

Best Bridge

2007 APPLICATION FORM

(required for each entry)

Job No. J3S0488 Route E County Montgomery
STIP Description (Scoping or Construction, state which STIP) 05-09 06-10 07-11
Rehabilitate bridge over Cuivre River; 3.2 miles east of CC; project involves
Bridge #P0280

Project Manager (could have both)

MoDOT Richard Domzalski, P.E. Consultant _____

Active core team members as approved by the MoDOT PM (may include consultants)

<u>Richard Domzalski</u>	<u>Chad Daniel</u>	<u>Community Relations Dept.</u>
<u>Christopher Knapp</u>	<u>Henry Burkemper</u>	<u>Dennis Lambert</u>
_____	_____	_____
_____	_____	_____

Project Contacts (will have both for consultant entry)

District Richard Domzalski, P.E. Consultant \$ _____

STIP budget \$425,000* or Award cost \$ _____

*estimate submitted for letting is \$652,000 - higher estimate because public inv. performed after project was put on STIP and bridge costs escalated in 2-yr transition

Value Engineering study during design? yes no (if yes) Project Stage _____

VE Contact person _____

Construction-stage VE (VECP)? yes no (if yes) Explain _____

Total VECP savings \$ _____ VECP Contact Person _____

Why is this entry the "poster" image for MoDOT's practical design philosophy?

(In layman's terms - 100 words or fewer - attach additional sheet if necessary) Practical design has eliminated all right of way takings, left one bridge as is, will possibly eliminate all roadway reconstruction and will rehabilitate a second bridge, all at 1/3 the cost. In addition, the second bridge will be strengthened to carry heavier loads, equipped with narrower curbs to pass wider loads, and have approach guardrail installed to increase safety, and a low-water crossing will be provided for the many people who (attached)

Send entries to: MoDOT Design Division, ATTN: Jay Bestgen
1320 Creek Trail Dr.
Jefferson City, Missouri 65109

All entries must be received no later than close of business on February 1, 2007

(continued)

said one was needed. This project was originally conceived with a "Cadillac" scope, but practical design has brought it deep into the "Chevy" category.

Introduction

The Montgomery County Rte. E bridge replacement and road re-alignment project has utilized practical design to reduce costs, involve the public, and help identify new methods and techniques that normally may not have been considered.

Scope Comparison

Originally, this project would have replaced two bridges and approximately one-half mile of two-lane roadway on new alignment with a 26' wide roadbed, requiring five acres of new right of way plus contractor-furnished borrow material. The existing roadway and bridges have two ten-foot lanes, with the roadway adding two-foot marginal earth shoulders on each side. The grade of the roadway would have been raised to prevent the occasional flooding that presently occurs between the two bridges, and the new bridges would have been fitted with approach guardrail and standard crashworthy end terminals, where no guardrail currently exists.

As redesigned, one bridge, currently with ratings of 6-6-6, is being left in place to be addressed when conditions necessitate. The other bridge will be rehabilitated to extend its life, and strengthened to improve load carrying capacity. Existing bridge curbs will be replaced with narrower ones to allow wider vehicles to pass, and new approach guardrail will be installed to protect traffic from the blunt ends of the bridge rail and with end sections as appropriate to address safety concerns. The roadway between the bridges will be left in place, allowing the grade issue to be revisited when the second bridge is addressed.

Purpose and Need

Route E functions as a major collector route through rural areas of Montgomery and Lincoln Counties. Traffic is light (roughly 275 ADT) and safety has not been a problem in the area. With only two accidents occurring during the last ten years, it is apparent that drivers are used to the existing hilly and curvy alignment along this area of the corridor. The need for this project was to address a deficient bridge with deck and superstructure ratings of 3, and a sufficiency rating of 7. The current scope addresses this need by strengthening and repairing the superstructure and replacing the bridge deck.

New Techniques, Methods and Non-Traditional Design

While the existing load posting on the bridge will not be totally eliminated, the conditions will be improved to allow freer flow of heavier vehicles. The posting will also be superior to those at other bridges along the route, so little benefit would be realized with the additional expenditure to improve the load rating enough to eliminate the posting. Elimination of the posting would not be possible without replacing the bridge.

In addition to minimizing the scope of the project, the work has been designed for efficient use of time and materials. Rock from the low water crossing will be re-used to restore and stabilize the embankment around a bridge pier where erosion has occurred, and the roadway slope where the fill is being widened to accommodate the new guardrail. The project is being re-let to provide contractors sufficient time to take delivery of steel

for the rehab work and to schedule closure time around school bus schedules and to take advantage of favorable weather.

Cost Savings

The estimate of contract cost for the original scope of work would be over \$2 million. Our current estimate for the project as resubmitted for letting is \$651,000, with no right of way needed. This represents a true minimal cost reduction in excess of 70%.

Roadway User Expectations

Through a mass mailing, we invited the public to comment on closing the road for two to three months in the summertime to rehabilitate the bridge. Most were favorable to doing so; however, a low water crossing has been added to the design due to the substantial amount of feedback received during the public involvement process requesting such a crossing. With no convenient alternate means to cross the river at this location, such a crossing would likely be needed by the contractor to rehabilitate the bridge, but additional benefit can be gained by allowing its use by the traveling public. While this is something that wouldn't have been needed under the original design, a more elaborate crossing with a temporary bridge would probably have been considered if Practical Design considerations did not exist. The low-water design is considered acceptable in this case due to the low traffic volume expected to use it, and the public outcry for a crossing of this type.

Conclusion

By reducing the scope to rehabilitation of one bridge, we have addressed the specific needs, reduced construction time and costs, eliminated right of way and environmental impacts, and lessened the impact to the traveling public.