

January 31, 2007

Mr. Jay Bestgen
1320 Creek Trail Drive
Jefferson City, Missouri 65109

Re: Route 61 – Lewis and Clark County
MoDOT Job No. J3PO424B, J3PO424
Practical Design 2007 Awards for Excellence

Dear Judges:

Crawford, Murphy & Tilly, Inc (CMT) and MoDOT District 3 are proud to present the Route 61 project for consideration for the 2007 Practical Design Awards for Excellence. CMT and MoDOT initiated design on this project in early 2001 and final plans were submitted in May 2005. A Value Engineering Study was completed during the preliminary plan stage in May 2002. The concept of Practical Design was implemented in early 2005, just as the final plans for the project were nearing completion. It proved to be a challenging endeavor. However, thanks to the team's efforts, great practical design ideas were developed and implemented into the final plans in time for the project to meet its letting schedule.

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

1. The SCS Method was used in favor of the Regression Equations in order to reduce the size of three box culverts that were significantly larger than existing box culverts upstream that have preformed adequately for years. Utilizing the standard MoDOT procedure (USGS regression equations), CMT calculated the stormwater discharge for several large drainage areas and then sized the culverts accordingly. When the culvert sizes were compared to the existing sizes, CMT questioned the hydrologic results of the USGS regression equations. CMT met with MoDOT maintenance personnel and with property owners living near the existing culverts, and determined that the culverts didn't flood and appeared to be adequately sized. Based on this, CMT used the reliable SCS Method to recalculate stormwater runoff. Culverts were then sized using these newly developed discharges and the new culverts then more closely matched the size of the existing ones. Three culverts were resized, resulting in a savings of approximately \$250,000.
2. The full-depth paved shoulders were reduced to Type A2 shoulders, possibly the first project to use A2 shoulders.
3. The perforated drain pipe and splash pads were deleted and the 4" Type 5 aggregate base was "day-lighted" to provide pavement under-drainage.
4. The length of bituminous pavement on the county roads was reduced. The county roads were only paved with bituminous pavement from Route 61 to the radius returns. The remaining roadway was paved with gravel to the end of the county road improvements to match the existing surface along the county road.
5. The pavement structure of the temporary crossovers was reduced to only provide the necessary life of the temporary crossovers.
6. Instead of the normal type of rock, "shot rock" was used for the rock lining for the culvert outlets and the rock ditch liner.
7. Two county road profiles were revised to use maximum vertical grades of 8-10% instead of 5% in order to reduce the length of improvement and the amount of fill needed to construct the roadway embankment.
8. A new pavement design method was used to reduce the mainline pavement thickness by 2 inches.

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In addition to the items mentioned above, a proposed interchange located at Route B and Route 61 was eliminated during the VE study because of public input, marginal traffic volumes, and the practical design philosophy used by the project team. This occurred before MoDOT initiated practical design.

Construction on the project is 70 percent complete. The total change order amount is \$53,000, with \$2,000 attributed to the design omission change order code.

Scope Comparison

The difference in scope between the pre-practical design and the current practical design is listed above. These were the most cost-effective practical design ideas developed by the project team that could be incorporated into the final plans in time for its letting. The added benefit of these practical design items is that the average driver will not even realize that they are there; in other words, 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 of this project is to provide improved transportation service in northeast Missouri by providing a 4-lane divided expressway facility with access control. The project is needed to improve aging pavement, handle increased traffic, provide an adequate level of service, improve safety, and foster economic development. This project provided all these items even before incorporating the practical design elements. The fact that the team was able to reduce the cost of the project by implementing these practical design ideas and still satisfy the purpose and need of the project demonstrates what can be accomplish in a short period of time when everyone is working to achieve a common goal.

New Techniques, Methods, and Non-Traditional Design

The practical design elements incorporated into this project are non-traditional according to MoDOT design policies. However, these items are based on sound engineering design and judgment, and they satisfy the “purpose and need” of the project.

Cost Savings

The STIP budget for this project in the 05-09 STIP was \$22,510,000.00. The project low bidder on June 24, 2005 was the Fred Carlson Company, LLC at \$17,806,854.73. This is a savings of \$4,703,145.27 or 20.89 percent.

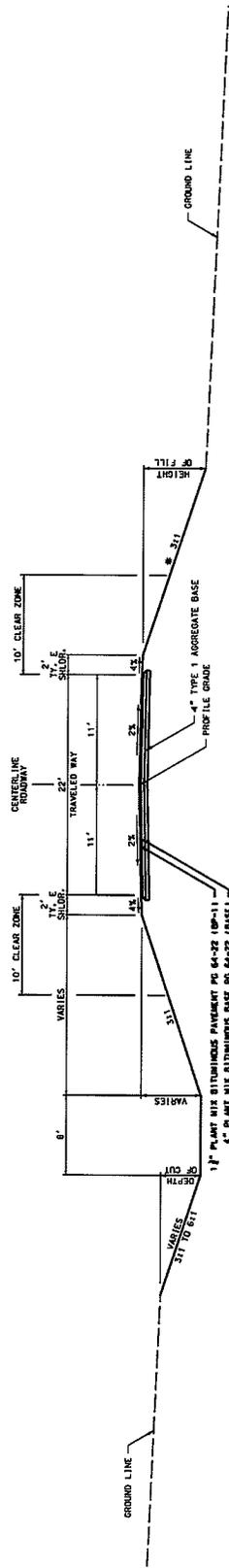
Roadway User Expectations

The practical design elements incorporated into the plans provide a consistent roadway for the entire length of the project while not exceeding the “purpose and need” of the project. In addition, the practical design elements incorporated into the project allow for faster construction, thus minimizing traffic delays and impacts to the traveling public due to construction.

Sincerely,
CRAWFORD, MURPHY & TILLY, INC.

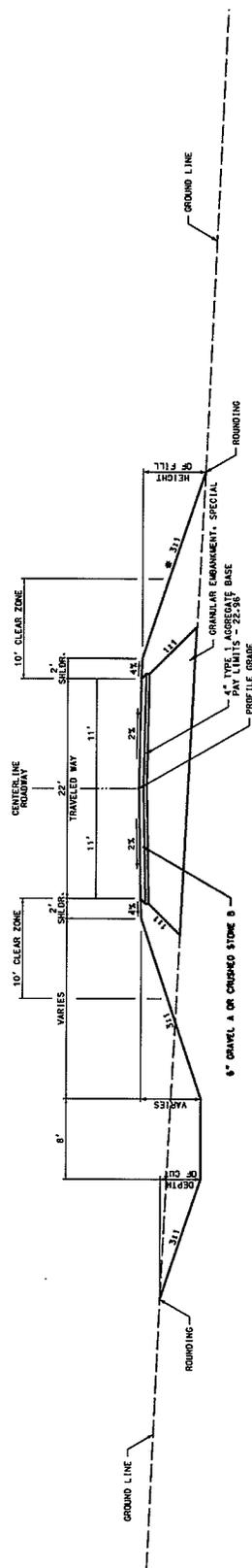


Daniel R. Meckes, P.E.
Manager, St. Louis Office



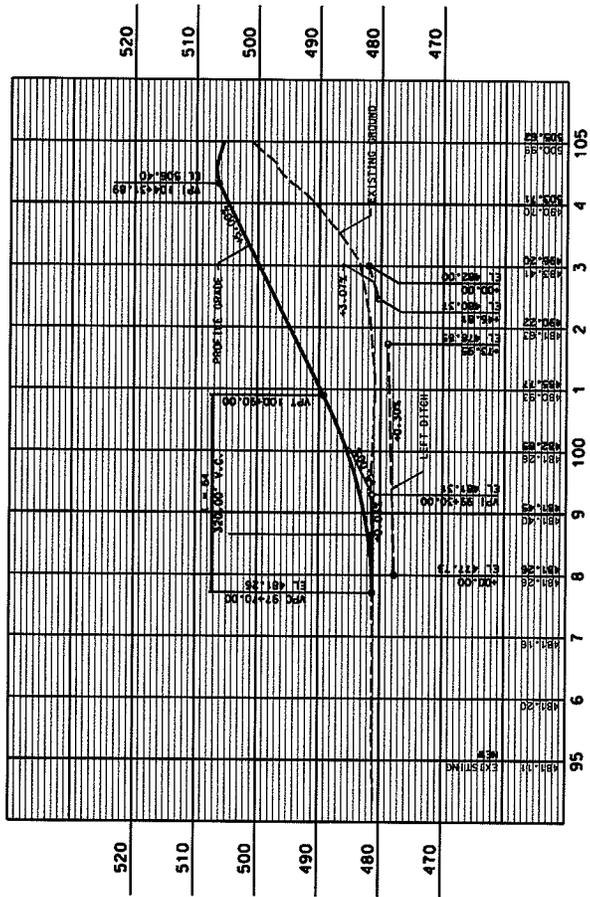
SECTION ON TANGENT COUNTY ROADS, CONNECTOR ROADS AND OUTER ROAD

BEFORE PRACTICAL DESIGN IMPLEMENTATION

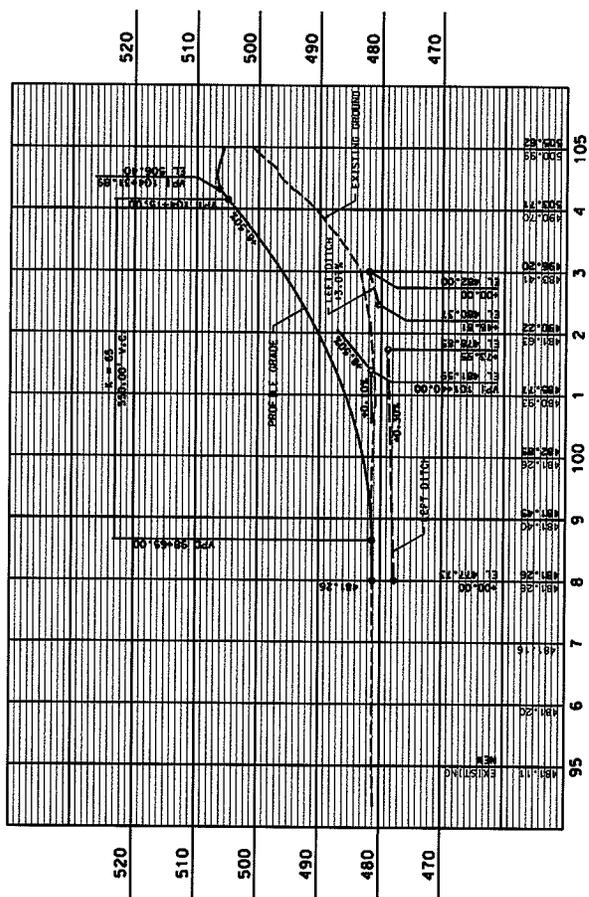


SECTION ON TANGENT TYPICAL SECTION COUNTY ROADS

AFTER PRACTICAL DESIGN IMPLEMENTATION

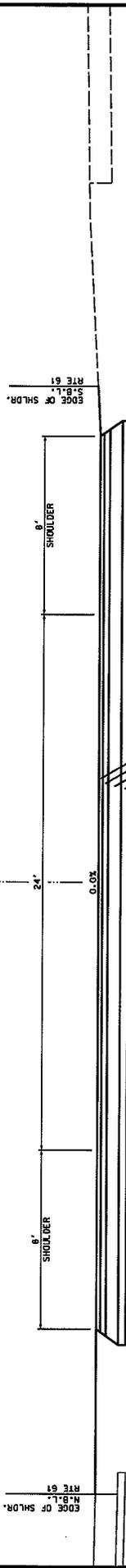


BEFORE PRACTICAL DESIGN IMPLEMENTATION
 PROFILE GRADE
 COUNTY ROAD 494



AFTER PRACTICAL DESIGN IMPLEMENTATION
 PROFILE GRADE
 COUNTY ROAD 494

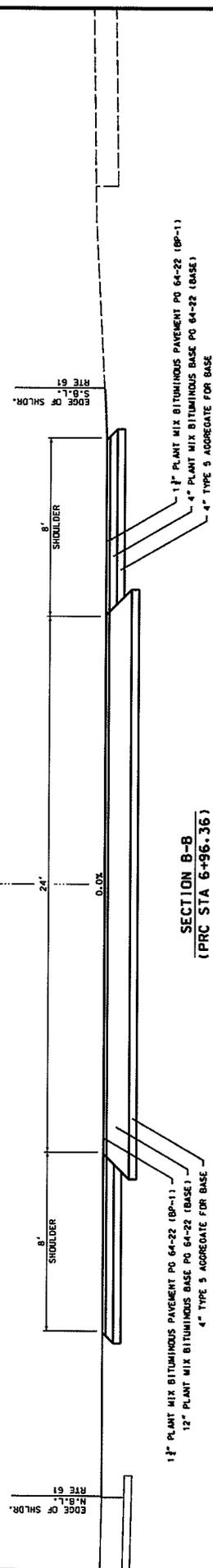
ROUTE 61
NORTH TEMP. CONN.



SECTION B-B
(PRC STA 6+96.36)

BEFORE PRACTICAL DESIGN IMPLEMENTATION

ROUTE 61
NORTH TEMP. CONN.



SECTION B-B
(PRC STA 6+96.36)

AFTER PRACTICAL DESIGN IMPLEMENTATION

2007 APPLICATION FORM

(required for each entry)

Job No. J3P0424B Route 61 County Lewis and Clark
STIP Description (Scoping or Construction, state which STIP) 05-09 06-10 07-11
Grading, bridges and paving for a four-lane expressway from Clark County to Route B.

Project Manager (could have both)

MoDOT Tom Batenhorst

Consultant Jack Blakemore (CMT)

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

MoDOT	MoDOT	CMT
<u>Macy Rodenbaugh, Mark Giessinger</u>	<u>Denny Lambert, Kurt Gribble</u>	<u>Dan Meckes, Jack Blakemore</u>
<u>Glenn Rice, Dan Barnes, Marisa Brown</u>	<u>Charles Pursley, Larry Ayres</u>	<u>Adam Burns, Josh Joliff</u>
<u>Kevin James, Randy Schubert</u>	<u>Buck Brooks</u>	<u>Cassie Reiter, Aaron Klenke</u>

Project Contacts (will have both for consultant entry)

District Tom Batenhorst

Consultant \$ Dan Meckes (CMT)

STIP budget \$ 22,510,000.00

or Award cost \$ 17,806,854.00

Value Engineering study during design? yes no (if yes) Project Stage Preliminary Plans (May 2002)

VE Contact person Glenn Rice

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

Total VECP savings \$ N/A VECP Contact Person N/A

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) The Route 61 project demonstrates how MoDOT and consultants can collaborate to develop innovative ideas that reduce costs without sacrificing safety on projects that meet the needs and expectations of taxpayers and the motoring public. Reducing the full-depth pave shoulders on Type A2, deleting the perforated drain pipe and splash pads, and "day lighting" the four-inch Type 5 aggregate base to provide payment under-drainage exemplifies how creativity plays a role in the practical design philosophy. The recalculation of the stormwater discharge values resulted in significant cost reduction, while still maintaining the purpose and need of the project.

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