on or eligible for listing on the National Register of Historic Places (NRHP). MoDOT is responsible for identifying and managing historic bridges associated with highway projects.

Unlike most other types of cultural resources in Missouri, historic bridges have been inventoried and evaluated statewide. The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) directed all states to inventory their historic bridges. There are about 24,000 bridges in the State (State, County, and City bridges). The 1996 [Missouri Historic Bridge Inventory](#) survey evaluated approximately 11,000 of them, which were built before 1951. Of these, 399 were considered possibly eligible, eligible, or listed on the NRHP. This list, with some modifications, became the [Missouri Historic Bridge List \(MHB List\)](#). It contains about 25 different types of structures including various metal pony trusses and through trusses, wooden trusses, concrete arches and rigid frames, stone arches, and so forth. All were built from 1858 to 1954.

Bridges not on the MHB List are evaluated for eligibility to the [National Register of Historic Places](#), in consultation with the [State Historic](#)

[Preservation Office \(SHPO\)](#). A project can have "no effect", "no adverse effect" or an "adverse effect" on a historic bridge.

An adverse effect occurs when a project would harm a historic bridge's ability to convey its historic significance. Examples of adverse effects include demolition, removal from the original location, removal or alteration of original bridge parts, and introduction of new elements that diminish the bridge's significant historic features.

If a project will have an adverse effect on an historic bridge, efforts are made to minimize the effects through redesign of the project. If an adverse effect cannot be avoided a Memorandum of Agreement is negotiated outlining measures to mitigate the effects of the project on the resource.

Mitigation typically includes archival photographs, and preparation of a thorough history and detailed written description, which are then archived at the state or national level depending upon the range of significance. Mitigation also may include marketing and advertisement for adaptive reuse at the existing location or at a new location, dismantling and storing the bridge for future use on another site, or salvaging important historical components of the bridge for reuse as educational or interpretive materials, or reusing salvaged components on other similar historic bridges in need of rehabilitation. An article in MoDOT's Spring 2002 issue of *Pathways* magazine, "[For a Free Bridge Call MoDOT](#)" describes how historic bridges can be given a new function.

General information can be found at the [Historic Bridges of the Midwest](#) website and at [A Context for Common Historic Bridge Types](#). Additional information is provided in the MoDOT brochure, *Historic Bridges and Transportation Projects in Missouri*. It is also available in a [print version](#) for downloading.



[HOME](#) >> [CENTRAL](#) >> [HURRICANE DECK COMMENTS](#)



Tell Us What You Think!

**Route 5 Hurricane Deck Bridge Replacement
Online Public Meeting
Feb. 28 - March 15, 2011**

Your input is important! Please tell us what you think about the need to replace the Hurricane Deck Bridge, the possible location of a new bridge, and its significance as a historic structure. Your feedback is important to us and will be reviewed by the project team and incorporated into the project record.

**Fields must be completed to submit comments.*

* Name:

* Address:

City: State:

Zip code:

Phone Number:

Email Address:

Comments:

Date: 03/16/2011 10:10 AM

Subject: Summary of Comments from Hurricane Deck On-line Meeting

Attached is an excel spreadsheet with a summary of comments from the on-line meeting. We received written comments from 50 individuals and had an average of 269 people visit the web page. The bar chart is a compilation of the overall various comments, for instance, one written comment may have said to replace the bridge, but they also commented about the historical significance and minimizing disruption to traffic so all of their individual comments were captured on the bar chart.

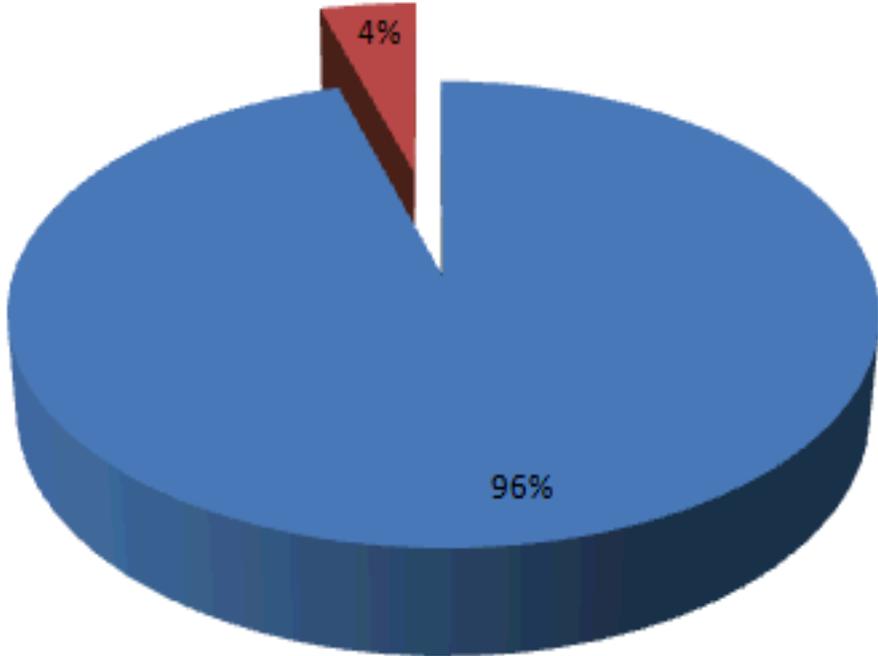
Overall, 96% favored a replacement while 4% were in favor of saving the historic structure and doing a rehab. 12 people said build an entirely new bridge and 12 said do the slide option. 19 said just do it, regardless of approach.

Let me know if you have questions. Thanks.

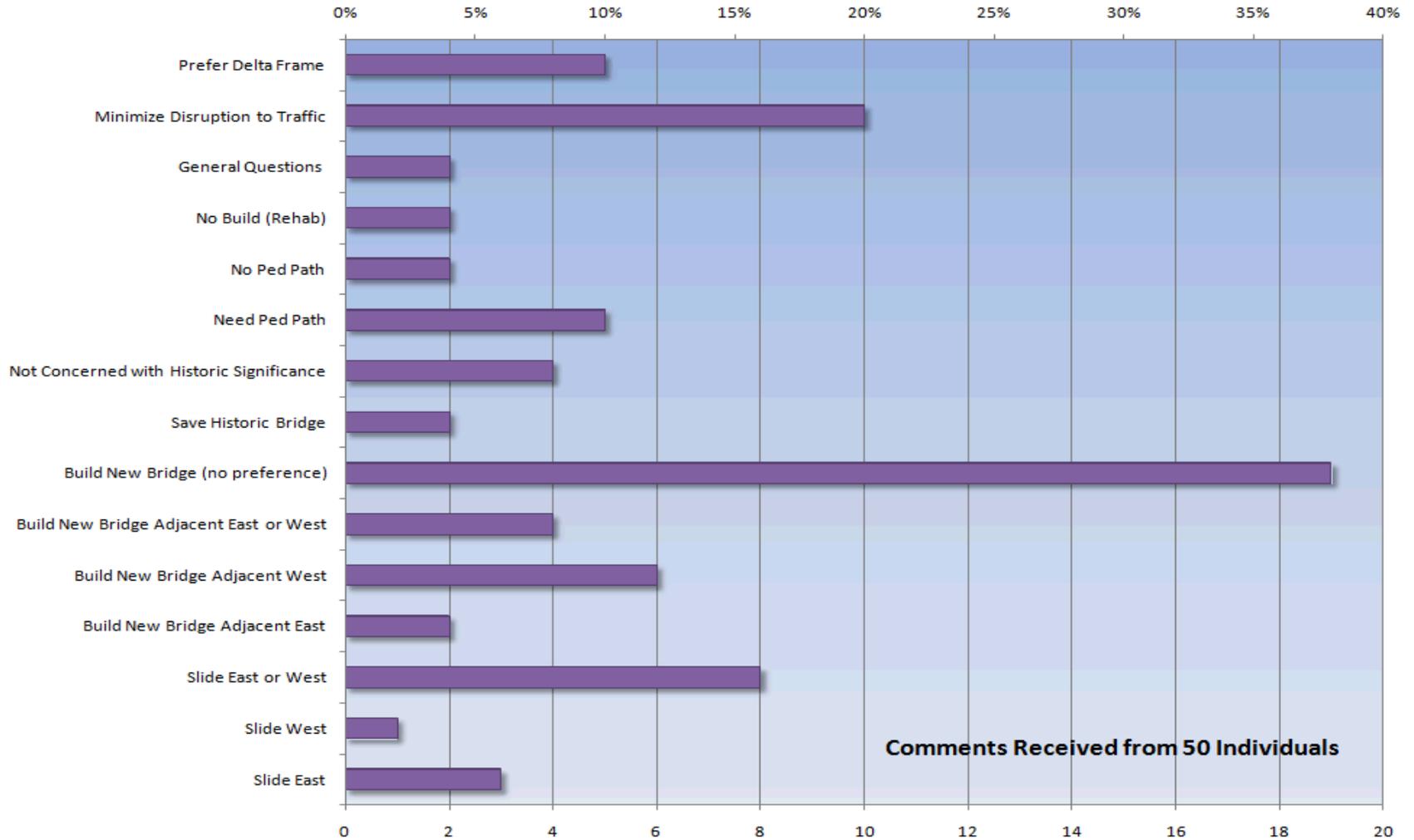
Hurricane Deck Bridge Project

Summary of Feedback from On-line Meeting Comments

■ Replace Bridge ■ Rehab



Hurricane Deck On-line Public Meeting Comments February 28, 2011 thru March 15, 2011



Private Citizen:

Mr. Nathan Holth e-mailed a request for some additional information about the bridge's condition and the scope of the rehabilitation project that was originally proposed. This inquiry was treated as a request under the Open Meetings and Records Law, commonly known as the Sunshine Law, and the requested material was supplied. Mr. Holth also asked whether Section 106 has been conducted for this project yet and stated an "assumption that canceling" the plan to rehabilitate this bridge "and considering a replacement project would trigger a Section 106 process." The Section 106 process has been initiated and is in progress. However, MoDOT would like to clarify that the rehabilitation would also trigger Section 106 and would require concurrence on a determination of effect from the State Historic Preservation Office.

Mr. Holth submitted comments in an April 26, 2011, letter and e-mail and also requested to be a Section 106 consulting party for the project. On May 3, Mr. Holth was notified by e-mail that MoDOT and the FHWA had discussed his request for Section 106 consulting party status on the Hurricane Deck Bridge project and agreed to it. The e-mail briefly outlined the responsibilities of both parties (MoDOT and Mr. Holth) relating to the Section 106 process and offered the possibility of remote participation via telephone should Mr. Holth be unable to attend future meetings in person because he does not live in Missouri.

Mr. Holth stated that he is a private citizen not affiliated with any organization or agency and is neither an engineer nor a certified bridge inspector. He acknowledged a bias toward preserving historic bridges and indicated that although he might be critical of decisions made by MoDOT or other involved parties, his intent is not to offend, alienate, or accuse but to help MoDOT and other parties develop the best possible solution for the bridge. Mr. Holth thanked MoDOT staff for providing him the project information needed to submit his detailed comments as well as for accepting the comments after the due date, enabling a thorough review of the information provided.

Mr. Holth voiced his opinion that a cost-effective rehabilitation of the Hurricane Deck Bridge could be designed that, combined with proper routine maintenance and repair following rehabilitation, would also provide 50—75 years of service life. He believes the superstructure's rating of poor indicates "a structure for which a well-designed comprehensive rehabilitation would likely be feasible and probably cost significantly less than replacement."

The 2010 bridge inspection report described heavy pack rust on the floorbeams, listing the section loss as minor. Mr. Holth mentions methods for removing pack rust and notes that if removing the pack rust from the floorbeams did not solve the problem, "the floorbeams could be replaced while undoubtedly retaining a no adverse effect finding on the historic bridge." He questions whether rehabilitation is even needed for the upper deck truss members, which were in generally good condition with little to no deterioration evident at the 2010 in-depth inspection. Mr. Holth suggested that a simple coat of paint may be all that is needed in this area, with significant pack rust and cracking of some of the lateral bracing being the only concern for this part of the structure. He further noted "These small and minor members could be replaced with new ones, again likely with no adverse effect on the historic bridge."

Mr. Holth concludes that the conditions described in the bridge inspection report "seem to indicate ... no severe problems with the bridge. Indeed, the fact that the lowest rating on the bridge is 4 (Poor) rather than something lower like 3(Serious) or 2(Critical), may confirm this in a broad sense." He states that rather than comparing a short-term solution (minor rehabilitation project) to a long-term solution (demolition and bridge replacement), a "comprehensive rehabilitation" alternative to bring the bridge from its deteriorated state to a like-new state would be the appropriate comparison. Although Mr. Holth acknowledged that a rehabilitation to like-new condition—with extensive repairs to the superstructure, including correcting the section loss on the trusses—would cost much more than MoDOT's original proposed rehabilitation, he asserted that it should still cost considerably less than a replacement bridge, "if designed by an engineer with extensive experience in historic bridge rehabilitation."

Mr. Holth considers a statement in the bridge inspection report—"This bridge has a similar design to that of the I-35 structure in Minneapolis, making it one that should merit special consideration for replacement

in the future and a priority for the district”—misleading and potentially false. He said that he was “...very taken aback by seeing people who work with bridges on a daily basis make these same sort of misleading and even false statements about the I-35W Bridge” and concludes that because the bridge has not been closed to traffic, it “does not have the problem that I-35W did and that its gusset plates are the correct size.” (After its collapse, an error in the I-35 bridge’s design was found to have sized gusset plates incorrectly.) While acknowledging “that there are some very generalized similarities between the I-35W Bridge and the Hurricane Deck Bridge,” Mr. Holth said he could “point to numerous fracture critical truss bridges with gusset plates which have faithfully and safely carried vehicles for over a century, and I can further provide examples of bridges of this type which have been rehabilitated for continued use.” He stated that although both bridges were designed by the same engineering firm, the specific design and composition of the Hurricane Deck trusses are different, it was built in a completely different time period, and other Sverdrup and Parcel designed bridges continue to safely carry traffic in Missouri and other states. He voiced his concern “that this comparison did in fact play a role in deciding to replace this bridge, and I do not believe that is the best way in which to determine the appropriate project for this crossing. Doing so would put the need for frugal spending of taxpayer dollars and the need to consider the preservation of this historic bridge at an unfair disadvantage.”

In regard to Section 106 consultation conducted during preparation of the 1997 FEIS that proposed building a new bridge next to the existing bridge to provide additional travel lanes, Mr. Holth disputes the 1996 SHPO concurrence of an adverse effect from obscuring the view of the historic structure by incompatible new construction and “would argue instead that such a solution would avoid adverse effect because it would prevent the demolition of the historic bridge, and would also rehabilitate the historic bridge.”

In conclusion Mr. Holth recommended “that MoDOT reconsider the alternatives for this project, with the addition of a comprehensive rehabilitation, all the while without making any comparisons between the Hurricane Deck Bridge and the I-35W Bridge” to “ensure that the final decision made for this bridge is based on balanced and factual information.” He urged the use of an engineer with “a significant portfolio of experience in designing successful historic truss bridge rehabilitation projects” to design preliminary plans for a more extensive and comprehensive rehabilitation to be compared with the replacement alternative. Mr. Holth offered to assist MoDOT in finding a good engineer for the project because “an inexperienced engineer may produce a rehabilitation project that costs more while at the same time producing a final bridge product that will not offer the best possible service life. In contrast, an engineer who has worked extensively with successful historic bridge rehabilitation projects can often design a rehabilitation that costs less than replacement, yet will provide decades of service life.”

MoDOT engineers’ response to Mr. Holth’s comments follows:

The structurally deficient Route 5 bridge was built more than 75 years ago and is near or at the end of its useful service life. It certainly has served motorists very well for many years; however, the age and condition of the bridge creates an ongoing need for maintenance, resulting in substantial expense to taxpayers and great inconvenience for the traveling public.

A “3” or “4” condition rating means a bridge has significant problems, whereas a “2” is only issued for a bridge that needs immediate closure. On the Hurricane Deck bridge, a condition rating of “4” is assigned to the superstructure, which is the entire truss.

MoDOT originally programmed a project to do a limited rehabilitation of this bridge with the intent to extend the life of the bridge by about 10 years. The scope of the rehabilitation project did not include any deck work. It mainly included making multiple structural repairs, replacing some rivets with high-strength bolts and painting the structure. Many areas of the truss have severe pack rust and section loss. From MoDOT’s experience on multiple truss bridges from this era, we have found that you can clean and paint all you want; however, the rust will keep coming back and the bridge will continue to corrode requiring an additional rehabilitation project in about 10 years. Every time you remove pack rust and repaint it, the next coat of paint lasts half as long as the previous one.

MoDOT did not pursue a rehabilitation with a 50- to 75-year life expectancy for the following reasons:

- The truss structure restricts the roadway to a narrow, 28-foot width and it cannot be widened to accommodate the desired 38-foot roadway
- The rail is substandard
- The bridge cannot be used by overweight or superload trucks
- Bicyclists and pedestrians cannot be accommodated should the need develop
- Replacing the structure is more cost effective, based on both up-front and life-cycle costs

The Hurricane Deck Bridge is very similar in design to the I-35W Bridge that collapsed in Minneapolis in 2007. Both are/were fracture critical, deck truss bridges with spans of about 500 feet. MoDOT is keenly aware that a design error on a gusset plate is what led to the collapse of the I-35W Bridge. We have checked the design of the gusset plates on the Hurricane Deck Bridge and found that they met the design standards for the time period when the bridge was built. The gusset plates are under-designed for today's heavier trucks but the bridge is not in danger of imminent collapse. The fact that the same firm designed both bridges had nothing at all to do with MoDOT's determination that replacing the bridge would be the best use of transportation dollars.

Missouri
Department
of Transportation



Kevin Keith, Director

105 West Capitol Avenue
P.O. Box 270
Jefferson City, MO 65102
(573) 751-2551
Fax (573) 751-6555
www.modot.org

April 21, 2011

Address-

To whom it may concern:

Subject: Design
Route 5, Camden County
MoDOT Job No. J5P2188, Hurricane Deck Bridge No. K0961
Bridge Replacement over Lake of the Ozarks
Availability of Bridge for Adaptive Reuse

The Missouri Highway and Transportation Department is planning to replace the Hurricane Deck Bridge K0961 with a new structure on Route 5 over the Lake of the Ozarks. The bridge is eligible for the National Register of Historic Places, and replacement of the superstructure will have an "adverse effect" on the historic property. The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) Section 123(f) states: "prior to the demolition of a historic bridge, the State shall market (sell or donate) the bridge to a state or local government, agency, or responsible private entity." As part of this mitigation process, MoDOT will make Bridge K0961 available for adaptive reuse at a new location, to anyone willing to move, re-erect, maintain, and assume financial and legal responsibility for the structure. Funds in amounts up to the estimated cost of standard demolition may be available for bridge preservation. Bridge information is attached.

If you are interested in acquiring this bridge, please respond with a letter of interest by June 17, 2011. If you have questions or require additional information, please contact Randall Dawdy, at: 573-526-3591, or email at: randall.dawdy@modot.mo.gov. Thank you.

Sincerely,

Robert L. Reeder
Historic Preservation Manager

rd

Copies: Ms. Sara Parker Pauley-MDNR
Ms. Peggy Casey-FHWA
Mr. Dennis Heckman-br
Mr. Tim Redmond-de
Mr. Roger Schwartz-5ao
Ms. Kristin Gerber-5cr

HURRICANE DECK BRIDGE MAILING LIST, Camden, Rte 5, J5P2188

Camden County Commission	313 Court Circle	Camden, MO 65020
Miller County Commission	2001 Highway 52	Tuscumbia, MO 65082
Morgan County Commission	100 East Newton Street #21	Versailles, MO 65084-1221
Benton County Courthouse	P.O. Box 1238	Warsaw, MO 65355
County of Hickory Commission	West Dallas Street	Hermitage, MO 65668
Dallas County Commission	102 South Cedar Street	Buffalo, MO 65622
Laclede County Commission	200 North Adams Avenue	Lebanon, MO 65536-3046
Pulaski County Commission	301 Historic Route 66 East #202	Waynesville, MO 65583-2600
Lake Area Chamber of Commerce	#1 Willmore Lane	Lake Ozark, MO 65049
Eldon Chamber of Commerce	203 East First Street	Eldon, MO 65026
Camden Area Chamber of Commerce	739 West US Highway 54	Camdenton, MO 65020-6951
Versailles Area Chamber of Commerce	P.O. Box 256	Versailles, MO 65084
Osage Beach Chamber of Commerce	1000 City Parkway	Osage Beach, MO 65065
Sunrise Beach Chamber of Commerce	Lake Road 535	Sunrise Beach, MO 65079
Miller County Museum	2005 Highway 52	Tuscumbia, MO 65082
Pulaski County Library	306 Historic Route 66 West	Waynesville, MO 65583-2113
Laclede County Historical Society	P.O. Box 1341	Lebanon, MO 65536-1341
Morgan County Historical Society	118 North Monroe Street	Versailles, MO 65084
Benton County Historical Society	P.O. Box 1082	Warsaw, MO 65355
Camden County Historical Society	206 South Locust Street	Linn Creek, MO 65052
Dallas County Historical Society	P.O. Box 594	Buffalo, MO 65622
Hickory County Historical Society	P.O. Box 248	Hermitage, MO 65668
City of Eldon	101 South Oak Street	Eldon, MO 65026
Lake Ozark City Hall	2426 Bagnell Dam Boulevard	Lake Ozark, MO 65049
City of Camdenton	437 West Highway 54	Camdenton, MO 65020
Village of Four Seasons	133 Cherokee Road	Lake Ozark, MO 65049-5000
Versailles City Hall	104 North Fisher Street	Versailles, MO 65084-1296
Laurie City Hall	724 North Main Street	Gravois Mills, MO 65037-6146
City of Sunrise Beach: City Hall	16537 North Highway 5	Sunrise Beach, MO 65079-6769
Linn Creek City Hall	102 East Valley Drive	Linn Creek, MO 65052
Lake of the Ozarks Council of Local Governments	P.O. Box 786	Camdenton, MO 65020
U.S. Army Corps of Engineers, Truman Regulatory Satellite Office	15837 Truman Road	Warsaw, MO 65355
Mr. William Bryan, Director Division of State Parks	Missouri Department of Natural Resources	P.O. Box 176, Jefferson City, MO 65101
Lake of the Ozarks State Park	403 Highway 134	Kaiser, MO 65047
Bennett Spring State Park	26250 Highway 64A	Lebanon, MO 65536-6797

Historic Bridge Available for Adaptive Reuse:



Hurricane Deck Bridge (K0961R), Camden County, Missouri

The Historic Hurricane Deck Bridge (K0961R) carrying Route 5 over Lake of the Ozarks in central Missouri will be available for adaptive reuse at a new location later this year. It is being offered to potential recipients who must agree to move the structure, preserve the bridge and features which make it historic, and assume all legal and financial responsibilities. If the bridge (or parts thereof) is transferred to another party, deed covenants may require the new owner to re-erect and maintain the bridge in accordance with established standards for historic bridges. **Description:** Built 1934-35, Bridge K0961R is a five-span steel continuous cantilevered Warren deck-truss with two concrete deck-girder approach spans at each end. It measures 2,280 feet long with a roadway width of 28 feet. The bridge received the 1936 American Institute of Steel Construction's Most Beautiful Bridge Award. The Hurricane Deck Bridge is the last of its kind in the State, being one of only three of that type built in Missouri.

Contact:

- Nicole Hood at 573-526-6997 or nicole.hood@modot.mo.gov for project information
- Randy Dawdy at 573-526-3591 or randall.dawdy@modot.mo.gov for historic information

Tribal Consultation:

Tribal governments of the Choctaw Nation of Oklahoma, Delaware Nation of Oklahoma, Ponca Tribe of Nebraska, and Osage Nation of Oklahoma were contacted in January 2011 and provided with project information packets, additional information relating to site 23CM40, and an invitation to attend the interagency scoping meeting. These tribes had each previously indicated tribal interest in the project area.

The Delaware Nation requested further information on the project in a February 16, 2011, e-mail. A CD containing the 1993 Phase I Survey Report for the Route 5 Corridor EIS (MoDOT Project No. J5P0694; Camden, Laclede and Morgan Counties, Missouri), the 1994 Phase II testing of sites, and MoDOT's 2011 Section 106 submittal to the SHPO was sent. A subsequent Delaware Nation response dated April 28, 2011, iterated the Nation's commitment to protecting sites important to tribal heritage, culture, and religion, particularly archaeological sites that may contain human burials, remains, and associated funerary objects. The response also stated that the location of the project does not endanger known sites of interest to the Delaware Nation and may continue as planned. The Delaware Nation requested, however, that the appropriate state agencies be contacted immediately as well as the Nation itself (within 24 hours) in the event the project inadvertently uncovers an archaeological site or object(s). Additionally, all construction and ground disturbing activities should be halted until the tribe and state agencies are consulted.

The Osage Nation responded to the scoping meeting invitation by e-mail and hard copy dated March 1, 2011. In response to the invitation statement that the alternatives being considered would not impact any known sites, the Osage Nation pointed out that they were not consulted regarding the potential impact that the proposed project may have upon either the known or unknown locations in the project vicinity. The Osage Nation requested "...consulting party status in all agreements regarding historic preservation made as a result of this undertaking" as well as "... an opportunity to participate in a one-on-one consultation concerning the referenced project." They further requested "...copies of all documents related to the undertaking including... Cultural Resource Surveys." The Nation additionally expressed a belief that MoDOT "was aware of the date of the meeting long before the Osage Nation was notified" and stated a need for earlier notification of such meetings as their office is generally unable to travel with such short notice.

MoDOT replied to the Osage Nation by letter of March 4, 2011, enclosing a CD with the requested documents. MoDOT refuted the belief that the agency was aware of the meeting date long before informing the Osage Nation, noting that scoping meeting invitations were sent to the Osage Nation and all regulatory agencies within a few days of the meeting date selection. Additionally, MoDOT pointed out that had the Osage Nation advised MoDOT or FHWA of their inability to attend the scoping meeting, arrangements could have been made for tribal representatives to participate at least remotely via teleconference or videoconference. The letter further stated that MoDOT and FHWA are still soliciting tribal input regarding this project and welcome participation by the Osage Nation. Tribal representatives are welcome to visit the project area and may also submit comments via the on-line, virtual public meeting.

On April 26, 2011, Peggy Casey, FHWA, and Bob Reeder, MoDOT Historic Preservation Section, met with representatives of the Osage Nation in Joplin, Missouri, for one-on-one consultation about the project as requested in the Osage Nation's March 1 communication. Tribal representatives included the Tribal Historic Preservation Officer, two members of the Nation's archaeological staff, and three members of the Tribal Cultural Committee. The Osage Nation was concerned that previously provided preliminary project information indicated possible project impacts to a nearby sensitive archaeological resource. The Nation was pleased to hear that more recent project decisions have eliminated possible impacts to the resource. The Nation also asked about the status of human remains found at several sites examined during the 1994 fieldwork for the Camden Route 5 project. The Nation presented no other objections or concerns with the project. The Osage Nation did request and was granted an opportunity to visit the project area and archaeological site, with tribal representatives and MoDOT staff planning a site visit soon after the consultation meeting.

MoDOT responded to the Osage Nation that human teeth from a rock shelter were transferred to the SHPO to comply with the Missouri's Unmarked Human Burials statute. MoDOT further confirmed that human remains found at a cairn were placed back in the cairn following their discovery.

On May 5, 2011, MoDOT Design and Historic Preservation staff met with the Osage Nation Tribal Historic Preservation Officer and several tribal archaeological staff on-site of the Hurricane Deck Bridge project to review the status of site 23CM40. In general, the meeting consisted of a short tour to look at the site and surrounding area to allow everyone an opportunity to understand the setting and the proposed improvements that would occur as part of the bridge replacement. The Osage were also provided with the property owner contact information they requested.

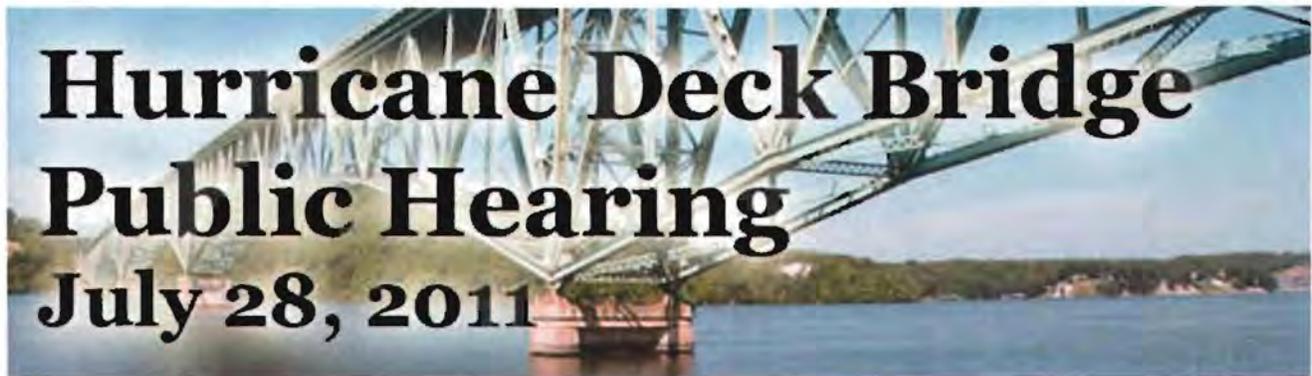
During the Hurricane Deck Bridge replacement project and at the request of the Osage Nation, MoDOT has made the following commitments:

The required removal of approximately one to three feet of the existing rock face along Route 5 at the base of the slope from station 521+50 to station 525+00 will be accomplished from the existing roadway by chipping away the rock face.

The construction contract will include a job special provision specifying that no heavy vehicles will be placed on the slope above the existing road cut.

The entire area south and west of the bridge within the project limits will be designated as off-limits to all MoDOT contractor activity, equipment, and vehicular or foot traffic during the project activities.

HOME >> CENTRAL >> MAJOR PROJECTS >> HURRICANEDECKBRIDGE_JULY2011



Hurricane Deck Bridge, Route 5, Camden County, Mo. Public Hearing, July 28 - Aug. 8, 2011

The Missouri Department of Transportation is holding an online public hearing for a proposed project to replace the Hurricane Deck Bridge on Route 5 in Camden County. Please review the following displays for information about the project. An opportunity to comment can be found at the bottom of this page.

**Hurricane Deck Bridge
Public Hearing**
July 28, 2011

Welcome!

The purpose of today's hearing is to help you learn more about a proposed project to replace the Hurricane Deck Bridge on Route 5 in Camden County.

This is an open-house public hearing. Members of the project team are here to assist you and explain various aspects of the proposed project.

As you move through the displays, please share your questions and comments with us. Your input is very important.

For more information, contact us toll free at 1-888-ASK-MoDOT (888-275-6636) or visit us on the Web at www.modot.org/central.

Thank you for your participation.

Welcome (pdf, 75 KB)



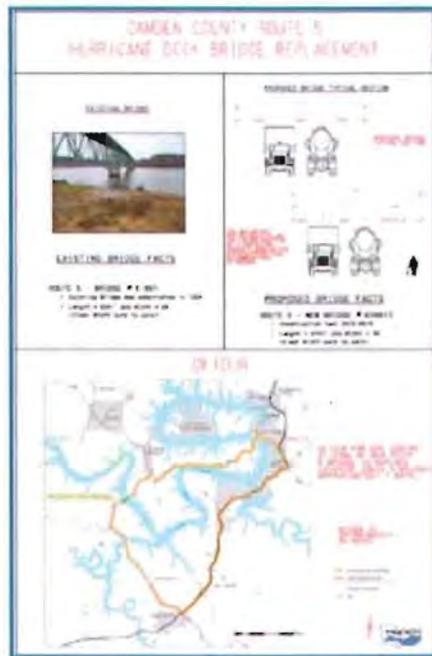
Location Sketch (pdf, 630 KB)



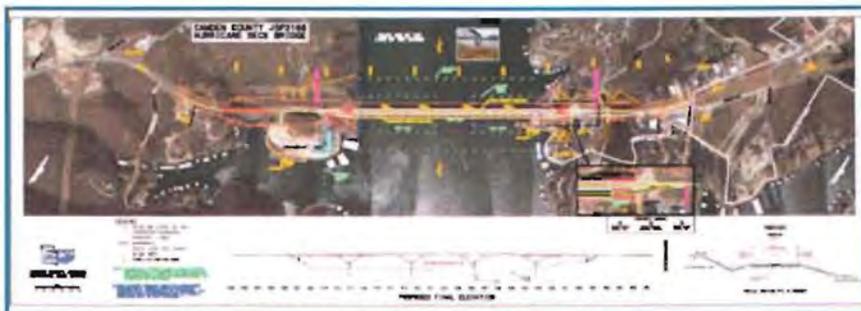
Frequently Asked Questions, Part 1 (pdf, 105 KB)



Frequently Asked Questions, Part 2 (pdf, 100 KB)

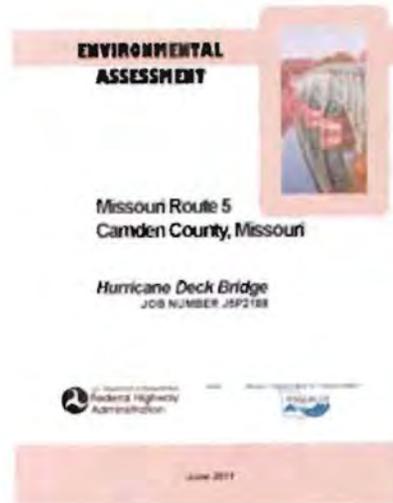


Typical Section of Proposed Bridge; Detour Route During Construction (pdf, 171 KB)



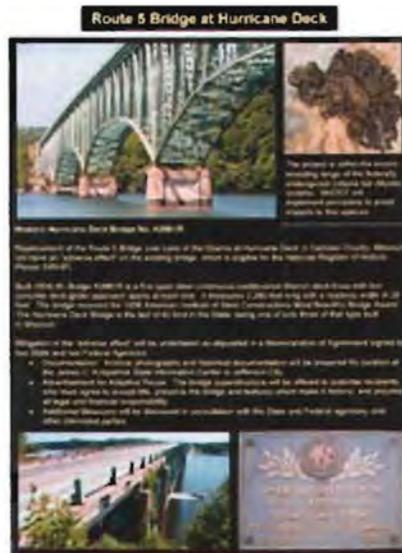


Environmental Assessment Display (pdf, 137 KB)



Environmental Assessment Document (pdf, 8.5 MB)

Environmental Documents Opinion Survey



Understanding the Existing Bridge as a Historic Structure

Tell Us What You Think!

There are several ways for you to submit your comments about the proposed project.

1. Complete this [online comment form](#).

2. Print this [comment form](#) (pdf, 20 KB), fill out your comments, and mail to:
MoDOT Central Missouri District
Attn: Kirk Juranas, District Engineer
P.O. Box 718
Jefferson City, MO 65102
3. Send your comments via e-mail to comments@modot.mo.gov.
4. Call our toll-free customer service center at 1-888-ASK-MODOT (1-888-275-6636).

Comments must be received by August 8, 2011.

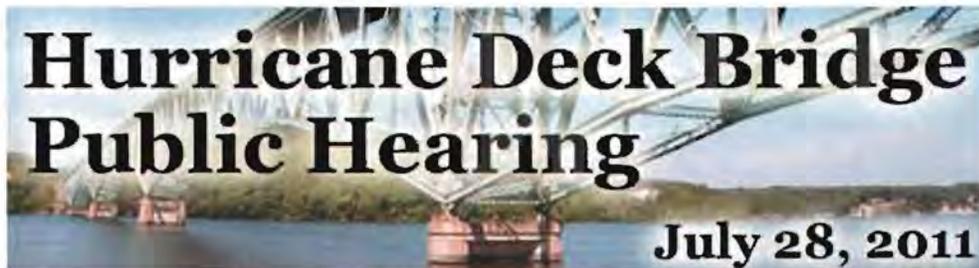
All comments will be reviewed and become part of the project file.

[Hurricane Deck Bridge Main Page](#)

[Camden County Major Projects Page](#)

[Central Missouri District Home Page](#)

[HOME >> CENTRAL >> MAJOR PROJECTS >> HURRICANEDECKBRIDGE_HISTORIC_JULY2011](#)



Understanding the Hurricane Deck Bridge as a Historic Structure

The Hurricane Deck Bridge is the last of its kind in Missouri. There is a historical impact to was the existing bridge and MoDOT is prepared to "preserve the bridge on paper" through archival documentation and offer the bridge structure for adaptive reuse. Learn more about MoDOT's efforts to address impacts to the historic structure by reviewing the following documents.

[The Hurricane Deck Bridge as a Historic Structure \(pdf, 374 KB\)](#)

[Historic Preservation at MoDOT \(pdf, 178 KB\)](#)

[Protecting the Environment Through the National Environmental Policy Act of 1969 \(pdf, 265 KB\)](#)

[More Information about the Bridge as a Historic Structure \(pdf, 121 KB\)](#)

[Advertising the Structure for Adaptive Reuse \(pdf, 95 KB\)](#)

In other parts of the state, portions of historic bridges have been reused in a variety of ways. These documents detail some examples:

[The New Franklin Viaduct on Route 5 in Howard County \(pdf, 1.09 MB\)](#)

- [The Glasgow Bridge on Route 240 in Howard County \(pdf, 1 MB\)](#)
- [Rotary Centennial Park at the site of the original Missouri River Bridge in Jefferson City \(pdf, 385\)](#)
- [Franklin Boonville Historic Marker, Howard County \(pdf, 1 MB\)](#)

For more information about how MoDOT addresses historic bridges, [click here](#).

[Back to the Hurricane Deck Bridge Online Public Hearing](#)

Summary of Comments
Public Meeting of July 28, 2011
At Sunrise Beach Fire Protection District Office
Hurricane Deck Bridge Project J5P2188
Route 5, Camden County

5 persons submitted written comment forms.

3 persons submitted email comments.

<u>Number of Comments</u>	<u>Description of Comment</u>
1	MoDOT should pay tolls during closure of the bridge.
2	Build structure and piers for future 4 lanes.
1	Good needed Project.
1	Bad Idea using 80 year old piers, waste of tax money.
1	Request from School District to contact them so they can plan for the bridge closure.
1	Add Pedestrian/bike lane now.
1	Concern about monster power boats hitting the bridge during the "Shoot-out" event.
1	Suggested adding permanent stop lights so MoDOT won't have to use temporary signals when they are repairing the bridge.
1	Detour timing should be planned to avoid disrupting the traffic during the tourist season.
1	Alternate passing lanes not a viable option for Route 5 through the Greenview/Laurie section due to development. Future 4 lanes is the only option.
1	Questions and concerns about the project and temporary bridge next to the Condo.
Total=12	

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Appendix C
Correspondence and Coordination.

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Hurricane Deck Bridge

CAMD04

GENERAL DATA

structure no.:	K 961R	city/town:	1.0 mile southwest of Hurricane Deck
county:	Camden	feature inters.:	Osage River / Lake of the Ozarks
		cadastral grid:	S16, T39N, R17W
		highway route:	Missouri State Highway 5
		highway distr.:	5
		current owner:	Missouri Highway and Transportation Department

STRUCTURAL DATA

superstructure:	steel, rigid-connected, Warren cantilever deck truss		
substructure:	concrete abutments, wingwalls and piers		
span number:	3; 2	condition:	good
span length:	463'; 377'	alterations:	approach span and bridge deck replaced, 1985
total length:	2281.0'	floor/decking:	asphalt covered concrete deck over steel stringers
roadway width:	28.0'	other features:	upper and lower chord: 2 built-up channels with lacing; vertical: 4 angles with batten plates; diagonal: 2 built-up channels with lacing; 4 angles with batten plates; lateral bracing: 2 angles with batten plates; strut: 4 angles with lacing; floor beam: I-beam with cantilevered sidewalks; guardrail: steel rail

HISTORICAL DATA

erection date:	1934-35
erection cost:	\$655,000.00
designer:	Missouri State Highway Department
fabricator :	Illinois Steel Company, Chicago IL
contractor :	W.A. Ross Construction Company; Stupp Brothers Bridge and Iron Company, St. Louis MO
references:	Missouri Highway and Transportation Department, Structure Inventory and Appraisal: Structure Number K 961R; Primary System Bridge Record, Camden County, located at Bridge Division, Missouri Highway and Transportation Department, Jefferson City, Missouri; field inspection by Clayton Fraser, 5 May 1990.
sign. rating:	76
evaluation:	NRHP eligible (outstanding long-span example of uncommon structural type)

Inventoried by: Clayton B. Fraser 15 March 1993

HAER INVENTORY

Missouri Historic Bridge Inventory

NAME(S) OF STRUCTURE

Hurricane Deck Bridge
MHTD: K 961R

CAMD04

DATE(S) OF CONSTRUCTION

1934-35

LOCATION

Missouri State Highway 5 over Osage River / Lake of the Ozarks; S16, T39N, R17W highway bridge / highway bridge
1.0 mile southwest of Hurricane Deck; Camden County, Missouri

USE (ORIGINAL / CURRENT)

RATING NRHP eligible (score: 76)

CONDITION

good

OWNER

Missouri Highway and Transportation Department

span number: 3; 2

span length: 463.0'; 377.0'

total length: 2281.0'

roadway wdt.: 28.0'

superstructure: steel, rigid-connected, Warren cantilever deck truss

substructure: concrete abutments, wingwalls and piers

floor/decking: asphalt covered concrete deck over steel stringers

other features: upper and lower chord: 2 built-up channels with lacing; vertical: 4 angles with batten plates; diagonal: 2 built-up channels with lacing; 4 angles with batten plates; lateral bracing: 2 angles with batten plates; strut: 4 angles with lacing; floor beam: I-beam with cantilevered sidewalks; guardrail: steel rail

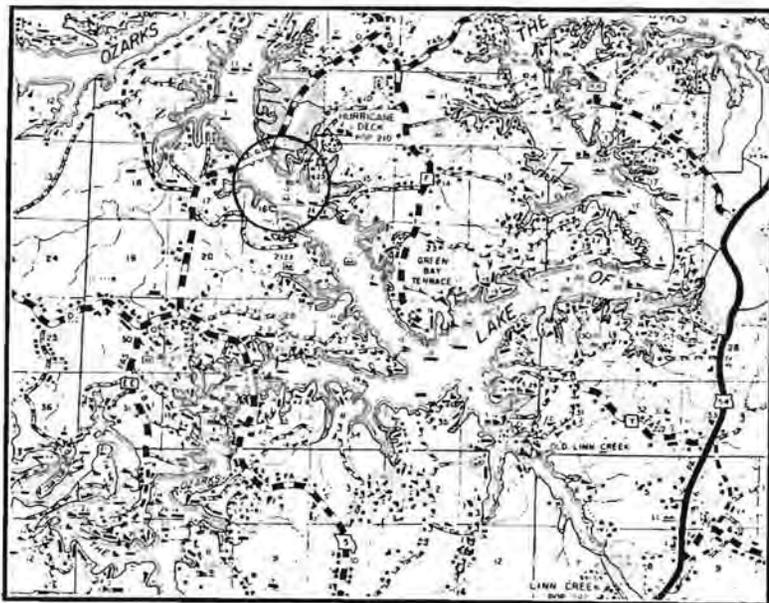
Known locally as the Hurricane Deck Bridge, owing to its proximity to the town of Hurricane Deck, this dramatic long-span cantilever deck truss dates to 1934. The bridge carries State Highway 5 over the Osage Arm of Lake of the Ozarks. Featuring an exceedingly rare cantilever deck truss, the superstructure is supported by concrete piers and abutments. The design for this five-span bridge was completed in the fall of 1934 by engineers for the Missouri State Highway Department. A contract for the bridge's fabrication and erection was let that October to the W.A. Ross Construction Company and the Stupp Brothers Bridge and Iron Company of St. Louis. Made up of steel components rolled by the Illinois Steel Company of Chicago, the bridge was erected in 1935 for \$541,117.00. Virtually unchanged since its completion, the Hurricane Deck Bridge continues to carry traffic in Camden County with only maintenance-related repairs.

During the late 19th and early 20th centuries, numerous through and pony trusses were built on roads and highways throughout Missouri. Deck trusses—in which the roadway is carried by the truss's upper chords—were built far less often. Never very common, this truss type has suffered attrition throughout the state, until only six deck trusses are now listed in Missouri's Structure Inventory and Appraisal list. Significantly, all are located on the state highway system, and were built in the 1930s. Three of these bridges span Lake of the Ozarks in Camden County. Of the remaining deck trusses, only the Camden County bridges employ cantilevered construction; the balance are all simply supported. The Hurricane Deck Bridge thus stands out as the longest of Missouri's remaining deck trusses. Recognized by the American Institute of Steel Construction as one of the most beautiful medium-span bridges built in America in 1935, it is an important transportation-related resource.

NAME(S) OF STRUCTURE

Hurricane Deck Bridge

PHOTOS AND SKETCH MAP OF LOCATION



LOCATION MAP

TAKEN FROM MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT
GENERAL HIGHWAY MAP

SOURCES

Missouri Highway and Transportation Department, Structure Inventory and Appraisal: Structure Number K 961R; Primary System Bridge Record, Camden County, located at Bridge Division, Missouri Highway and Transportation Department, Jefferson City, Missouri; field inspection by Clayton Fraser, 5 May 1990.

INVENTORIED BY

Clayton B. Fraser

AFFILIATION

Fraserdesign, Loveland CO

DATE

15 March 1993

Randy

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF STATE PARKS
P.O. Box 170 Jefferson City, Missouri 65102-0170 (573) 751-2779
FAX: 573-751-8636

20 May 1996

Joe Mickes, Chief Engineer
Missouri Highway and Transportation
Department
P.O. Box 270
Jefferson City, Missouri 65102-0270

Re: Route 5, Bridge Nos. K-961R & K-510A (FHWA) MHTD Job No. J5P0694, Camden County, Missouri

Dear Mr. Mickes:

Staff of the Historic Preservation Program, Missouri Department of Natural Resources have reviewed the information provided in your letter dated 7 May 1996 concerning the above referenced project and agree that Bridge No. K961R and Bridge No. K-510A, Camden County, Missouri, are eligible for inclusion in the National Register of Historic Places. (See attached documents).

In accordance with the Advisory Council on Historic Preservation's regulation Protection of Historic Properties (36CFR Part 800), appropriate documentation shall be provided to the Federal Highway Administration (FHWA) with a request that FHWA initiate the appropriate procedures as set forth in Section 800.4(c) of the Council's regulations relative to the National Register eligibility of Bridge No. K-961R and Bridge No. K-510A.

Pursuant to Section 800.5 of the Council regulations, the Historic Preservation Program has reviewed the proposed replacement project and determined that such action will have "an adverse effect" on the historic fabric of Bridge No. K-961R and Bridge No. K-510A, properties which have been determined to be eligible for inclusion in the National Register of Historic Places.

Therefore, in accordance with Section 800.5(e) of the Council's regulation, the Federal Highway Administration shall forward the necessary adequate documentation [see Section 800.8(b) of the Council's regulations] to the Executive Director, Advisory Council on Historic Preservation, The Old Post Office Building, 1100 Pennsylvania Avenue NW, #809, Washington, DC 20004.

Pending receipt of the Council's comments, no action shall be taken which would foreclose Council consideration of alternatives to avoid or satisfactorily mitigate any adverse effect on the properties in question.



**STATEMENT OF THE OPINION OF THE STATE HISTORIC PRESERVATION
OFFICER CONCERNING THE ELIGIBILITY OF A PROPERTY FOR
INCLUSION IN THE NATIONAL REGISTER**

I understand that the Federal Highway Administration/Missouri Highway and Transportation Department is requesting the opinion of the State Historic Preservation Officer concerning the eligibility of the Highway 5 Hurricane Deck Bridge (T39N, R17W, Section 16) in the vicinity of Camdenton, Camden County, Missouri for inclusion in the National Register and that my opinion may be submitted to the Secretary of the Interior with a formal request for a determination of eligibility of this property. This statement confirms my consultation as part of the Determination of Eligibility procedures.

- (1) In my opinion, this property is eligible for inclusion in the National Register.
- (2) In my opinion, this property is not eligible for inclusion in the National Register.
- (3) I have no opinion and prefer to defer to the opinion of the Secretary of the Interior.

Justification and comments:

The Highway 5 Bridge over the Osage Arm of the Lake of the Ozarks (T39N, R17W, Section 16) in the vicinity of Camdenton, Camden County, Missouri is eligible for listing in the National Register of Historic Places under Criterion C and Area of Significance ENGINEERING to wit: It is an impressive multiple-arched, cantilevered bridge built to span the Lake of the Ozarks. Completed in 1934, it was designed by Sverdrup & Parcel Consulting Engineers of St. Louis. The bridge received the 1936 American Institute of Steel Construction's, Most Beautiful Bridge Award. Along with its beauty and the attractiveness of its setting the bridge is an outstanding long-span example of a bridge-type uncommon in Missouri.



Deputy State Historic Preservation Officer

Date: 20 May 1956



U.S. Department
of Transportation
Federal Highway
Administration

Region 7
Iowa, Kansas
Missouri, Nebraska

P. O. Box 1787
Jefferson City, Missouri 65102



January 21, 1997

PRELIMINARY STUDIES

Route 5, Camden, Laclede and Morgan Counties
MoDOT Job No. J5P0694
Memorandum of Agreement

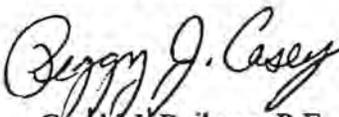
Mr. Joseph A. Mickes, P.E., Chief Engineer
Missouri Department of Transportation
Jefferson City, Missouri

Dear Mr. Mickes:

Enclosed is a fully executed Memorandum of Agreement (MOA) for the Gerlt Cabin, the Niangua River Bridge, the Hurricane Deck Bridge and archaeological sites 23CM40 and 23CM72. The MOA was signed by the Advisory Council On Historic Preservation (ACHP) on September 23, 1996. Minor changes made by the ACHP have been initialed by all signatories.

By carrying out the terms of the MOA, you will have fulfilled your responsibilities under Section 106 of the National Historic Preservation Act and the ACHP's regulations.

Sincerely yours,


for Gerald J. Reihsen, P.E.
Division Administrator

Enclosure

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

www.dnr.mo.gov

March 8, 2011

Robert L. Reeder
Historic Preservation Manager
Missouri Department of Transportation
P.O. Box 270
Jefferson City, Missouri 65102

Re: Route 5, Job No. J5P2188 (FHWA) Camden County, Missouri

Dear Dr. Reeder:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which requires identification and evaluation of cultural resources.

We have reviewed the Section 106 Survey Memo entitled *Phase I Cultural Resources Survey, Camden 5, MoDOT Job No. J5P2188*. Based on this review it is evident that a thorough and adequate cultural resources survey has been conducted of the project area. We concur with your recommendation that archaeological sites 23CM40 and 23CM72 may be eligible for inclusion in the National Register of Historic Places, but are outside of the project corridor. We also concur that the Hurricane Deck Bridge No. K0961 is eligible for inclusion in the National Register of historic Places, and that the proposed replacement will have an **adverse effect** on the historic fabric of the bridge.

Therefore, the U.S. Department of Transportation, shall forward the necessary adequate documentation as described to the Executive Director, Advisory Council on Historic Preservation, The Old Post Office Building, 1100 Pennsylvania Avenue NW, #809, Washington, DC 20004. Pending receipt of the Council's decision on whether it will participate in consultation, no action shall be taken which would foreclose Council consideration of alternatives to avoid or satisfactorily mitigate any adverse effect on the property in question

If you have any questions, please write the State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 attention Review and Compliance, or call Judith Deel at 573/751-7862. Please be sure to include the SHPO Log Number (**017-CM-11**) on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE



Mark A. Miles
Director and Deputy
State Historic Preservation Officer

MAM:jd

c Peggy Casey, FHWA
Jane Beetem, DNR/OD





Preserving America's Heritage

June 27, 2011

Peggy J. Casey, P.E.
Program Development Team Leader
FHWA – Missouri
3220 W. Edgewood, Suite H
Jefferson City, MO 65109

Ref: *Proposed Replacement of the Hurricane Deck Bridge (K0961) over Lake of the Ozarks
Camden County, Missouri
MODOT Project # J5P2188*

Dear Ms. Casey:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and it is determined that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Missouri State Historic Preservation Office (SHPO), and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA, and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the notification of adverse effect. If you have any questions or require further assistance, please contact Ms. Najah Duvall-Gabriel at 202 606-8585 or at ngabriel@achp.gov.

Sincerely,

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

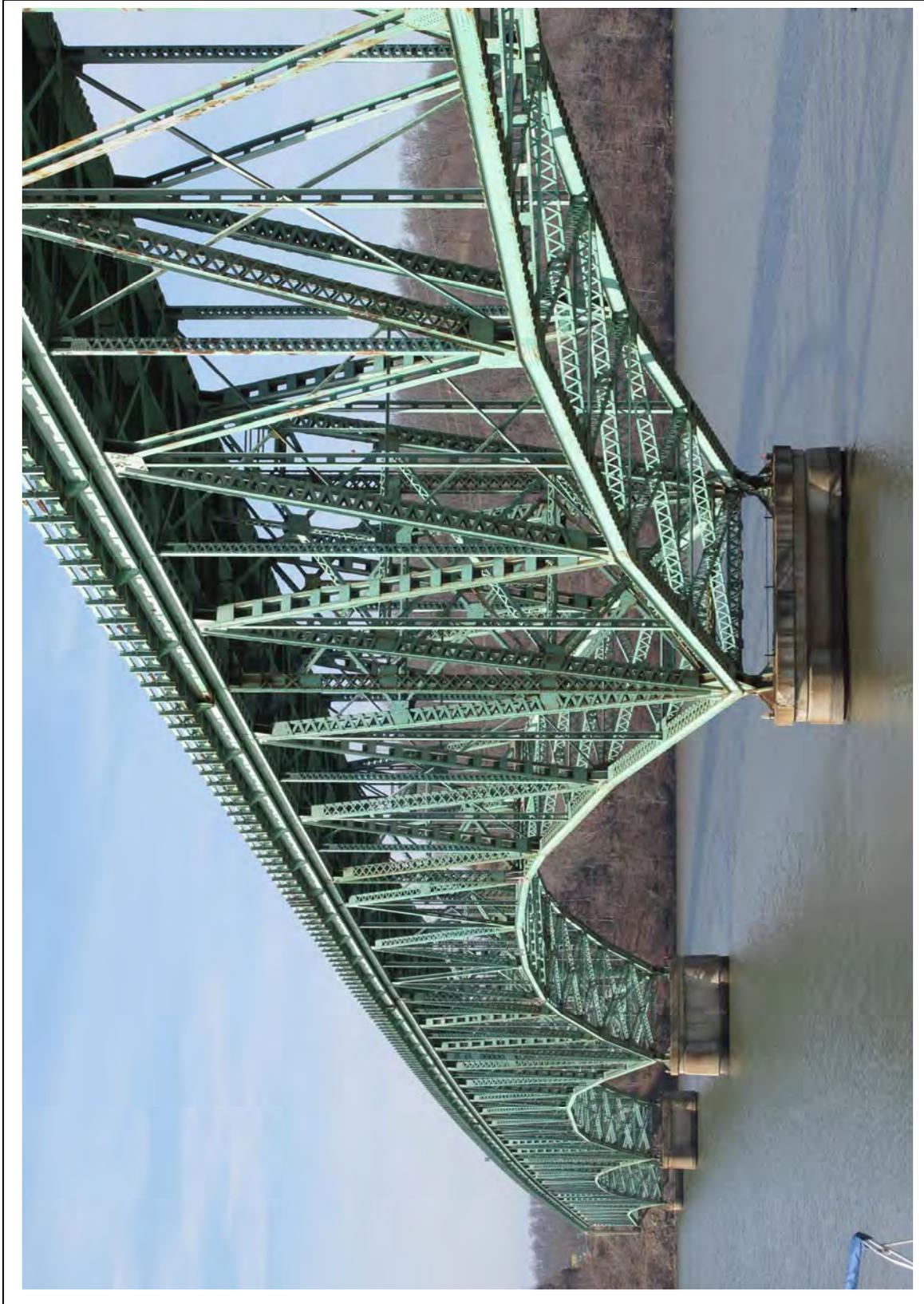
1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

Appendix D
Photographs of the Hurricane Deck Bridge.

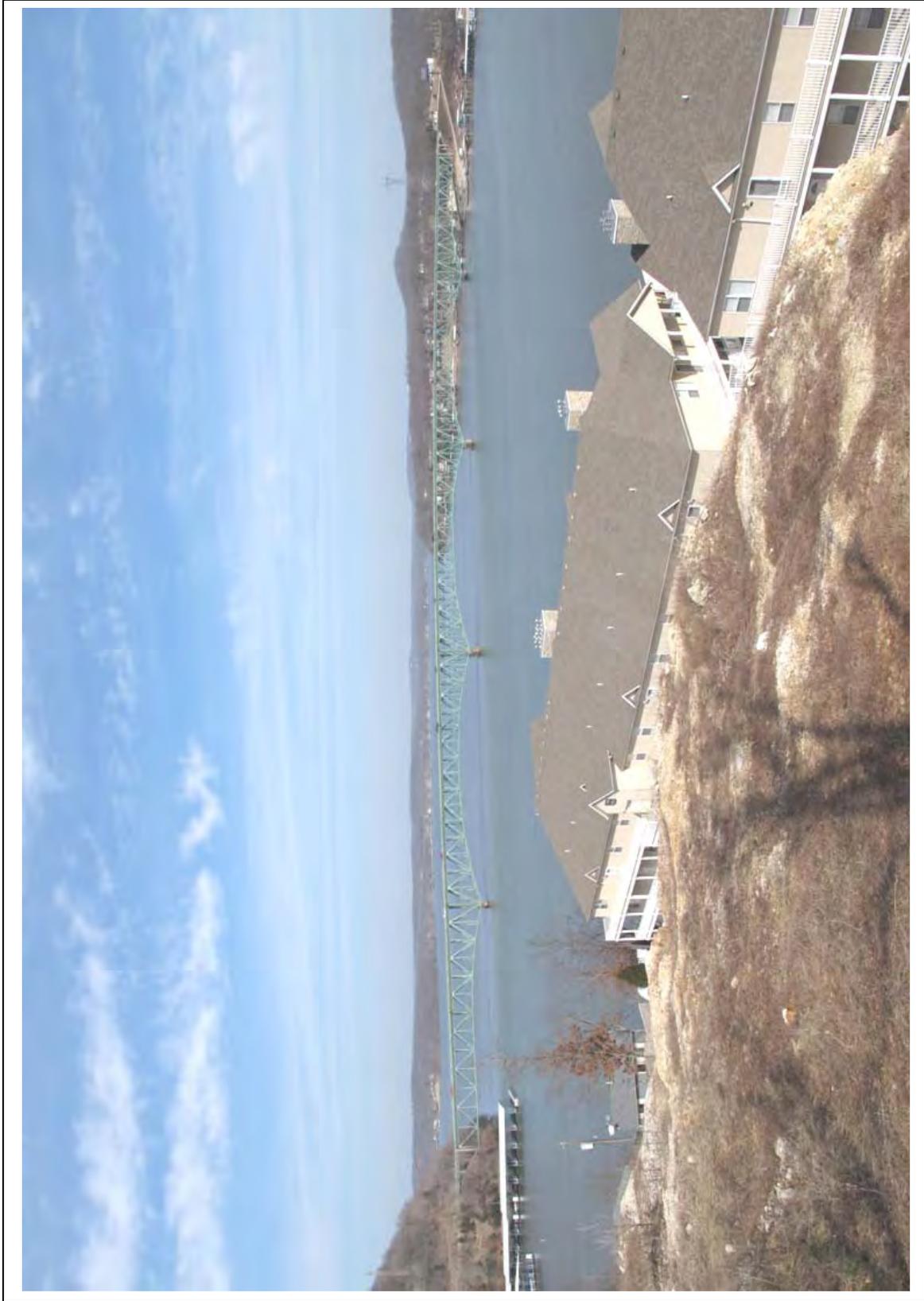
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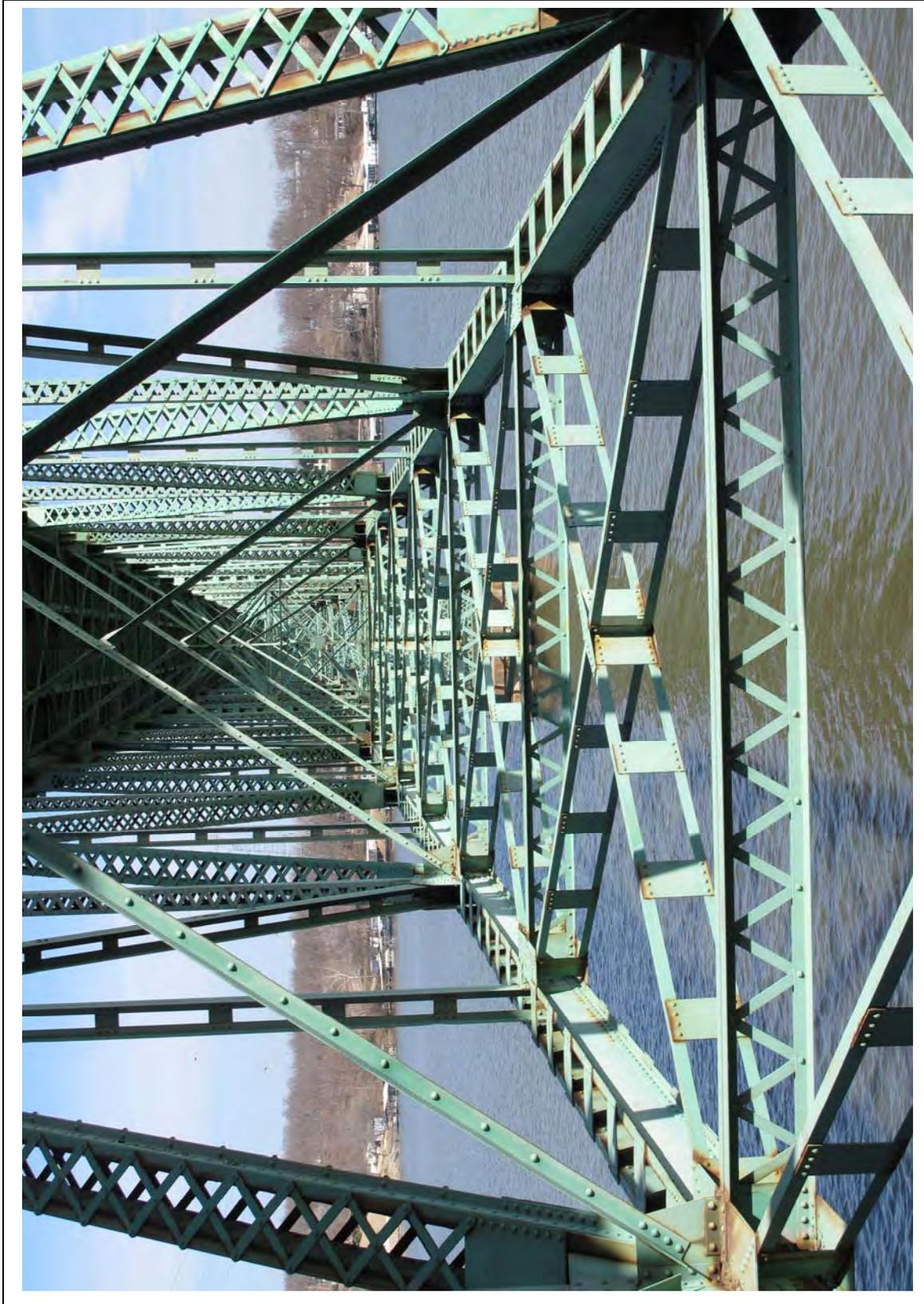
Plt-1. K0961. View to west.



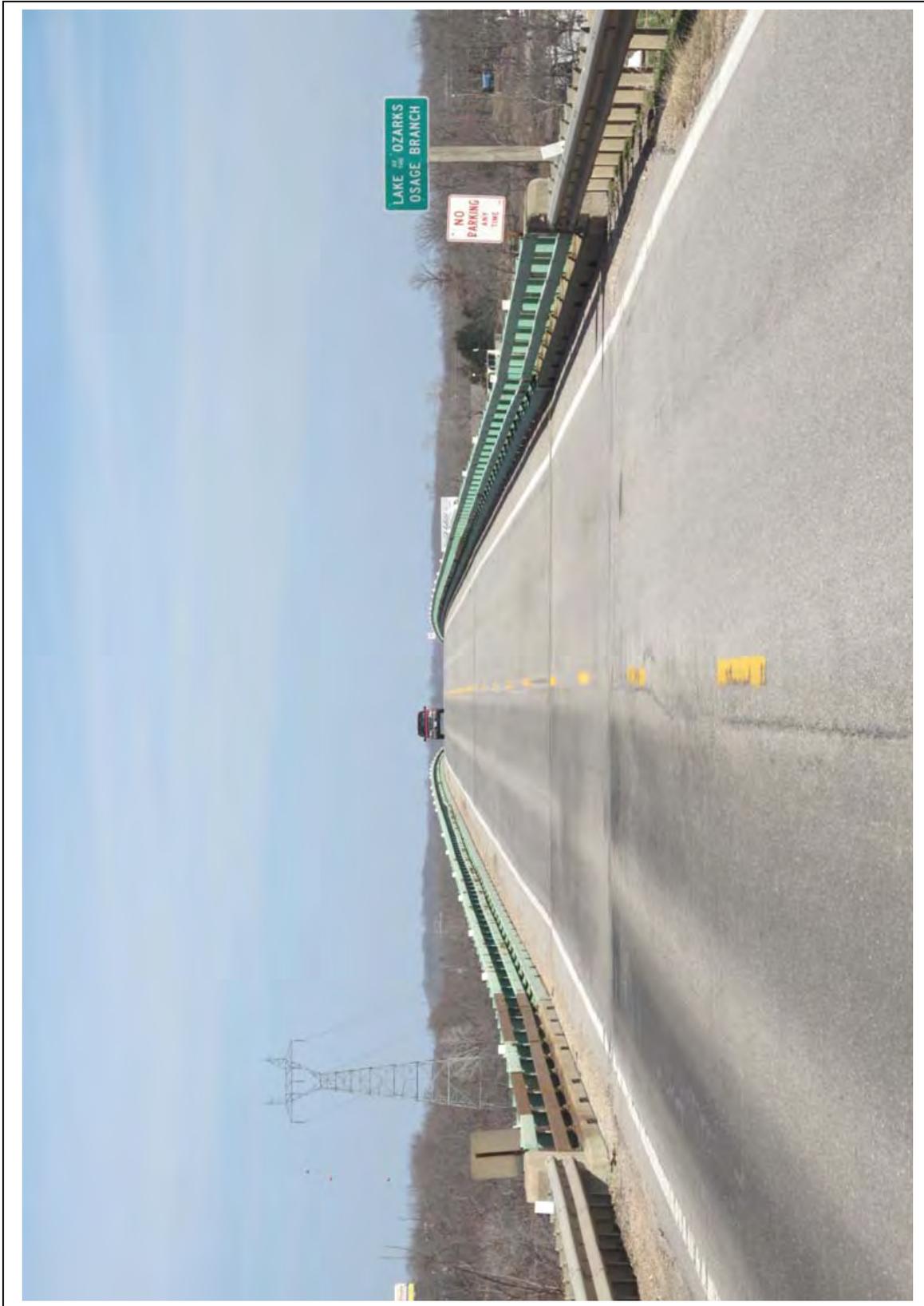
Plt-2. K0961. View to west.



Plt-5. K0961. View to northwest.



Plt-9. K0961. View to northeast.



Plt-10. K0961. View to northeast.



Plt-11. K0961. View to southeast.