

# Fast Projects That Are of Great Value

*Tangible Result Driver – Dave Nichols,  
Director of Program Delivery*

MoDOT customers expect that transportation projects be completed quickly and provide major improvements for travelers. MoDOT will honor project commitments because it believes in integrity.



## Fast Projects That Are of Great Value

### *Percent of estimated project cost as compared to final project cost*

**Result Driver:** Dave Nichols, Director of Program Delivery

**Measurement Driver:** Renate Wilkinson, Planning & Programming Engineer

**Purpose of the Measure:**

This measure determines how close MoDOT's total program completion costs are to the estimated costs.

**Measurement and Data Collection:**

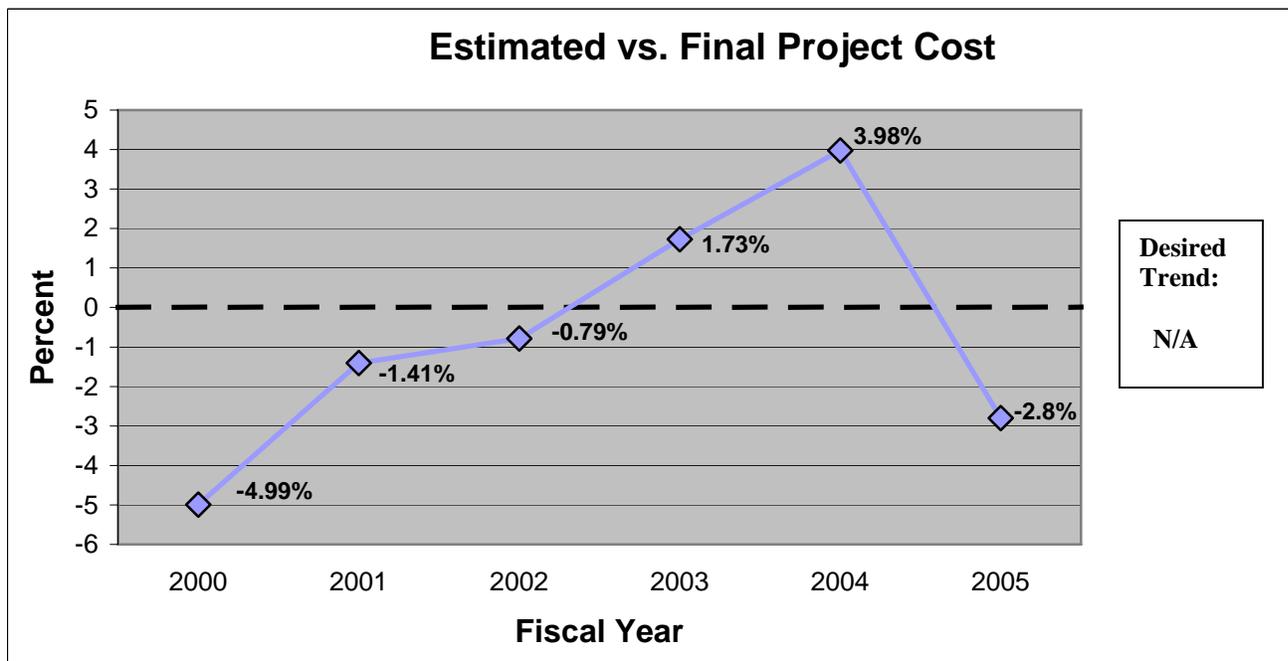
MoDOT determines the completed project costs and compares them to the estimated costs. The completed project costs are reported during the state fiscal year in which the project is completed.

Project costs include design, right of way purchases, utilities, construction, inspection and other miscellaneous costs. The estimated cost is based on the amount included in the most recently approved Statewide Transportation Improvement Program. Completed costs include actual expenditures. The costs do not include those that might result from any legal claims, which are rare occurrences, regarding the projects after they are completed. Positive numbers indicate the final (completed) cost was higher than the estimated cost.

**Improvement Status:**

The increased cost trend through state fiscal year 2004 reflects the increased number of projects in state fiscal years 2001, 2002 and 2003. The increased work volume resulted in higher awards and overall costs. The decrease in 2005 can be attributed to the lower work volume and increased competition among contractors.

The ideal status is no deviation in the estimated vs. final project cost, or 0 percent.



Positive numbers indicate the final (completed) cost was higher than the estimated cost.

## Fast Projects That Are of Great Value

### *Number of years it takes to go from the programmed commitment in the Statewide Transportation Improvement Program to construction completion*

**Result Driver:** Dave Nichols, Director of Program Delivery

**Measurement Driver:** Machelles Watkins, Transportation Planning Director

**Purpose of the Measure:**

This measure determines how quickly projects go from the programmed commitment to construction completion. Customers perceive this time as project wait-time.

**Measurement and Data Collection:**

MoDOT compares how long it takes from when the project is added to the Statewide Transportation Improvement Program to when the project is completed. Data is categorized by the type of work, and distinguishes between design and construction stages.

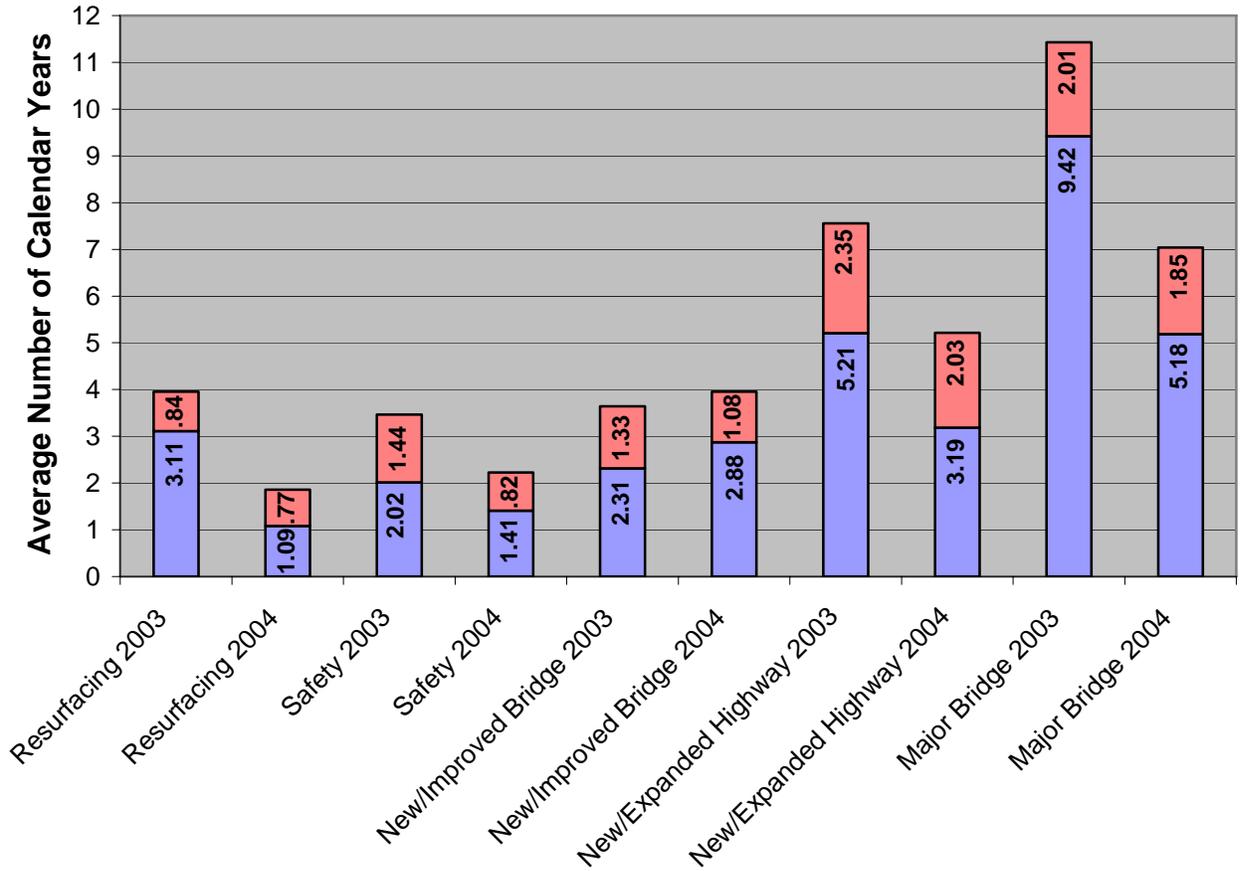
**Improvement Status:**

Of the projects completed in 2004, the quickest projects were resurfacing projects, which were completed in less than two years. The projects that took the longest time to complete were major bridge projects, which took about seven years. The construction phase (in blue) ranged from under one year for resurfacing projects to two years for new or expanded highways and major bridges. The design phase (in pink) generally took more time than construction, ranging from just over one year for resurfacing projects to just over five years for major bridges. Major bridges required much more time because of the complexity of the design work, the increased amount of public and other governmental agency involvement, the amount of environmental and cultural work required, the purchasing of right of way, and sometimes, the coordination with neighboring states.

Of the projects completed in 2003, the quickest projects were safety projects, which were completed in less than four years. The projects that took the longest to complete were major bridge replacements, which took almost 12 years. Overall, projects completed in 2004 were designed and completed quicker than projects completed in 2003.

Data for projects completed in 2005 will be available in the July 2006 Tracker.

## Number of Years it Takes to Go from Programmed Commitment in the STIP to Construction Completion for Projects Completed by Work Type



### Work Type and Calendar Year Completed

- Average Years from Award Date to Construction Completion
- Average Years from Programmed Commitment to Award

**Desired Trend:**

N/A

## Fast Projects That Are Of Great Value

### *Percent of projects completed within budget*

**Results Driver:** Dave Nichols, Director of Project Delivery

**Measurement Driver:** Dave Ahlvers, State Construction Engineer

**Purpose of Measure:**

The measure tracks the percentage of projects completed within the programmed amount. The cost includes such items as engineering, right of way and contract payments.

**Measurement and Data Collection:**

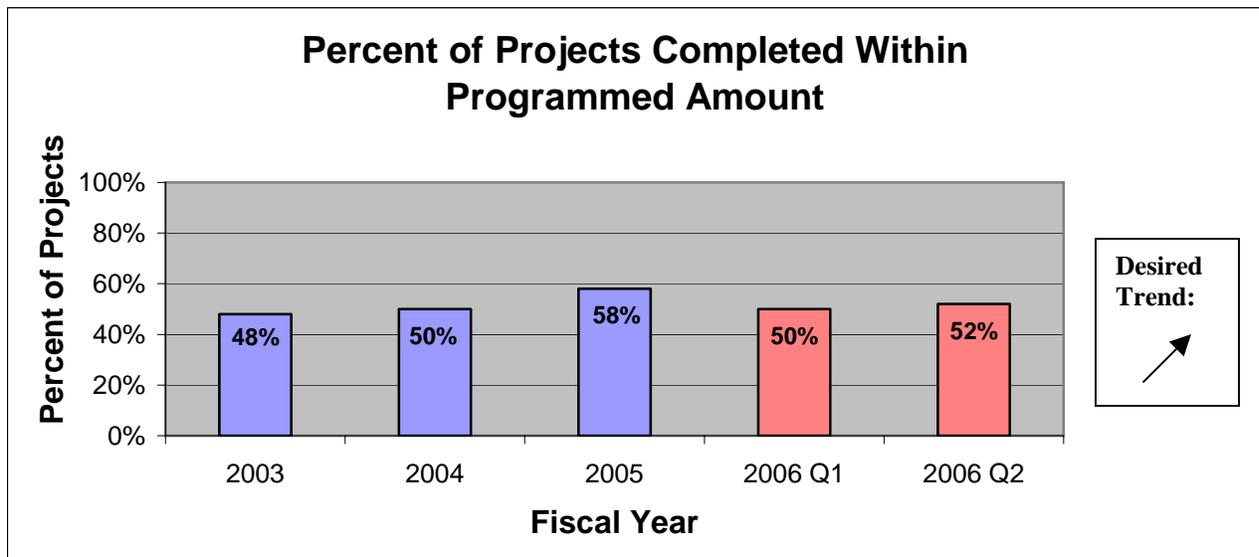
The completed project cost is compared to the estimated cost for each project. The percentage of projects completed within the estimated cost is gathered from across the state.

Project costs include design, right of way purchases, utilities, construction payments, inspection and other miscellaneous cost.

**Improvement Status:**

MoDOT would like to see all projects completed within the programmed amount. The goal is to deliver projects at the programmed amount allowing the greatest number of projects to be built with the funding available. Our data indicates that there is a great deal of deviation among individual projects with half over and half under budget.

Continued emphasis is being placed on scoping projects and developing estimates that represent the true cost of delivering the projects. We are striving to deliver quality projects cheaper by using practical design.



## Fast Projects That Are Of Great Value

### *Percent of projects completed on time*

**Results Driver:** Dave Nichols, Director of Project Delivery

**Measurement Driver:** Dave Ahlvers, State Construction Engineer

**Purpose of the Measure:**

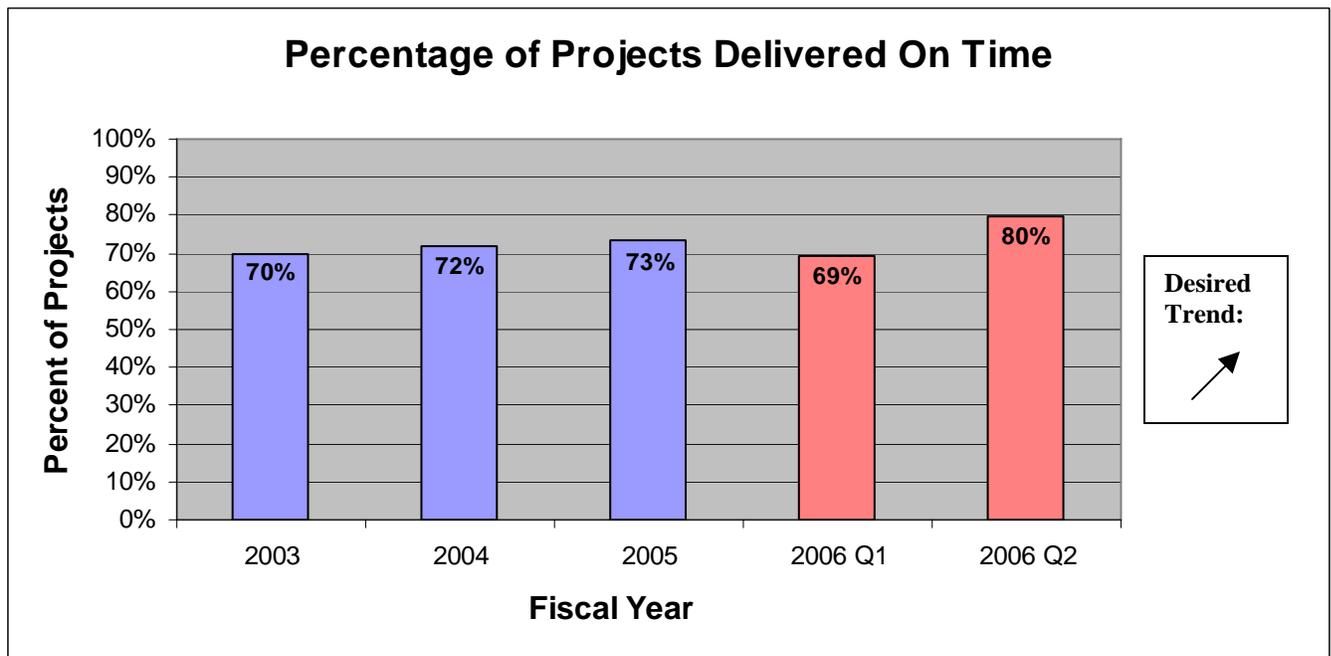
This measure tracks the percentage of projects completed by the commitment date established in the contract. It will indicate MoDOT's ability to complete projects by the agreed upon date.

**Measurement and Data Collection:**

The project manager will establish project completion dates for each project. This will be documented in MoDOT's SiteManager and STIP databases. It will be part of the Plans, Specifications & Estimates submittal. The actual completion date will be documented by the Resident Engineer and placed in MoDOT's Management System.

**Improvement Status:**

The results indicate a small increase from previous years in the percent of projects completed on time. MoDOT has focused on reducing the number of days available for construction in order to reduce congestion and inconvenience to the traveling public, while stressing the importance of completing projects on time. An emphasis has been placed on reviewing construction schedules and assessment of liquidated damages, which will lead to improvements in timely completion.



## Fast Projects That Are Of Great Value

### *Percent of change for finalized contracts*

**Results Driver:** Dave Nichols, Director of Project Delivery

**Measurement Driver:** Dave Ahlvers, State Construction Engineer

**Purpose of the Measure:**

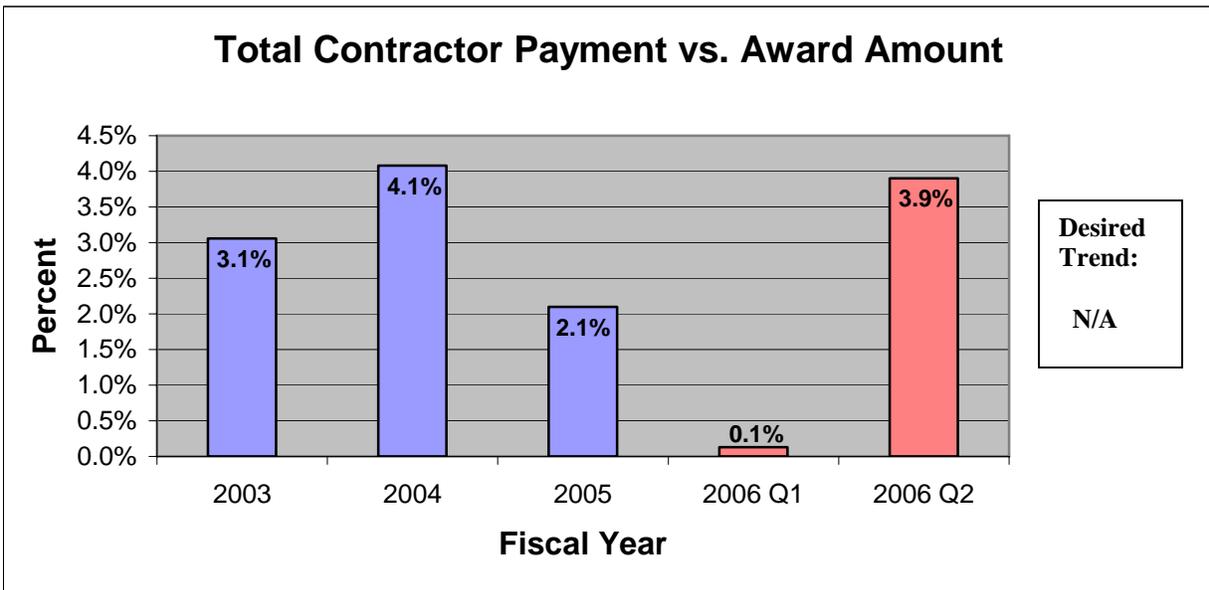
The measure tracks the percentage difference of total construction payouts to the original contract award amounts. This indicates how many changes are made on projects after they are awarded to the contractor.

**Measurement and Data Collection:**

Contractor payments are generated through MoDOT's SiteManager database and processed in the financial management system for payment. Change orders document the underrun/overrun of the original contract.

**Improvements Status:**

MoDOT's performance on this item has improved significantly since 2004. In fiscal year 2005 there was savings of \$15 million. We continue to perform at the two-percent level through the first two quarters of fiscal 2006. The improvement is a result of a strong emphasis placed on constructing projects within budget, the use of practical design and value engineering. By limiting overruns on contracts the department can deliver more projects, which will lead to an overall improvement in the entire highway system.



## Fast Projects That Are Of Great Value

### *Average construction cost per day by contract type*

**Results Driver:** Dave Nichols, Director of Project Development

**Measurement Driver:** Dave Ahlvers, State Construction Engineer

**Purpose of the Measure:**

This measure tracks the cost per day for project completion to determine the impact to the traveling public, enabling MoDOT to better manage project completion needs.

**Measurement and Data Collection:**

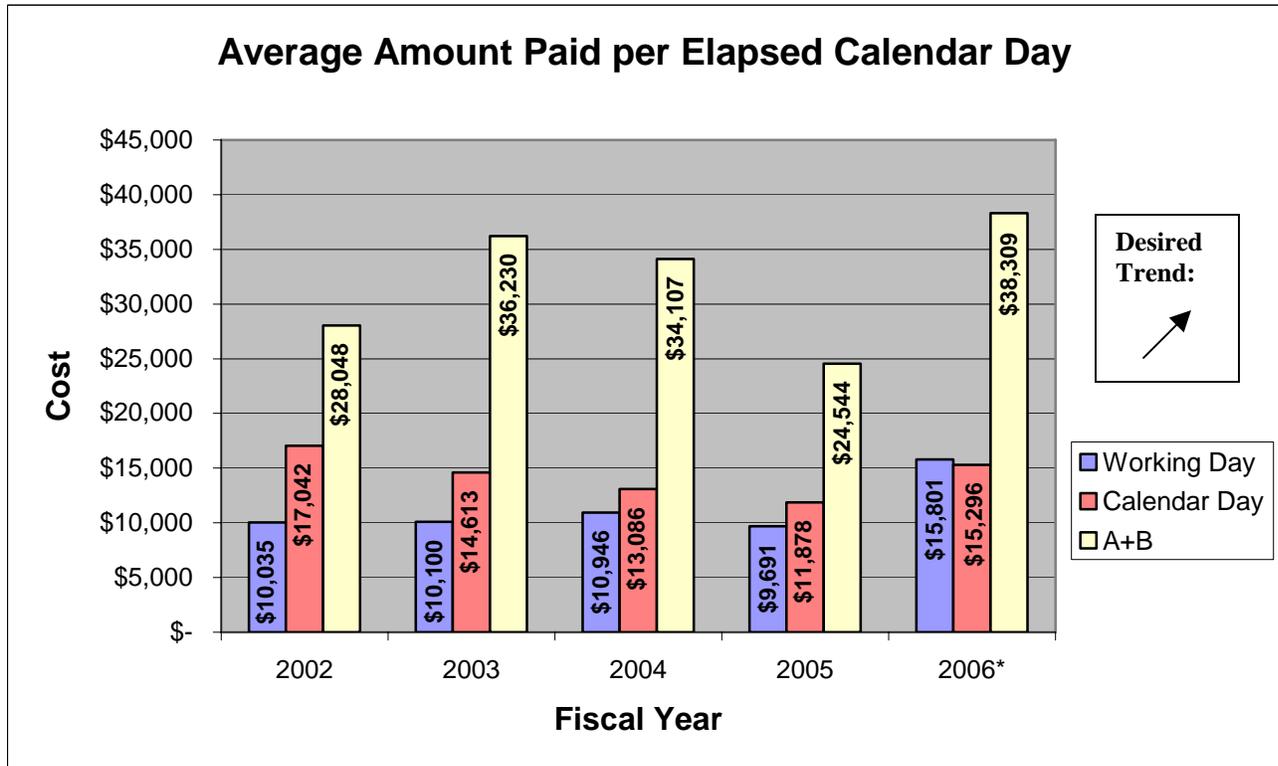
This information is gathered by extracting the actual time used for construction from the summary of working days in the SiteManager database and dividing it by the total costs of the project.

The measurement groups construction contracts into three categories:

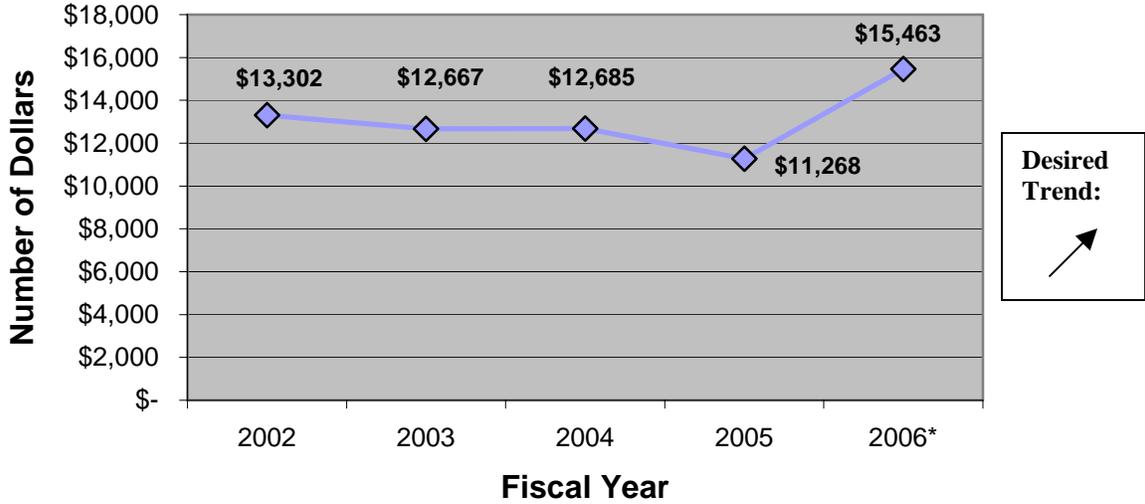
- **WD** working day contracts
- **CD** calendar day contracts and;
- **A + B** or innovative contracts that provide incentive/disincentives to the contractor for early completion.

**Improvement Status:**

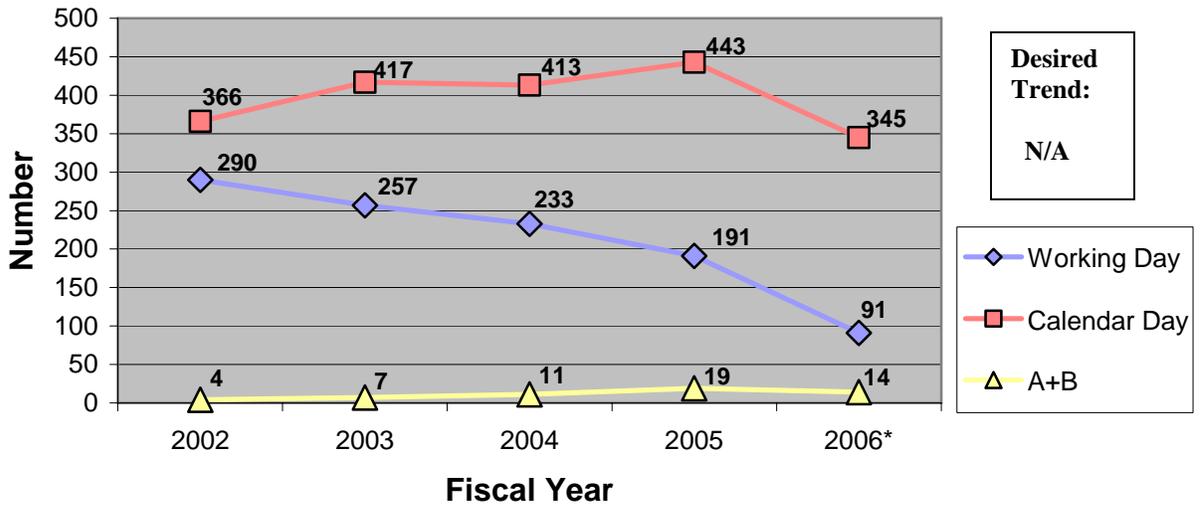
The greater use of A+B and calendar day contracts resulted in a larger amount paid per calendar day. MoDOT's strategy of utilizing innovative contracting techniques has resulted in faster contract completion and fewer delays to the traveling public. We are reviewing the contract type selected to make a determination if we are using our resources most effectively for timely completion of projects.



### Average Amount Paid per Elapsed Calendar Day All Contract Types



### Number of Active Contracts



## Fast Projects That Are of Great Value

### *Percent of project timeliness as compared to other state DOTs*

**Result Driver:** Dave Nichols, Director of Program Delivery

**Measurement Driver:** Dave Ahlvers, State Construction Engineer

**Purpose of the Measure:**

This measure tracks how MoDOT compares to other state Departments of Transportation with regards to project timeliness. As MoDOT develops projects working with the public, we give them schedules for construction that include an estimate of when the road will be open to traffic. In addition, our construction contracts have completion times included that are often shown on construction signing. Comparing the percentage of times that MoDOT completes construction when promised with other states will help demonstrate its level of performance to the public and could point out a need for an educational effort with the public or the need for partnering efforts.

**Measurement and Data Collection:**

The AASHTO Standing Committee on Quality has launched a pilot project (through its Subcommittee on Performance Measures) for comparative performance measures with regards to the topic of project delivery. MoDOT is participating in this prototype venture along with five other states – Delaware, New Mexico, Ohio, Florida and Virginia. The committee developed a survey that was completed this summer. It requested very specific information related to how each DOT defines its universe of contracts or projects for measuring performance, how it defines its performance measures, and the business rules, data fields and time horizons utilized to track performance.

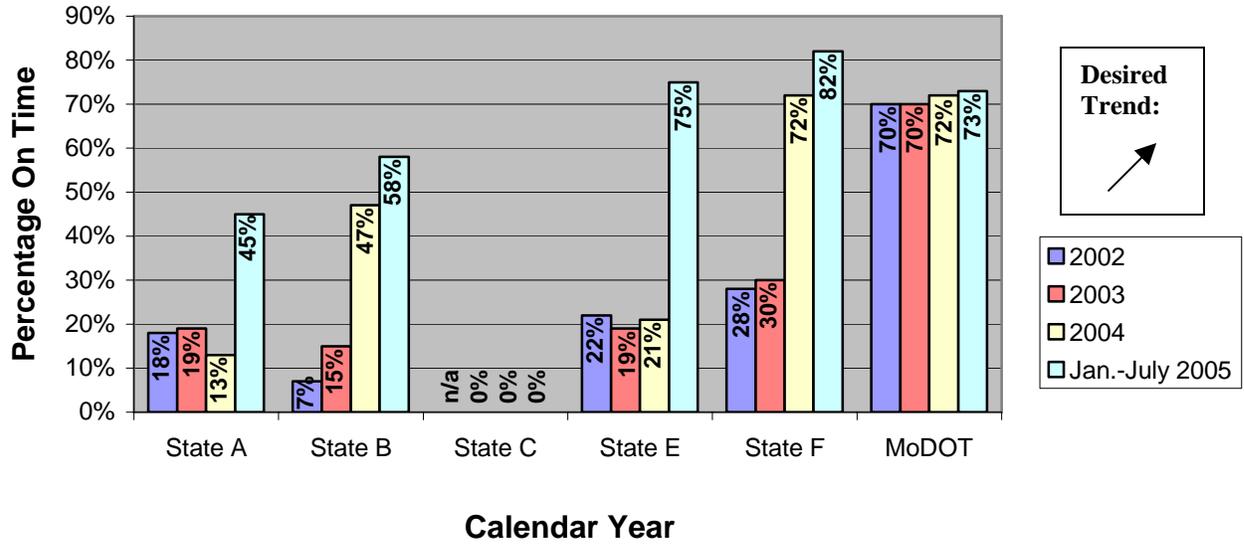
MoDOT customers have an expectation that our roadway construction be completed when promised, despite factors – including unfavorable and unpredictable weather – that can cause significant delays. For this measure, the definition of ‘on time’ selected is as follows: *“The contract must be completed on or before the original specified completion date.”*

**Improvement Status:**

MoDOT compares quite favorably, with indicators between 70-73 percent for the four data points. The other states, listed anonymously here because that was a condition of participation in the pilot project, have posted on-time percentages between 0-82 percent.

None of the definitions that have been developed to date for the purpose of this survey have gone far enough to enable the tracking of project timeliness from a “needs identification to ribbon cutting” perspective. MoDOT is advocating this scope as the subcommittee continues its work.

### Percentage of Projects Completed On or Before the Original Specified Completion Date



## Fast Projects That Are Of Great Value

### *Percent of customers that feels completed projects are the right transportation solutions*

**Result Driver:** Dave Nichols, Director of Program Delivery

**Measurement Driver:** Ernie Perry, Organizational Performance Administrator

**Purpose of the Measure:**

This measure provides information regarding the public's perception of MoDOT's performance in providing the right transportation solutions.

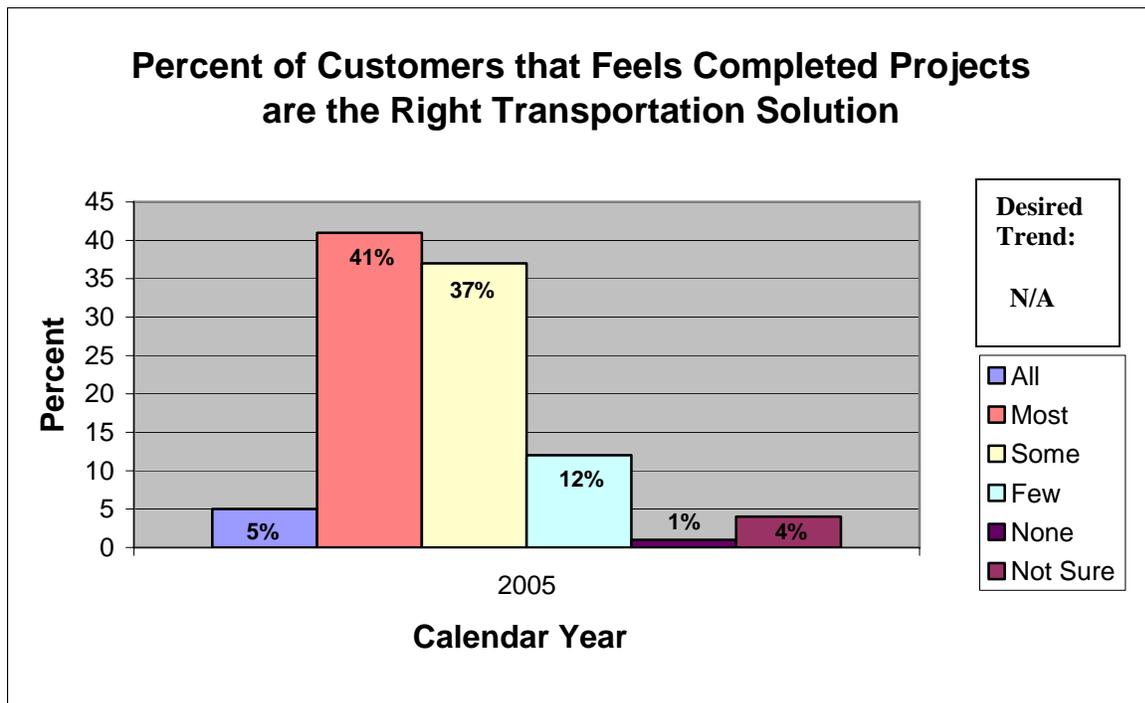
**Measurement and Data Collection:**

Data was collected through a statewide telephone survey conducted for MoDOT's long-range planning initiative called *Missouri Advance Planning*. The survey effort included interviews with 3,100 Missourians with an overall margin of error of +/- 2.9 percent. This measure will be collected on an annual basis through a stratified, statewide telephone survey.

**Improvement Status:**

Forty-six percent of the sample feels most or all of MoDOT's transportation solutions were the right solutions. Thirty-seven percent feels some of the projects were the right solutions, and 13 percent feels that few or none of the projects were the right solutions to transportation needs.

While this is a positive starting point, MoDOT continues to utilize community outreach and communication efforts to gain greater public support, so all projects are viewed as the right solution. Additional analysis of the respondents' stating that few or none of the projects were the right solutions did not reveal any substantive, actionable trends in the data. MoDOT will continue to investigate this measure and reassess prior to the next annual customer survey effort.



## Fast Projects That Are of Great Value

### *Percent of projects that represent great value*

**Result Driver:** Dave Nichols, Director of Program Delivery

**Measurement Driver:** Travis Koestner, TSE – Contract Services Engineer

**Purpose of the Measure:**

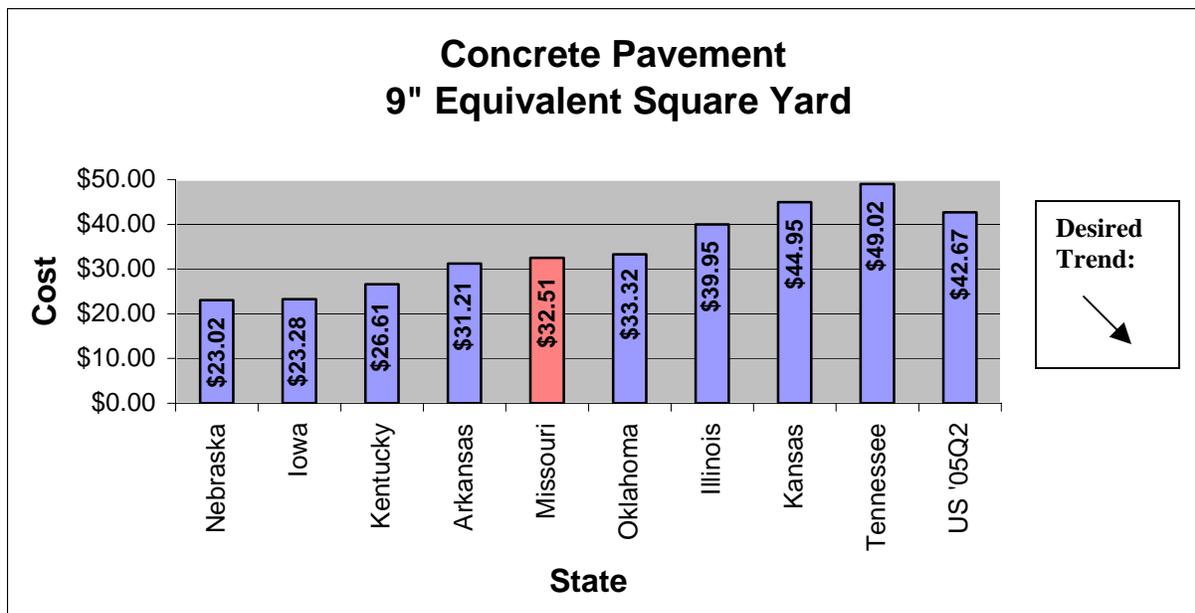
This measure tracks how MoDOT projects provide great value by comparing the cost of major items of work for MoDOT projects to other state DOTs.

**Measurement and Data Collection:**

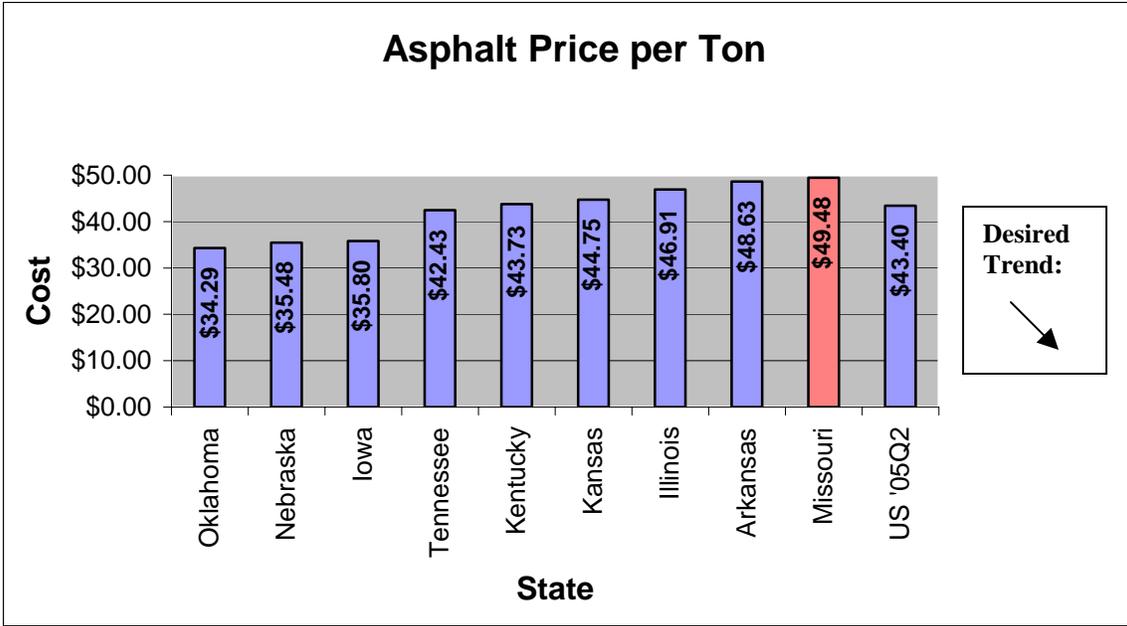
Value in this measure has simply been related back to \$’s/unit of measure. Completed in January 2006, the raw data, provided by an outside vendor, was categorized by MoDOT staff. This information should be the most current representation of what DOTs pay for these major work items.

**Improvement Status:**

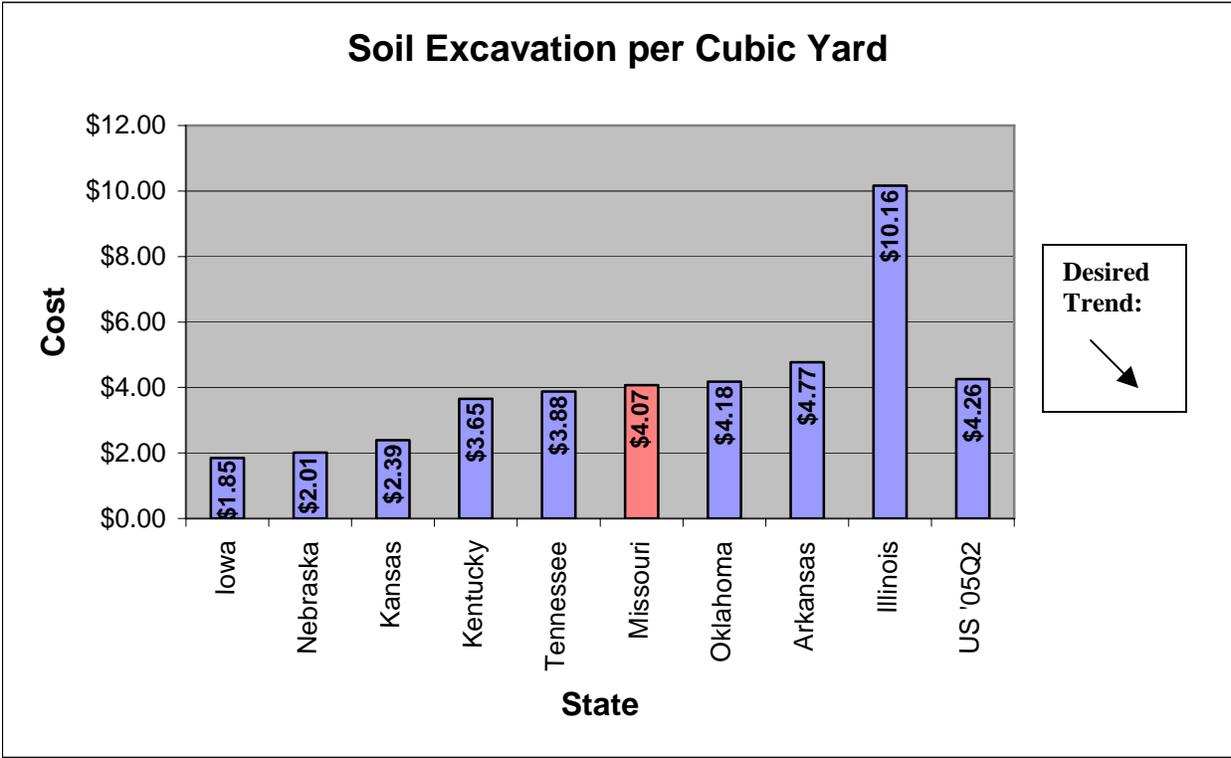
MoDOT customers should be able to gain an understanding of what it costs for a DOT to install an item of work. While value should not be defined as MoDOT prices per unit be the lowest as compared to other DOTs, the prices can be compared keeping in mind that the labor rates, material availability and general project conditions such as urban vs. rural will vary from state to state. MoDOT can use this information to gain an understanding of how prices in Missouri relate to the rest of the surrounding states and eventually the rest of the country. DOTs that have similar market conditions may result in information regarding specifications or bidding practices that result in lower cost.



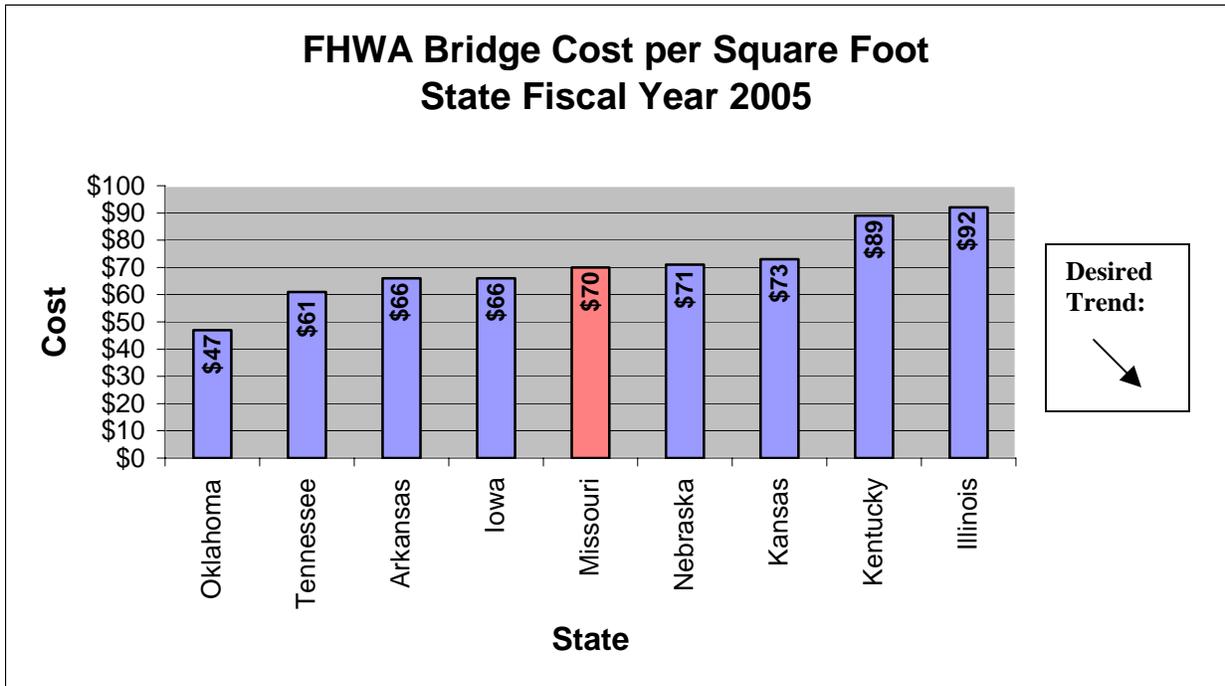
Source Data for states other than Missouri from [Oman Systems Bid Tabs Professional](#) latest data available as of January 1, 2006. Items included; concrete pavement items paid for by the square yard converted to a 9 in equivalent. US Data from FHWA “Price Trends for Federal-Aid Highway Construction” Second Quarter 2005. Missouri Data from MoDOT bid history.



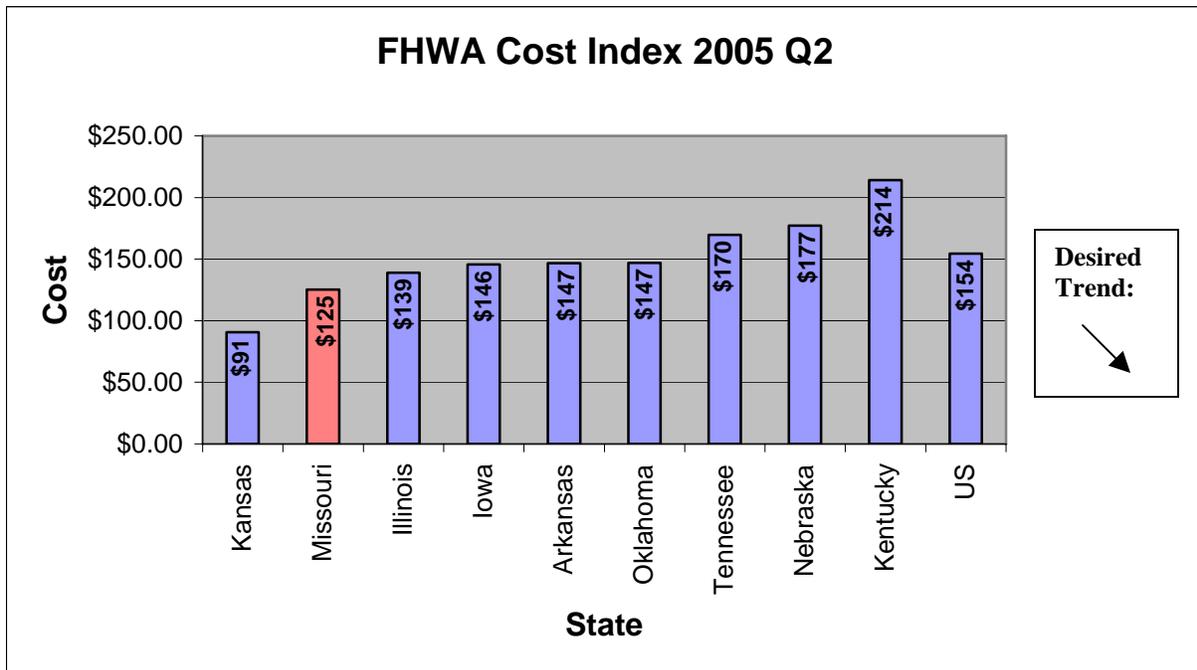
Source Data for states other than Missouri from Oman Systems Bid Tabs Professional latest data available as of January 1, 2006. Items included asphalt items paid for by the ton. US Data from FHWA "Price Trends for Federal-Aid Highway Construction" Second Quarter 2005. Missouri Data from MoDOT bid history.



Source Data for states other than Missouri from Oman Systems Bid Tabs Professional latest data available as of January 1, 2006. Items include; common excavation items paid for by the cubic yard. US Data from FHWA "Price Trends for Federal-Aid Highway Construction" Second Quarter 2005. Missouri Data from MoDOT bid history.



Source data from FHWA memo “Bridge Construction Unit Cost” dated December 7, 2005. FHWA does not publish an average US cost per square foot for bridges.



Source “Price Trends for Federal-Aid Highway Construction” Second Quarter 2005.

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