



Project Delivery

Delivering improvements to Missouri's transportation system on time and on budget is one of MoDOT's highest priorities. The department made sure Missouri citizens and others who use the state system of roads and bridges receive the best value for their investment.

During fiscal year 2003, MoDOT succeeded in that mission and put procedures into motion to pave the way for even more improvement in the future.

With exceptional performance comes recognition. MoDOT's ability to correctly estimate the cost of highway construction projects garnered recognition by the Federal Highway Administration in Fall 2002 as the best in the nation. The department's efforts in this area saved taxpayers more than \$4 million. The award highlighted MoDOT's

success – the difference between estimated project costs and the actual low bids was .09 percent.

The engineers' estimates evaluated by the FHWA come just before a job is bid out and a contract is awarded. MoDOT engineers estimate all job aspects including materials needed, construction techniques required, special site considerations and experience gained from similar projects.

Those estimates give MoDOT a benchmark for what can be expected when bids are opened. If contractor estimates appear to be excessive, the Missouri Highways and Transportation Commission rejects the bid. MoDOT staff then looks for ways to reduce a project's cost. During 2001, MoDOT saved more than \$4 million by rejecting excessive bids and rebidding projects.

"This is an independent check to make sure we get good prices for highway construction work," MoDOT Director Henry Hungerbeeler says. "I'm pleased our staff efforts have been recognized by FHWA. Estimating project costs is tricky, and this award shows just how well we're doing to ensure Missourians get a good return on their highway investment."

A key technique to MoDOT's estimating success is use of cost-based estimating. "MoDOT is one of the few states that tries to formulate actual costs of construction elements such as equipment rental, labor rates and production costs," Hungerbeeler says. "We try to bid a job just like a contractor would, and cost-based estimating allows us to stay at market value."

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Contractors Deserve Their Share of the Credit

Contractors helped MoDOT by keeping their bids low. Here's some bids that deserve recognition. Low bid amount in parentheses.

February

Route 36 in Marion County part of the overall Route 36 Corridor improvements Six bidders with the low bid (\$10.7 m) more than 18 percent under budget amount

June

I-435, I-470, Route 71 in Jackson County, another phase of the Grandview improvements, 4 bidders low (\$50 m) more than 15 percent under budget

June

Route 61/67 in St. Louis/Jefferson Counties, new roadway and bridge over the Meramac River, 8 bidders low (\$11.9 m) more than 11 percent below budget

May

Route 65 in Saline County, roadway and superstructure for new Waverly Bridge over the Missouri River, 5 bidders low (\$17.5 m) more than 18 percent below budget

The award is given annually to the state department of transportation whose estimates are closest to the actual low bid on highway construction projects costing \$500,000 or more on National Highway System routes. This award covered calendar 2001.

The engineer's estimate is the third and final time staff hones their expectations for the cost of a project. Initial project estimates occur early for internal planning and resource purposes as improvement needs are identified. They are usually developed in one of two ways: by referencing a previously constructed project of similar type and condition or by consulting generic cost-per-mile factors that are included in MoDOT's *Project Development Manual*.

The second estimate comes as projects are programmed on the Statewide Transportation Improvement Program, MoDOT's 5-year project schedule. Essentially, approval of the STIP sets MoDOT's construction budget. During FY 2003, MoDOT developed a new project-scoping process that stands to significantly improve its ability to accurately forecast project costs and delivery schedules. Scoping begins with the delivery of a need to a project manager and "continues until the elements and limits of a project become so well-defined that accurate costs and project delivery schedules can be forecast," according to the Project Scoping Team that developed the new process.

MoDOT also showed significant savings in its construction costs in FY 2003 when measured against the budget, or STIP commitment, saving nearly \$40 million on highway construction contracts.

"Careful attention to every detail during the project-development and estimating process allowed these projects to come in more than 5 percent under budget," says Dave Nichols, MoDOT director of project development. "We worked very hard to anticipate every possible cost and hold down additional expenses. And when bids came in too high we re-bid them until the price was right. Contractors deserve credit for submitting very competitive bids."

The money saved was added to the FY 2004 construction program. “This money will allow us to get more work started than we had originally planned. With so many needed projects, we’re excited that we’ll be able to bring additional improvements to Missouri travelers,” Nichols says.

The success in bid estimating and programming continues a recent trend for MoDOT.

Hungerbeeler: “Over the past four years we’ve completed more than \$2 billion worth of projects, and the actual cost for those projects was only one-third of 1 percent off of our estimates. Estimates this accurate allow us to budget funds wisely and make sure we get the maximum number of projects built.

“When my counterparts around the country hear how close we’ve been estimating our construction costs, they marvel at our accomplishment,” he adds. “They want to know how we do it. Our staff has done a phenomenal job of managing our construction program.”

