

December 14, 2008

**Mr. Jay Bestgen
MoDOT Design Division
1320 Creek Trail Drive
Jefferson City, Missouri 65109**

RE: Practical Design 2008 Awards for Excellence – I-229 and Route 36 Bridge Joint Replacements

Dear Mr. Bestgen:

General: At the interchange of Interstate I-229 and Route 36, there is a major Missouri River bridge (Route 36 connecting Missouri and Kansas) and a stacked, two level viaduct (I-229 which is more than a mile long), that serves as the vital transportation link for the downtown commercial hub and freight district of downtown St. Joseph. These bridges are approaching a half-century old and the expansion joints were deteriorating and water and the associated deleterious elements were leaking through the joints and onto the bearings, structural hinges and substructure bents causing premature and accelerated deterioration of the vital bridge structural components.

The decision was made to replace 71 expansion joints, using six projects let in required combination, and using a conventional staged construction approach where one lane of traffic would be open on the bridges at all times to facilitate ingress and egress to downtown St. Joseph and the freight district. Final plans were prepared and the estimated construction cost for the staged construction was \$6.423 million exceeding the STIP program of \$5.380 million by \$1.043 million. Something radical had to be done to reduce the cost of the project.

An analysis of the estimate indicated that the traffic control costs, which included approximately 4,225 linear feet of concrete safety barrier and the relocation of 25,745 linear feet of the barrier was estimated to cost more than \$275,000. In addition, it was determined that the project cost was high because the staged construction required a welded field splice at each expansion joint and also required each joint to be placed during two separate construction phases. This slow and deliberate staged construction process was identified as the principal driving force behind the high estimated cost of the project. The only practical design alternative to achieve a significant project savings was to **close Interstate 229, the lifeline to downtown St. Joseph and the industrial freight district.**

The Practical Design Plan: Closing I-229, which involved 57 expansion joints would provide considerable cost savings and provide a better quality finished product because the joints could be installed as a single unit, aligned with the roadway surface and secured in place with concrete end dams matching the profile and cross slope of the bridge deck. In addition, I-229 served as a "baby beltway" to I-29, which would provide a suitable detour route when I-229 was closed. The estimated project savings generated by closing I-229 was \$618,775, which reduced the overall estimated project cost to \$5.794 million, which was still 7.8% or \$414,000 over the STIP program. It was decided that the estimated savings was a conservative figure and that the project should proceed provided MoDOT could get support for closing I-229, the economic and business lifeline to downtown St. Joseph and the freight district.

Conclusion: Initially, it was considered impossible to close an interstate, especially when I-229 served as the vital economic link to downtown St. Joseph. However, by inviting the stakeholders into the discussion and allowing them to assist MoDOT in coordinating this project, they understood and more importantly supported the rehabilitation project. The project was bid on March 30, 2007. The award amount was \$4,444,769.70, which was \$935,231.00 under the STIP program amount of \$5,380,000. The project was completed in one construction season and with a higher level of quality using one-piece joint installation and construction.

Public Involvement: The Key To Success For The I-229 Bridge Project

The following statement is a testimony of the importance of a successful public involvement campaign:

Executive Director of the St. Joseph Convention and Visitors Bureau Mrs. Marci Bennett said this about the I-229 project, "We appreciate the excellent public relations approach to the St. Joseph I-229 project. The public interaction, which took place on this project, was simply wonderful. MoDOT amended their schedule to coordinate road closures to reduce the impact on travelers and businesses. This awesome effort ultimately had an extreme economic impact on the community. We appreciate MoDOT's effort to coordinate this work with the interest of the community in mind."

The District Community Relations Department utilized connections with the business network in St. Joseph to engage them in the public involvement process. The District led discussions about the project at two informational meetings and a formal public hearing. All stakeholders were invited to attend and participate in these meetings. The participants included: the City of St. Joseph, St. Joseph Chamber of Commerce, the Convention and Visitors Bureau, emergency responders, media, National Guard, Rosecrans Airport, and various elected officials. During these meetings, the District solicited input to plan and implement the full closure of I-229 during times when the impact to the businesses would be the most minimal.

The District emphasized three key points during the stakeholder discussions to gain support for the closure of I-229. First, in lieu of providing a defined schedule for I-229 closures, we invited them to tell us the appropriate closure periods, which would have the least impact on their economic vitality. Secondly, we invited stakeholders to assist in the identification of the appropriate detour routes. Finally, we demonstrated that closing I-229 would reduce the overall construction time and the inconvenience to the business community and would ultimately save taxpayers a minimum of \$616,000.

The discussions with the stakeholders concluded with the following project recommendations:

- 1.) I-229 could not be closed between June 11 and September 12, at the height of the summer tourism season. They explained that the I-229 closure would greatly impede the traveling motorists who were expected to travel through downtown St. Joseph for several major public events.
- 2.) The work had to be completed in one construction season.
- 3.) Ingress and egress to downtown had to be maintained from either the north or south end of I-229 at all times.
- 4.) Signed detours had to direct motorists through the downtown district to promote business.

The District design staff was most concerned with the coordination of the simultaneous closure of the upper and lower deck of the bridge, which would facilitate the removal and installation of the new expansion joints. The District then implemented the four-point plan that would accommodate the stakeholder's request and the coordination of the scheduled work. The contract documents were prepared to reflect their detailed input.

In addition to the public meetings, the District also held a separate meeting with the Federal Highway Administration to share with them the recommendations and to solicit FHWA's support in closing a portion of the Interstate system in the St. Joseph community.

**MoDOT PROJECTS
2008 APPLICATION FORM**
(required for each entry)

Job No. J1I0968, J1I0969, J1P0970, J1P0971, J1I0972, and J1P1008 **Route** I-229 and Rte. 36 **County** Buchanan
STIP Description (Scoping or Construction, state which STIP) 2006-2010 STIP, Construction, Replace Expansion Joints on the I-229 Viaduct and Route 36 Missouri River Bridge and approach structures.

Is the submittal for the entire project or just a portion of the project? Please explain: This submittal is for the entire project and includes six contracts let in required combination.

Project Manager (could have both) **MoDOT** Greg Anderson **Consultant** _____

Key core team members as approved by the MoDOT PM (may include consultants) (limit of 9)

<u>Mary Longoria D1</u>	<u>Greg Sanders - Bridge</u>	<u>The St. Joseph Downtown Businesses</u>
<u>Russ O'Daniell D1</u>	<u>Elaine Justus – Community Relations</u>	<u>Colin McCarthy - FHWA</u>
<u>Dean Franke - Bridge</u>	<u>Holly Murphy – Community Relations</u>	<u>Mike McGee - FHWA</u>

Project Contacts: **District** Tom Skinner – District Design Engineer **Consultant** _____

Project Budget:

Conceptual budget	\$ 5,380,000	Initial STIP Budget	\$ 5,380,000
Final STIP budget	\$ 5,380,000	Award amount	\$ 4,444,769
Other :	_____		

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

Total VE savings implemented \$ _____ **VE Contact Person** _____

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

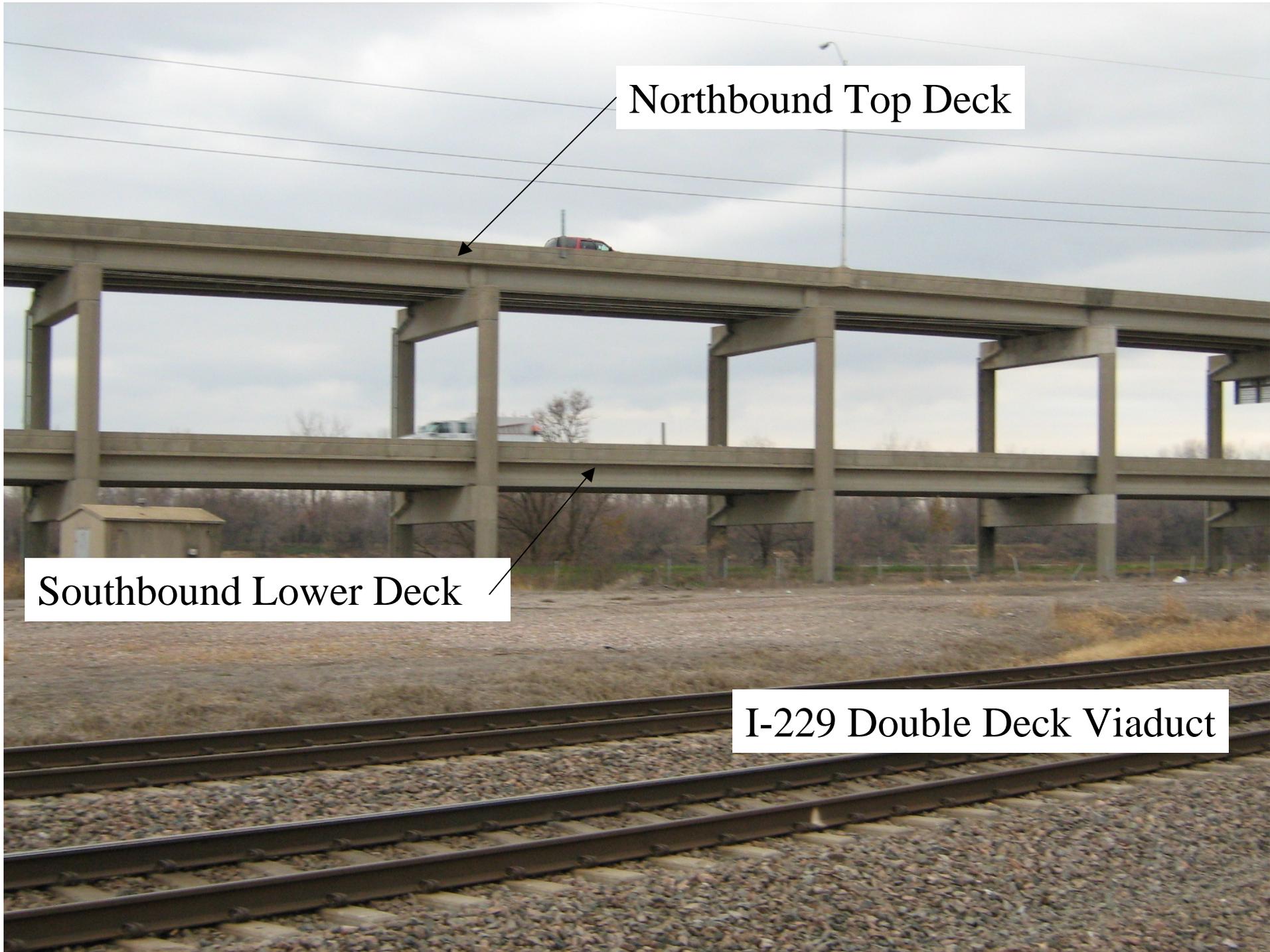
Total VECP savings \$ _____ **VECP Contact Person** _____

What would make this entry stand out from the rest of the entries when considering MoDOT's practical design philosophy? (In layman's terms - 100 words or fewer) This entry is unique for several reasons. First, we completely closed Interstate I-229 for a total period of four months. Second, we encouraged the local businesses and the City Staff to plan and develop the detour routes and the road closure times to best fit the economic needs of downtown St. Joseph. Finally, the public involvement process was initiated early and continued throughout the construction phase to demonstrate to the community that MoDOT adopted the community's sequenced Interstate closure plan and then we successfully and rigorously implemented the staged closure of I-229 on time and without any delays.

Northbound Top Deck

Southbound Lower Deck

I-229 Double Deck Viaduct





Removing Concrete Deck and Barrier



Open Deck for the Installation of the New Expansion Joint



Painting at the Expansion Joints



Completed Expansion Joint Installation



Completed Expansion Joint



Completed Joint Installation