



# FAST PROJECTS THAT ARE OF GREAT VALUE

*Tangible Result Driver – Dave Nichols, Chief Engineer*

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.

### Percent of programmed project cost as compared to final project cost-9a

**Result Driver:** Dave Nichols, Chief Engineer

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

#### Purpose of the Measure:

This measure determines how close MoDOT's total project completion costs are to the programmed costs. The programmed cost is considered the project budget.

#### Measurement and Data Collection:

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

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

In November of each year, this data is provided to the Missouri Legislature through the Report to the Joint Committee on Transportation Oversight. This measure is updated each quarter.

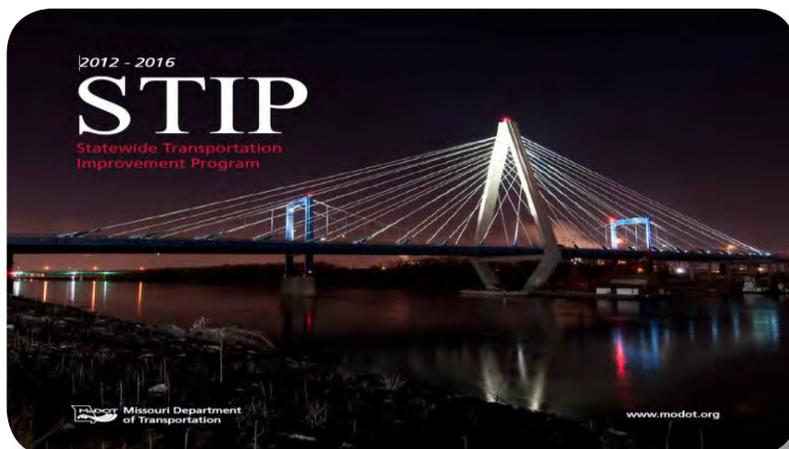
#### Improvement Status:

As of Sept. 30, 2011, for fiscal year 2012, a total of 88 projects were completed at a cost of \$318 million. This represents a deviation of -13.5 percent or \$50 million less/more than the programmed cost of \$368 million.

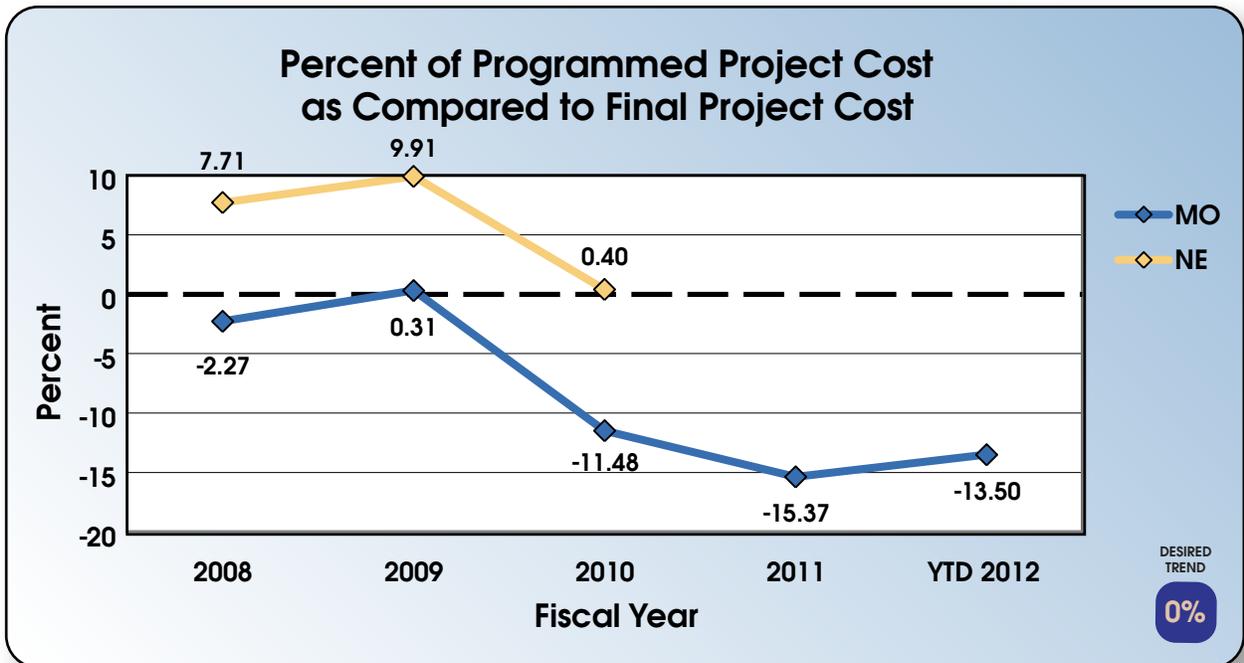
For fiscal year 2011, the final value is 473 projects completed at a cost of \$1.021 billion. This represents a deviation of -15.4 percent or \$185 million less than the estimated cost of \$1.207 billion. These numbers have been revised slightly since July based on projects that had pending adjustments.

District construction budgets are adjusted based on variation from programmed costs. The ideal status is no deviation in the programmed vs. final project cost, or 0 percent. For projects completed in the five-year period from 2007 to 2011, final costs of \$6.380 billion were within -5.87 percent of programmed costs, or \$398 million less than the programmed cost of \$6.778 billion.

While a number of states track construction costs, few provide data for total project costs. Fewer still compare programmed total project costs to final total project cost. The following graph shows how MoDOT performance compares with neighboring Nebraska. Since 2008, both states were within 10 to 12 percent of each other. Data for Nebraska is updated annually.



## FAST PROJECTS THAT ARE OF GREAT VALUE



Positive numbers indicate the final (completed) cost was higher than the programmed cost.  
 Data from Nebraska Department of Roads, one-year schedule of highway improvement projects.

## Percent of projects completed within programmed amount-9b

**Results Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Jay Bestgen, Assistant State Construction and Materials Engineer

### Purpose of the Measure:

This measure tracks the percentage of projects completed within the programmed amount. It includes separate categories for projects over and under one million dollars.

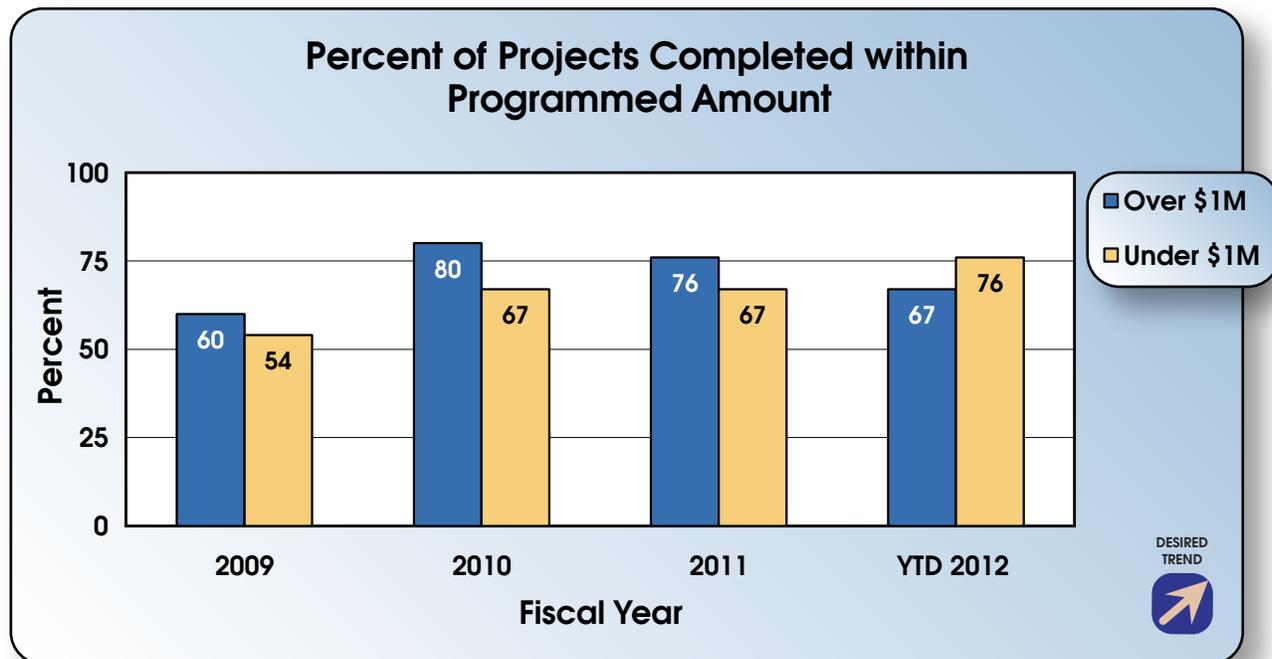
### Measurement and Data Collection:

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.

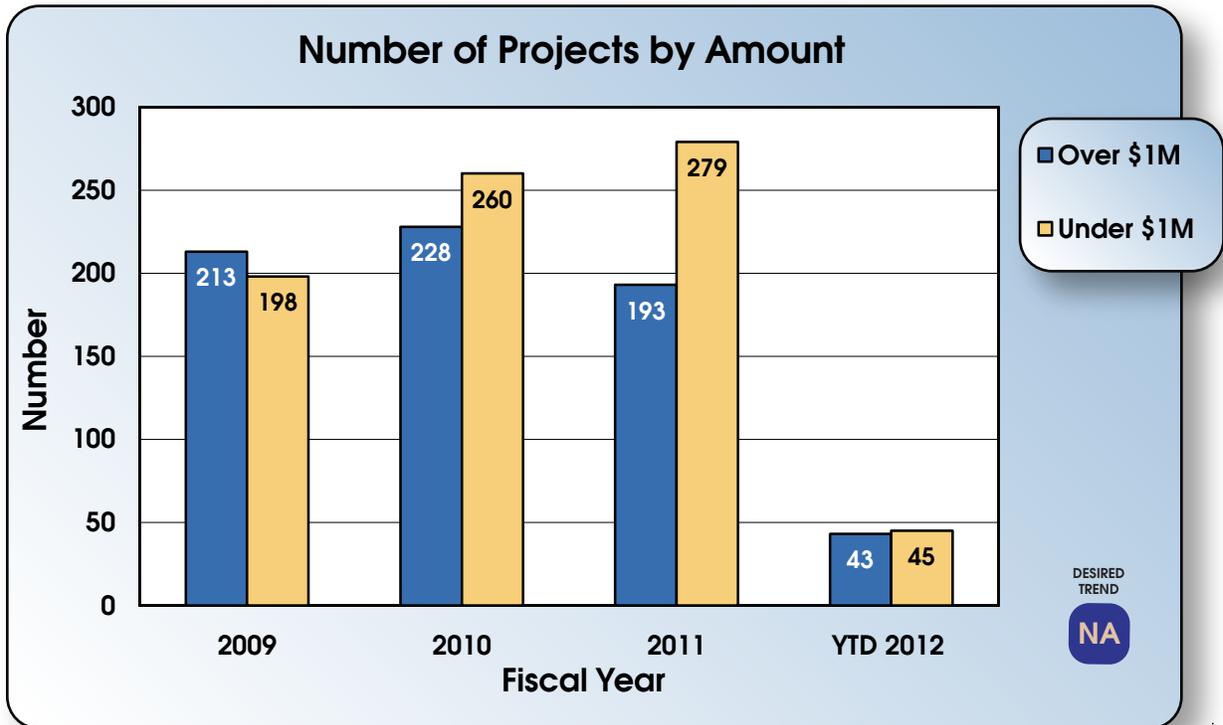
Project costs include design, right-of-way purchases, utilities, construction payments, inspection and other miscellaneous costs. This is a quarterly measure.

### Improvement Status:

MoDOT desires that all projects be completed within the programmed amount, thereby allowing the greatest number of projects to be built with the funding available. The data indicates that there is a great deal of deviation among individual projects. In the first quarter of fiscal year 2012, 67 percent of projects programmed over \$1 million were completed within the budgeted amount, while 76 percent of projects under \$1 million came in at or below budget. Emphasis has been placed on scoping projects and developing estimates that represent the true cost of project delivery. MoDOT is striving to deliver quality projects cheaper by using practical design and by encouraging the use of value engineering.



# FAST PROJECTS THAT ARE OF GREAT VALUE



## Percent of projects completed on time-9c

**Results Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Jay Bestgen, Assistant State Construction and Materials Engineer

### Purpose of the Measure:

This measure tracks the percentage of projects completed by the commitment date established in the contract. Adjustments to the completion date are made when additional work is required or for unusual weather occurrences. It indicates MoDOT's ability to complete projects by the agreed upon date.

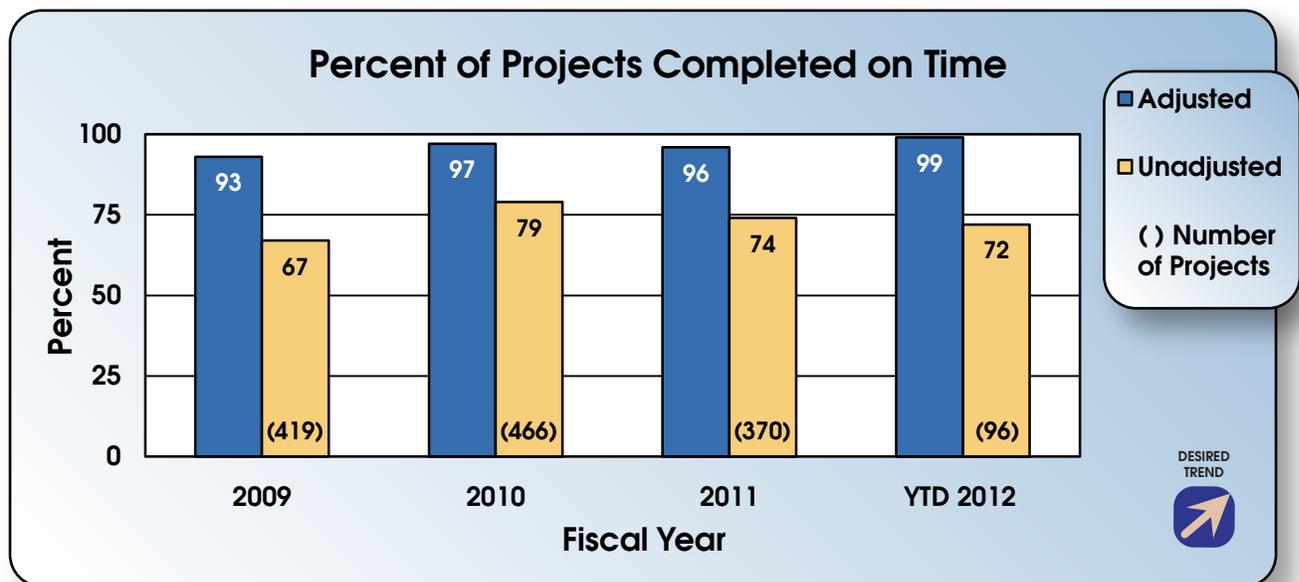
### Measurement and Data Collection:

The project manager will establish project completion dates for each project. They are documented in MoDOT's SiteManager and STIP databases, and become part of the Plans, Specifications & Estimates submittal. The actual completion date is documented by the resident

engineer and placed in MoDOT's project management system. This is a quarterly measure.

### Improvement Status:

The results show that 99 percent of projects in the first quarter of fiscal year 2012 were 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. To achieve timely completion of improvement projects, an emphasis has been placed on reviewing construction schedules and assessing liquidated damages.



## Percent of change for finalized contracts-9d

**Results Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Jay Bestgen, Assistant State Construction and Materials Engineer

### Purpose of the Measure:

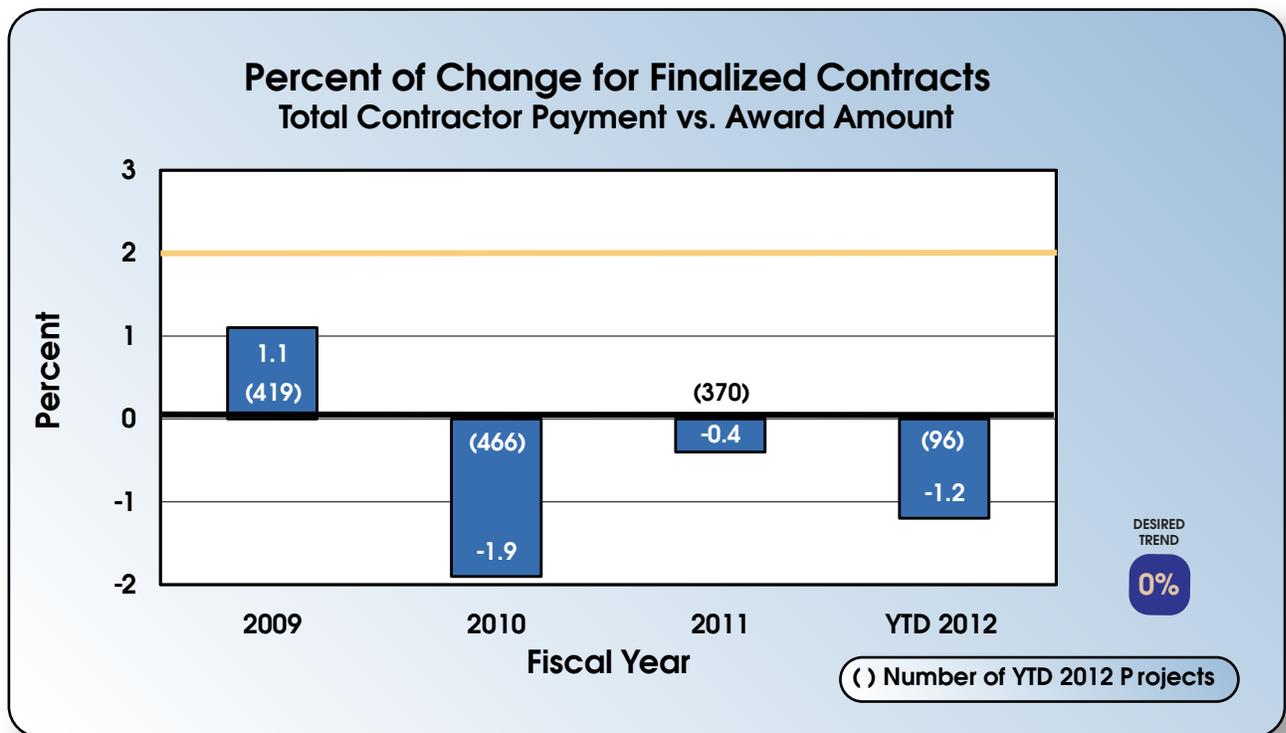
This measure tracks the percentage difference of total construction payouts to the original contract award amounts. This indicates how many changes are made on projects after they are awarded to the contractor.

### 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 cost. This is a quarterly measure.

### Improvements Status:

MoDOT's performance of -1.2 percent in first quarter of fiscal year 2012 was below the target of two percent. This reduction results in a \$3.0 million decrease from the awarded amount. The overall improvement is a result of a strong emphasis placed on constructing projects within budget and the use of practical design and value engineering. By limiting overruns on contracts, MoDOT can deliver more projects, leading to an overall improvement of the entire highway system.



## Average number of days from sponsor project selection to construction obligation-9e

**Result Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Kenny Voss, Local Program Administrator

### Purpose of the Measure:

This measure monitors how quickly projects go from the programmed commitment to obligation of a construction project.

### Measurement and Data Collection:

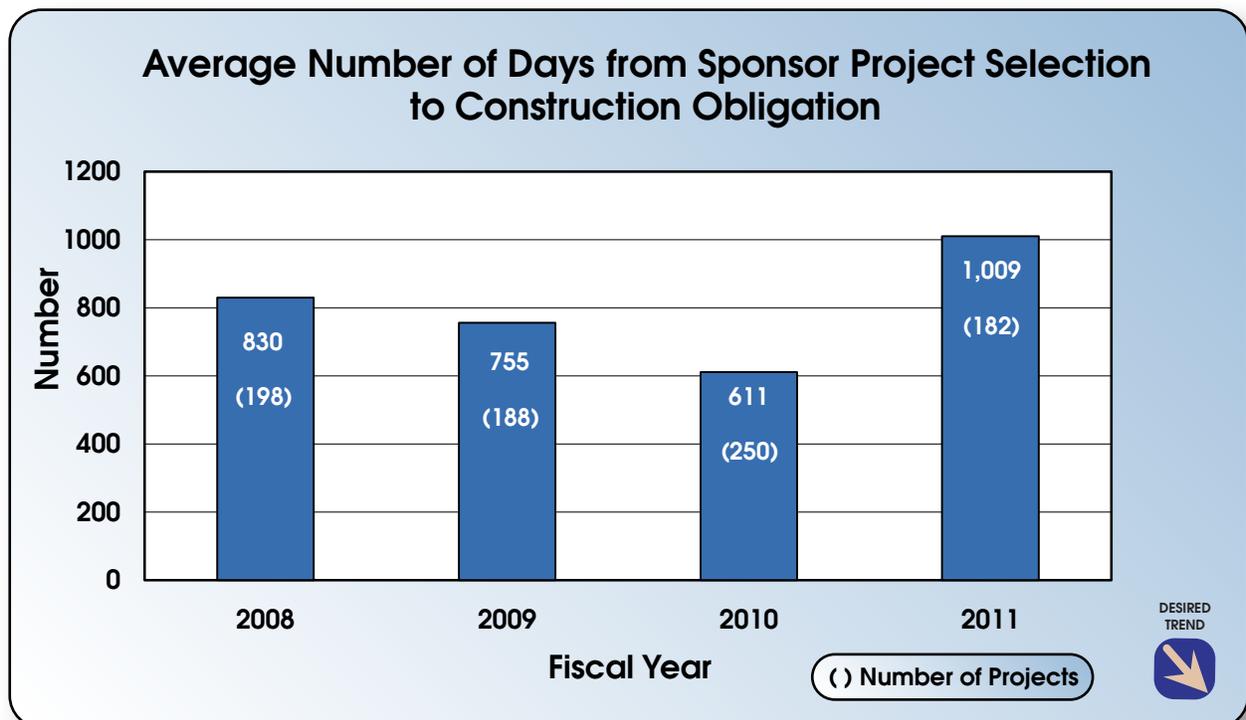
MoDOT compares how long it takes from when the project is selected to when the project is obligated for construction. Projects are tracked based on the fiscal year in which the obligation occurs. Results for the current year are updated each quarter.

### Improvement Status:

From 2008 to 2010, the average number of days consistently decreased as a result of more aggressive schedules for local projects and an increased focus by

MoDOT staff and local public agencies to deliver federally funded projects faster.

During 2011, the average number of days significantly increased. The increase is due to the concern by project sponsors that they may lose funds if projects are not obligated in a timely manner. This concern was driven by two factors: potential for funds to be rescinded by Congress; and increased focus by MoDOT staff to deliver projects faster. Due to the large number of programmed projects that have not been obligated, the increase in days in 2011 is a necessary step to reduce the inventory of unobligated projects. This update does not show the desired trend but does show progressive improvement towards the purpose of the measure.



## Percent of LPA projects completed within engineer's estimate -9f

**Results Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Kenny Voss, Local Program Administrator

### Purpose of the Measure:

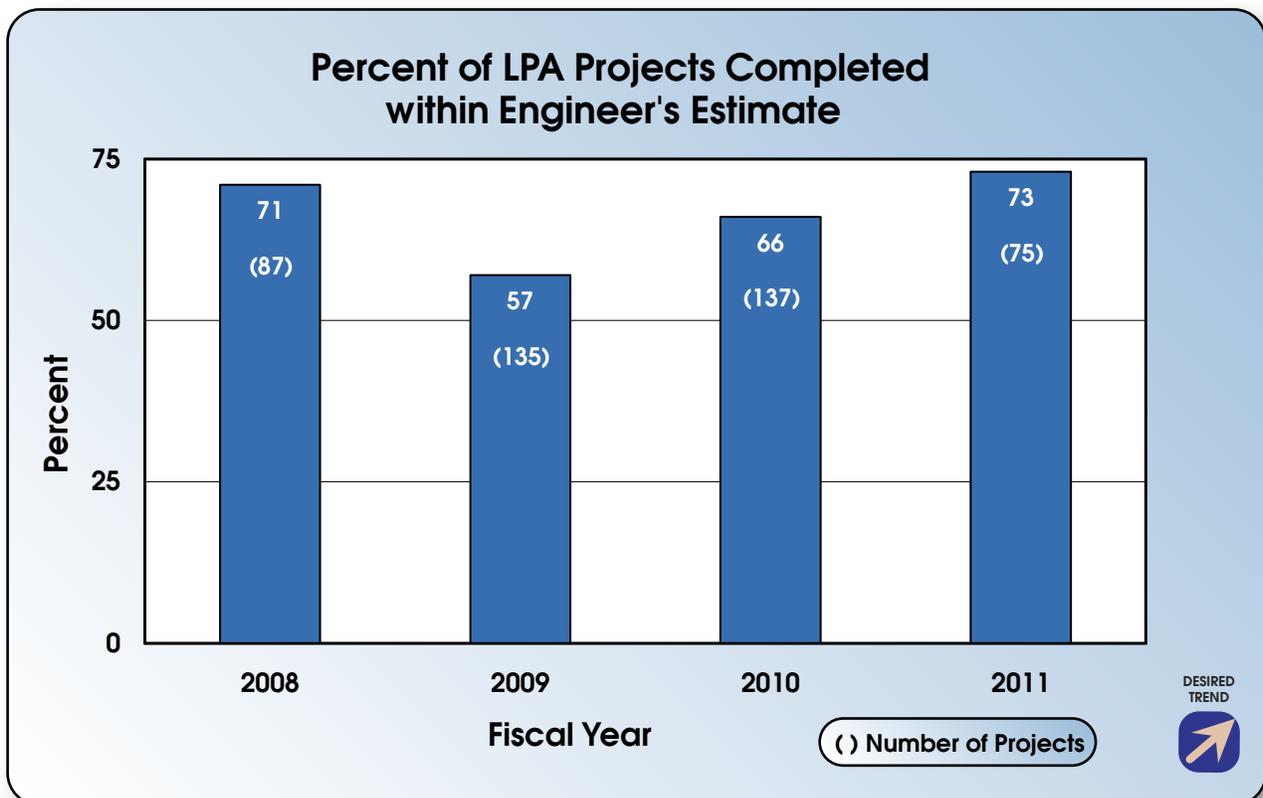
This measure tracks the percentage of projects completed at or below the original engineer's estimate.

### Measurement and Data Collection:

The completed project cost is compared to the estimated cost for each project. The engineer's estimate is the estimate that is submitted with the construction obligation request. The percentage of projects completed within the estimated cost is gathered from across the state. Projects are tracked based on the fiscal year in which they are closed out. Results for the current year are updated each quarter.

### Improvement Status:

MoDOT desires that all projects be completed within the obligated construction amount, thereby allowing the greatest number of projects to be built with the funding available. The data indicates a slight improvement in the percentage of projects completed within the original programmed amount.



## Percent of LPA projects completed on time-9g

**Results Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Kenny Voss, Local Program Administrator

### Purpose of the Measure:

This measure tracks the percentage of projects completed by the commitment date established in the contract. The data includes adjustments to the completion date that are made when additional work is required or for unusual weather occurrences. It indicates the local sponsor's ability to complete projects by the agreed upon date.

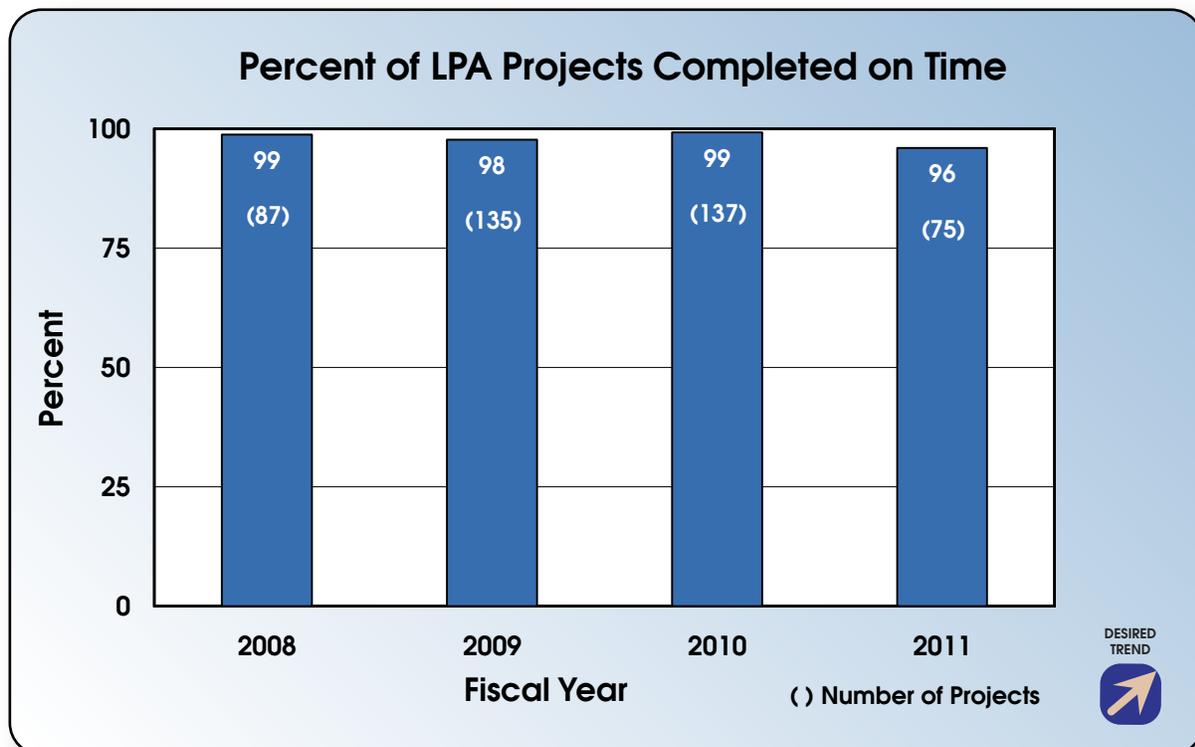
### Measurement and Data Collection:

The local sponsor establishes a project completion date for each project. They are documented in each project's contract and in district databases, and become part of the Plans, Specifications & Estimates submittal. The actual completion date is documented by the project sponsor and also placed in the district

database. Projects are tracked based on the fiscal year in which they are closed out. Results for the current year are updated each quarter.

### Improvement Status:

The results indicate that 96 percent of projects obligated and completed in 2011 were 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. To achieve timely completion of improvement projects, an emphasis has been placed on reviewing construction schedules and assessing liquidated damages.



## Percent of change for LPA finalized contracts - 9h

**Results Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Kenny Voss, Local Program Administrator

### Purpose of the Measure:

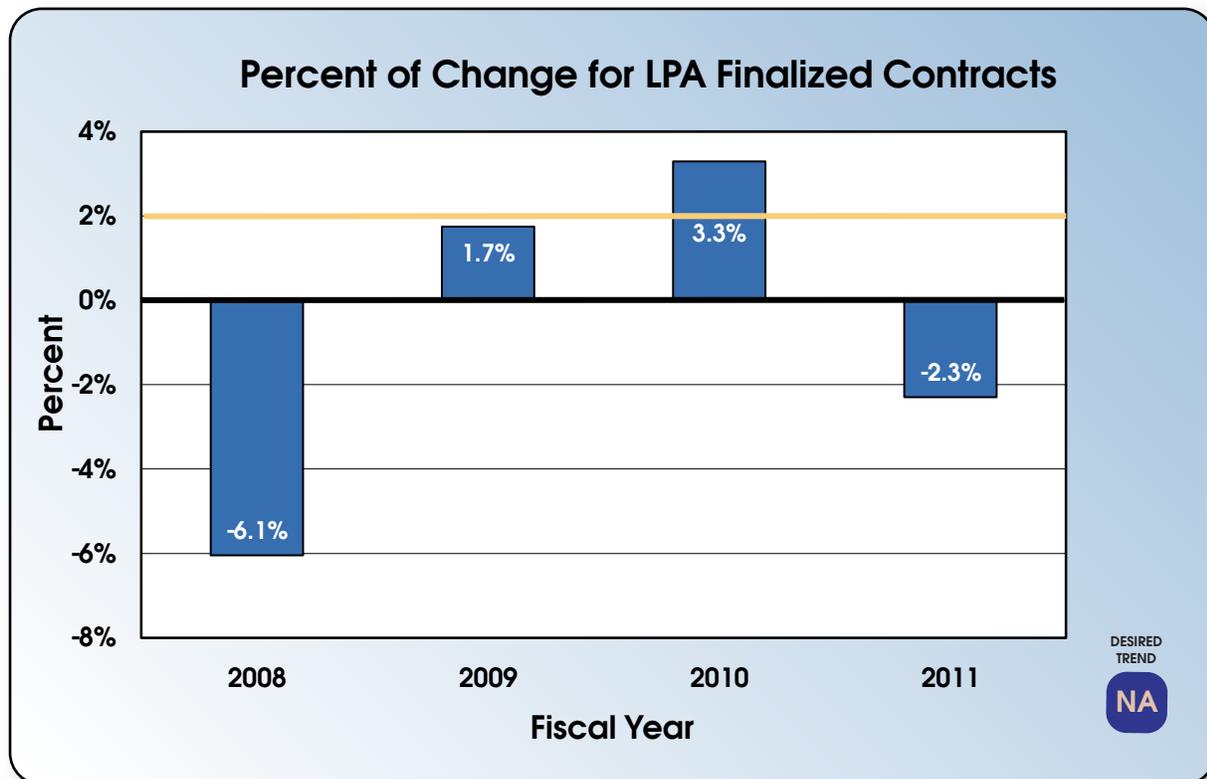
The measure tracks the percentage difference of total construction payouts to the original contract award amounts. This indicates how many changes are made on projects after they are awarded to the contractor.

### Measurement and Data Collection:

Local agency payments are generated and reimbursements processed in the financial management system for payment. Change orders document the underrun/overrun of the original contract. Projects are tracked based on the fiscal year in which they are closed out. Results for the current year are updated each quarter.

### Improvements Status:

The Local Public Agencies' performance of -2.3 percent statewide in 2011 is below the target of two percent. The overall improvement is the result of a strong emphasis placed on constructing projects within budget and the use of practical design and value engineering. By limiting overruns on contracts, LPA's can deliver more projects leading to an overall improvement of the entire highway system.



## Cumulative savings due to cost containment-9i

**Result Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Joe Jones, Engineering Policy Administrator

### Purpose of the Measure:

This measure provides information regarding the comparison between baseline per-mile and per-bridge costs of projects completed prior to 2005 to projects awarded since 2005 and their awarded per-mile and per-bridge amounts. This component of the measurement captures the savings of applying practical design concepts and value engineering studies to project development, in addition to the award savings from contractor competition due to the economy and MoDOT's bid letting strategies. Some of these bid letting strategies include optional bidding packages, packaging and scheduling bids for maximum competition and Advance Technical Concept proposal opportunities in bidding. In addition to this, the savings realized from Value Engineering Change Proposals after the award of the contract has been added. Some examples of optional bidding packages include optional pavement, optional grading, schedule incentives and optional pipe products. The Alternate Technical Concept proposal is a new process in which prospective bidders on a project can submit, in confidence, an alternate concept. This concept is then reviewed and possibly approved prior to the letting. This process has proven to be a powerful initiative for competition among the contracting community.

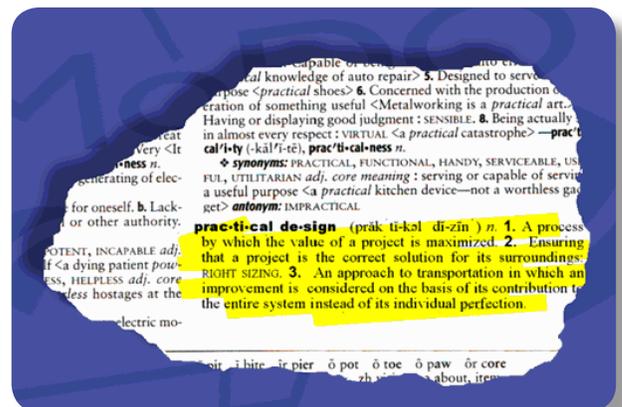
### Measurement and Data Collection:

The baseline cost per mile and per bridge was determined by querying STIP Information Management System data on projects awarded from 2000 to 2004. The rural two- to four-lane corridors that were used for the baseline consisted of

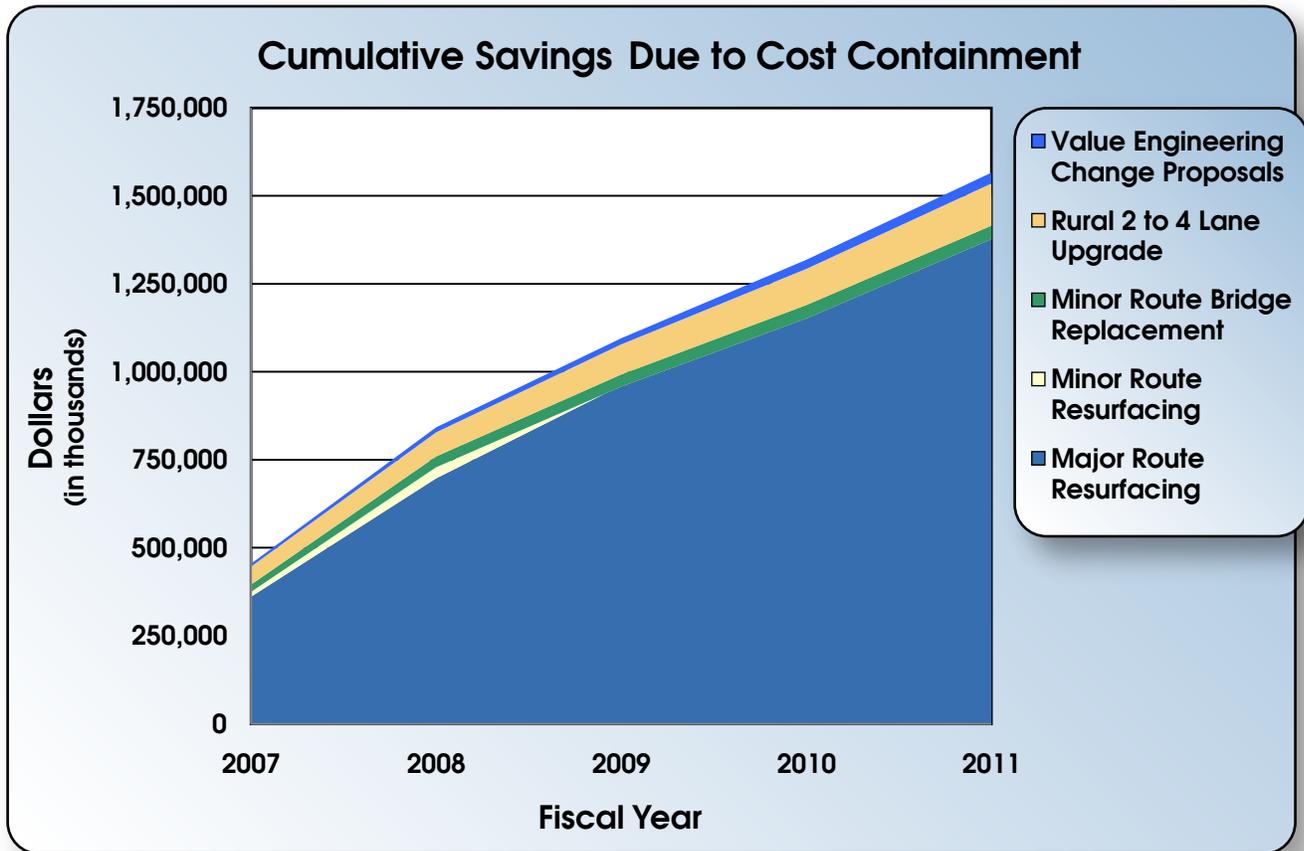
Livingston County Route 36, Lewis County Route 61, Pemiscot County Route 412, Carter County Route 60 and Miller County Route 54 at Eldon. As rural corridors are completed, they will be added to this measure. The rest of this Tracker metric will be measured annually and updated in October of each year. The baselines also have an inflation factor applied to them consistent with the Federal Highway Administration's Construction Cost Index to assure that this metric remains a current and relevant measure of MoDOT's cost containment efforts.

### Improvement Status:

The cumulative costs savings since the inception of practical design in 2005 is \$1.57 billion. The bulk of these savings are from major route resurfacing projects. It is important to point out that these savings are mostly due to the substantial reduction in the design life-cycle of the resurfacing solutions. Another area of substantial savings has been minor route bridge replacements. This is a direct result of a practical approach on bridge widths, especially on minor routes with minimal pavement widths on the approaching roadways. In addition, rural corridors have contributed a large amount of savings as a result of practical approaches such as reducing median widths and minimizing the number of interchanges.



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*Concrete or  
Asphalt?  
Let the market-  
place decide.*



Giving Missourians the Best Value for their transportation investment.

### Percent of completed project costs compared to the project estimate in the environmental document-9j

**Result Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Joe Jones, Engineering Policy Administrator

#### Purpose of the Measure:

This measure provides information regarding the comparison between the estimates for projects developed in the environmental document and the actual completed project costs.

#### Measurement and Data Collection:

Data for this measure is collected by reviewing the cost estimates required by the National Environmental Policy Act (NEPA) and contained within environmental documents. Some of these documents have a single component, such as a major bridge, and others are comprised of several smaller projects that make up a larger corridor.

If all the projects within the environmental document have been awarded, their total award amounts are compared to the NEPA estimate within the document. If some, but not all of the projects have been awarded, the NEPA estimate is prorated for purposes of comparison. The environmental documents analyzed include environmental assessments (EA) or environmental impact statements (EIS). This is an annual measure updated in July.

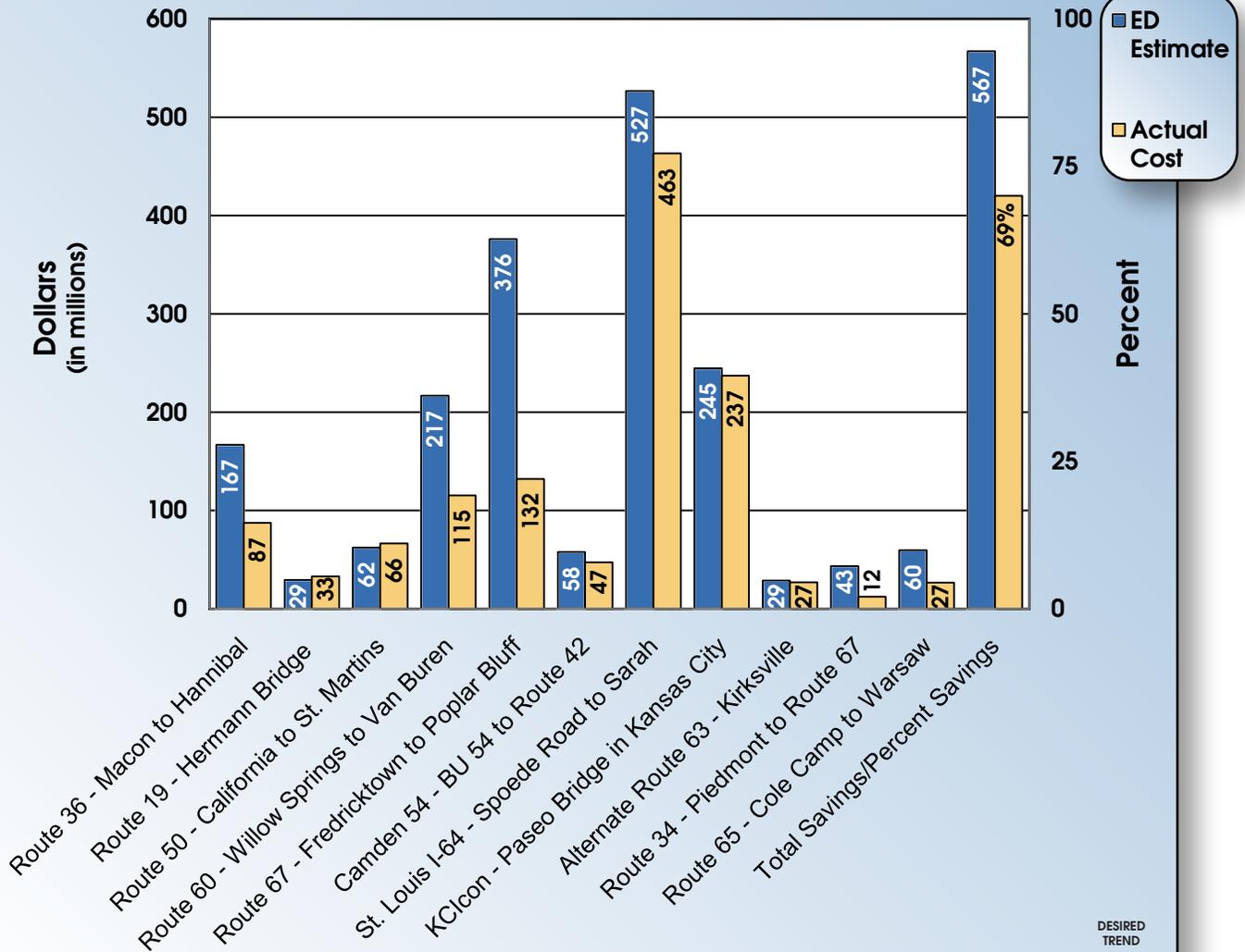
#### Improvement Status:

Developing a trend for this measure is a somewhat dynamic process. Environmental documents written in the pre-practical design era display a significant savings when compared to their post-practical design awards. This savings is indicative of MoDOT's efforts in the areas of value and practicality. However, NEPA estimates prepared post-practical design would be more closely aligned with actual awards and show little or no savings. This condition is misleading since MoDOT continues to save money by employing a host of cost-control measures. Since the vast majority of projects currently analyzed were products of pre-practical design NEPA documents, a savings trend will be used initially. Moving forward, this trend will be phased out in favor of one showing how closely NEPA estimates match actual awards.

Route 65 from Cole Camp to Warsaw was added this year, increasing the savings to \$567 million in completed project costs relative to the estimated costs in the environmental documents. Much of these costs are associated with the reduction of grade-separated interchanges identified in the environmental documents. These projects have been delivered at 69 percent of the estimates developed in the environmental documents.



Percent of Completed Project Costs Compared to the Project Estimate in the Environmental Document



Calendar Year 2010



### Percent of customers who believe completed projects are the right transportation solutions-9k

**Result Driver:** Dave Nichols, Chief Engineer

**Measurement Driver:** Eric Schroeter, Assistant State Design Engineer

#### 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 for this measure is collected through an annual survey that is sent to users of projects that were completed and opened to traffic within the previous year. The goal is for the MoDOT districts to identify 30 projects – three per district – in three different categories (large – major route listed as or funded through major project dollars; medium – district-wide importance; and small – only local significance).

A sample of residents is drawn from zip code areas adjoining the roadway where the project was recently completed. The samples have included 400 addresses per project areas for a total of 12,000 surveys (11,600 in 2007 when there were 29 projects included). Nearly 2,900 surveys were returned in the initial survey, followed by 2,300 (2007), 2,697 (2008), 2,461 (2009), and 2,234 in the most recent survey.

This measure is reported annually in January. Districts will continue to identify one project in each of the three categories to be surveyed, although it is recognized that it might not be possible for every district to have three projects that meet the criteria each year.

#### Improvement Status:

Project-specific questions were asked of MoDOT customers and each showed a high level of satisfaction with important goals such as safety, convenience, less congestion, handles traffic efficiently, easy to navigate, easy to understand and well-marked.

All of the key measures were statistically similar to last year's high ratings, however all of the measures went down slightly this year. The overall results show that most Missourians are very satisfied with their local project and generally believe that MoDOT provides the right transportation solution. A total of 89.2 percent of the respondents were either "very" or "fairly" familiar with the project roadway, and 73.8 percent of the respondents were regular users of the affected roadway.

The majority of respondents thought that the project made the roadway:

- safer (92.6 percent),
- more convenient (90.5 percent),
- less congested (81.8 percent),
- easier to drive (91.5 percent),
- better marked (88.8 percent), and
- was the right transportation solution (92.2 percent).

As part of the questionnaire, each respondent had the opportunity to provide comments about why their local project was – or was not – the right transportation solution. Each comment that was provided has been shared with the districts for their evaluation and guidance for future projects.



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