

2009 APPLICATION FORM

(required for each entry)

Complete this section for (check one): **Small Project** **Large Project**
 Post-Design Solution **Off System Project**

Job No. _____ Route _____ County / LPA _____

Description (attach separate sheet if necessary) _____

Complete this section for: **Process Improvement**

Process or Product _____

Description (attach separate sheet if necessary) _____

Project Leader _____

Key Team Members (include key personnel irrespective of employer-nine individuals maximum)

Project Budget:

Initial Cost / Estimate \$ _____ Final Cost / Award \$ _____

What would make this entry stand out from the rest of the entries when considering MoDOT's practical design philosophy? (In layman's terms - 200 words or fewer-attach separate sheet if necessary) _____

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

ALL ENTRIES MUST BE RECEIVED NO LATER THAN CLOSE OF BUSINESS ON DECEMBER 1, 2008

November 25, 2008

Mr. Joe Jones
 1320 Creek Trail Drive
 Jefferson City, Missouri 65109

Re: J5PO844 Route BB – Route 50/63 and City View Drive Interchange
 Practical Design 2009 Awards for Excellence

Dear Judges,

Crawford, Murphy & Tilly, Inc. (CMT) and MoDOT District 5 are proud to present the Route 50/63 and Cityview Drive Interchange project for consideration for the 2009 Practical Design Awards for Excellence. CMT, Wal-Mart, the City of Jefferson, and Cole County initiated design on this project in late 2003 and final plans were submitted in May 2007. The Practical Design concept was implemented in mid 2005, just after MoDOT’s concurrence that the project was eligible for cost share funding. The completion of this multi-partner project, and the incorporation of practical design measures to the satisfaction of all stakeholders, proved challenging. The final plans, however, were completed in time for a July 2007 contract letting.

The following practical design items were incorporated into the final plans:

1. **Interchange** - Used dual roundabout concept, with roundabouts replacing the original signalized intersections at the ramp terminus.
2. **City View Drive** - Proposed typical section consists of two 12’ side lanes with 8’ wide shoulders between roundabouts. One 5’ wide sidewalk is proposed on east side of road. Shoulders are dropped beyond roundabouts. Original design consisted of three 12’ wide lanes with 10’ wide shoulders and 5’ wide sidewalks on each side of road.
3. **City View Bridge** - Typical section consists of two 12’ wide lanes with 8’ wide shoulders and one 5’ wide sidewalk on east side of Bridge. Original design consisted of three 12’ wide lanes with 10’ wide shoulders and 5’ wide sidewalks on each side of bridge.
4. **Loop Ramps** - Proposed typical section consists of one 18’ wide lane with 4’ wide shoulder on left side and 6’ wide shoulder on right side. Original design consisted of one 22’ wide lane with 4’ wide shoulder on left side and 8’ wide shoulder on right side.
5. **Straight Ramps** - Proposed typical section consists of one 16’ wide lane with 4’ wide shoulder on left side and 6’ wide shoulder on right side. Original design consisted of one 18’ wide lane with 4’ wide shoulder on left side and 8’ wide shoulder on right side.
6. **Ramp Side Slopes** - 12’ wide 6H:1V side slopes are eliminated from ramp typical sections.
7. **Skyview Drive** - Connection of Skyview Drive to City View Drive at Ramp terminus is eliminated. Skyview Drive alignment to remain as is. Improvements to Skyview Drive at Eastwood Drive are eliminated. Elimination of Eastwood Drive connection to Route 50/63 shall remain. The need for taking of a residential duplex building is eliminated.
8. **Pavement Design** - The proposed typical section for the Cityview Drive concrete alternate pavement was reduced from 11” on 4” aggregate base course to 9” on 18” rock base.

Scope Comparison

The difference in pre-practical design and the current practical design is listed above. These were the most cost-efficient ideas developed by the project team that could be incorporated into the final plans. The added benefit of these practical design items is that the average driver will not even realize that they have been implemented, as the physical appearance of the roadway will look the same as it would have if the practical design items were not incorporated.

Purpose and Need

The purpose and need of this project was to replace dangerous at-grade crossings, accommodate increased traffic and provide access to a commercial retail development. The project accomplished the elimination of four at-grade crossings on an expressway with high speed and high traffic volumes. Additionally, the project fulfilled for this location the planning goals of the 1996 Jefferson City Comprehensive Plan and the Mid-Missouri Regional FY 2000-2001 Transportation Needs Assessment, and the request of a local manufacturing company for an interchange at this location.

New Techniques, Methods, and Non-Traditional Design

The practical design elements incorporated into this project are non-traditional, according to MoDOT design policies. In addition to the physical features utilized in the final design of this project, an innovative funding mechanism was used involving three public entities (MoDOT, City of Jefferson and Cole County) and one private developer (Wal-Mart).

The use of roundabouts on the interchange ramp intersections is a unique concept that has only been used in a few areas of the country, and it is the first partial cloverleaf interchange with roundabouts constructed in Missouri.

Cost savings

The estimated cost savings based on the statewide average unit price for each of the practical design elements is as follow:

| Practical Design Element | Cost Savings |
|--------------------------|------------------|
| Earthwork | \$183,100 |
| Pavement and Base | \$340,100 |
| Bridge | \$418,600 |
| Signals | \$200,000 |
| Utility Relocation | \$35,000 |
| Right-of-Way | \$232,000 |
| Total | 1,400,000 |

The Project low bidder for the J5P0844 project on July 27, 2007 was Bloomsdale Excavating Company, Inc. at \$10,260,476. The estimated savings of 1,400,000 represents 13.6% of the contract price for the project.

Roadway User Expectations

The practical design elements incorporated into the plans provide a consistent roadway and a significant reduction in cost without compromising safety while serving the “purpose and need” of the project. In addition, the savings realized through the use of the practical design approach allowed for economical aesthetic enhancements to the bridge with the use of form liners to create appearance of a stone façade and the installation of architectural pedestrian fencing. The enhancements helped to achieve Jefferson City officials’ desire that the new interchange serve as an eastern gateway into the city.

Sincerely,

CRAWFORD, MURPHY & TILLY, INC.



Daniel R. Meckes, P.E.
President



The U.S. 50/City View Drive Interchange project features the first parclo interchange with roundabouts in Missouri and the first known 2-Quadrant Type-A Parclo Interchange with Roundabouts in the U.S., according to Mark Doctor of the FHWA Safety and Design Resource Center.



Roundabouts replaced the signalized intersections included in the original design, resulting in a cost savings.



Typical bridge section consists of two 12' wide lanes with 8' wide shoulders and one 5' wide sidewalk on east side of Bridge. Original design consisted of three 12' wide lanes with 10' wide shoulders and 5' wide sidewalks on each side of bridge.



Savings realized by using the Practical Design approach allowed for economical aesthetic enhancements to the bridge, including architectural pedestrian fencing and the use of form liners to create the appearance of a stone facade.