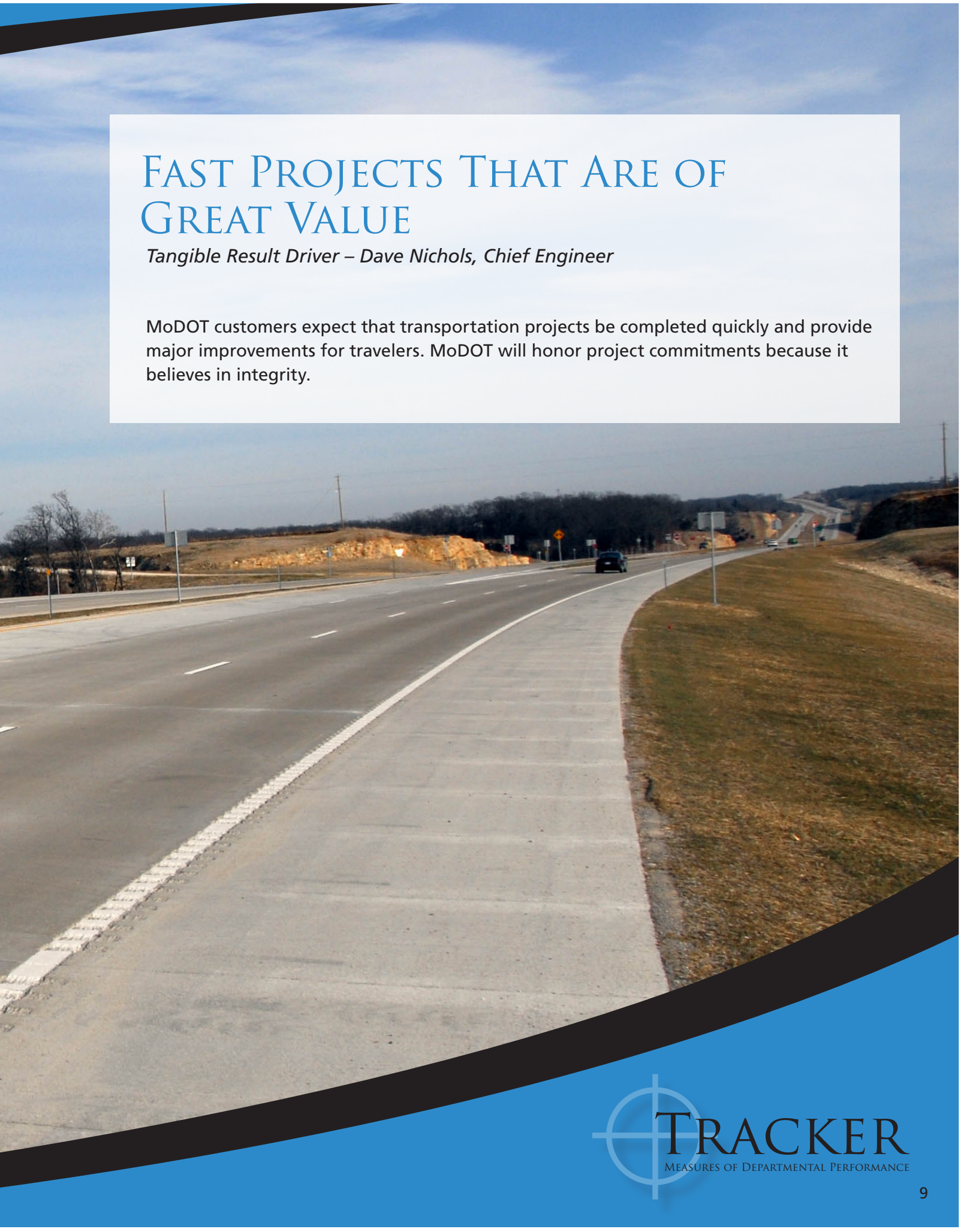
Fast Projects That Are of Great Value

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.

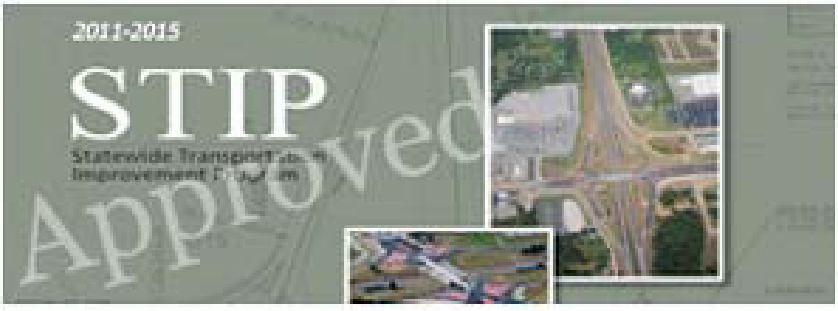
Improvement Status:

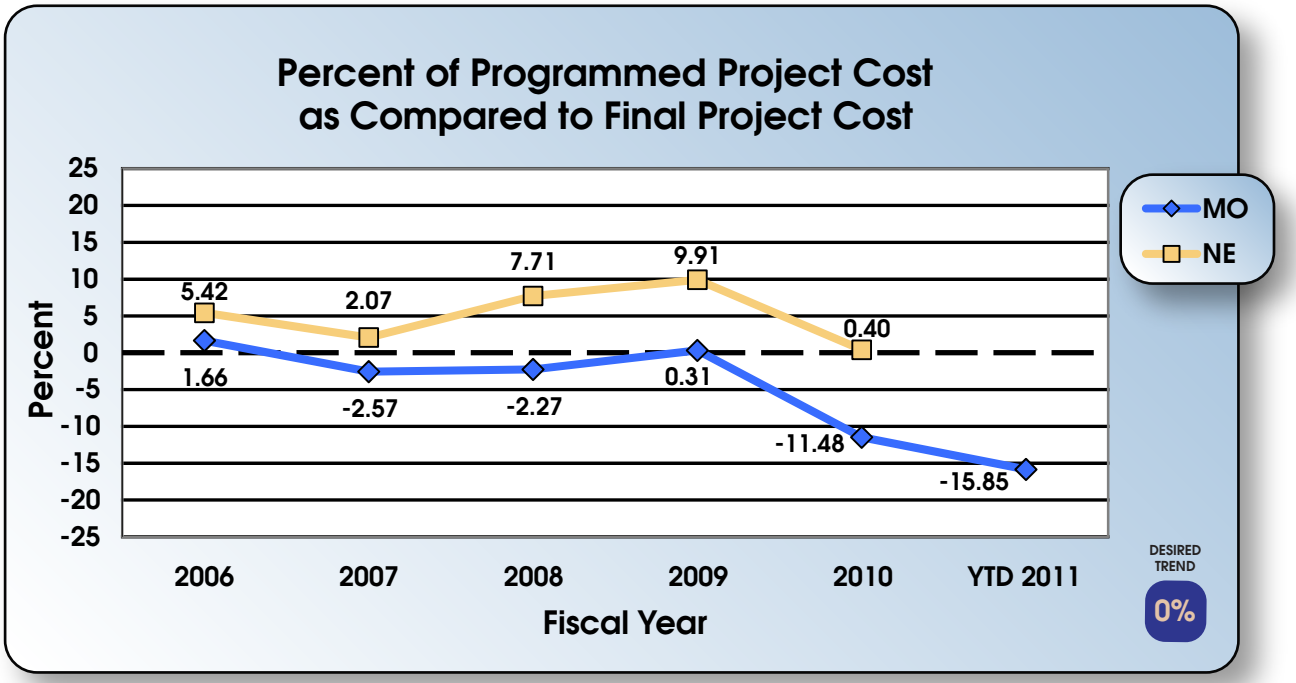
As of March 31, 2011, for fiscal year 2011, a total of 262 projects were completed at a cost of $598 million. This represents a deviation of -15.9 percent or $113 million less than the programmed cost of $711 million.

For fiscal year 2010, the final value is 487 projects completed at a cost of $1.183 billion. This represents a deviation of -11.48 percent or $153 million less than the estimated cost of $1.336 billion.

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 2006 to 2010, final costs of $6.613 billion were within -2.82 percent of programmed costs, or $192.2 million less than the programmed cost of $6.805 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. In 2006, both states were within 4 percent of each other. In other years, it varied close to 10 percent. Data for Nebraska is updated annually.





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: Dave Ahlvers, State Construction & Materials Engineer

Purpose of the Measure:

The 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:

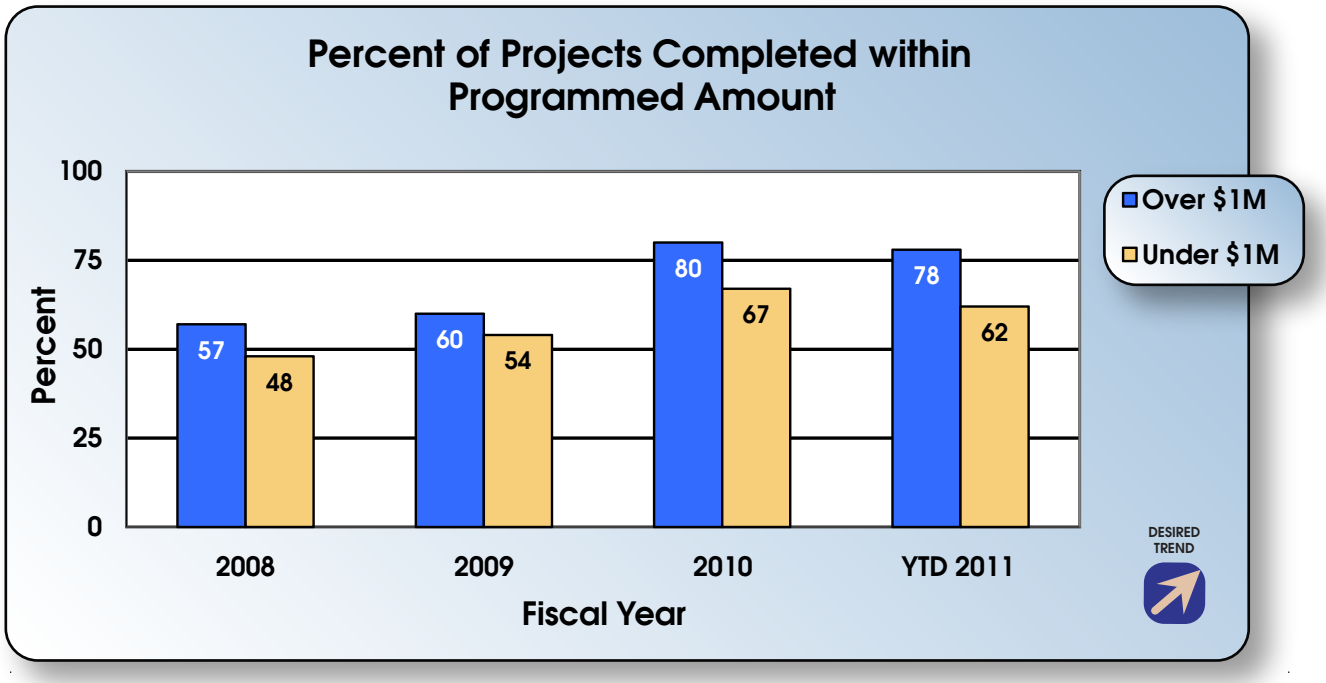
The completed project cost is compared to the estimated cost for each project. The percentage of projects completed within the estimated cost is gathered from across the state.

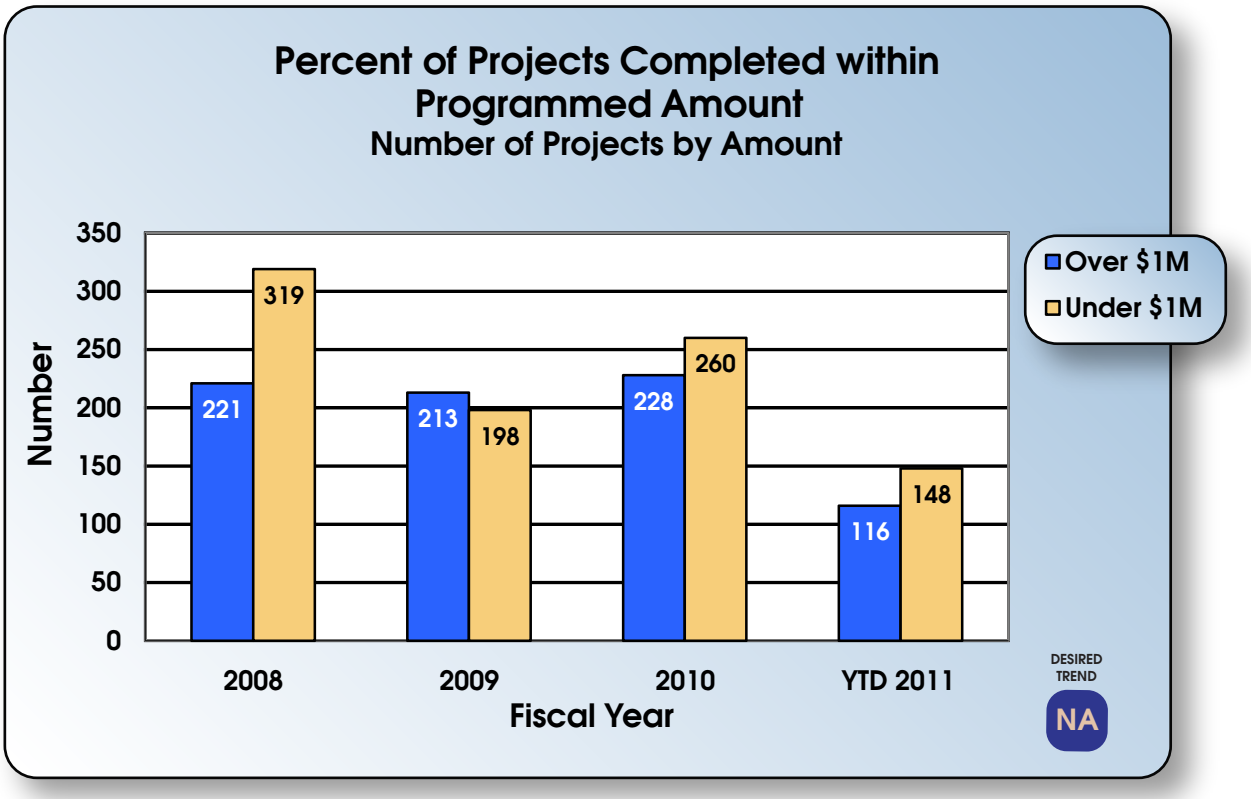
Project costs include design, right-of-way purchases, utilities, construction payments, inspection and other miscellaneous costs.

This is an annual measure updated each quarter.

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 fiscal year 2011, 78 percent of projects programmed over $1 million have been completed within the budgeted amount, while 62 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.




Percent of Projects Completed within Programmed Amount
Number of Projects by Amount
Number
350
300
250
200
150
100
50
0
221
319
213
198
228
260
116
148
2008
2009
2010
YTD 2011
Fiscal Year
Over $1M
Under $1M
DESIRED TREND
NA

Percent of projects completed on time-9c

Results Driver: Dave Nichols, Chief Engineer
Measurement Driver: Dave Ahlvers, State Construction & 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.

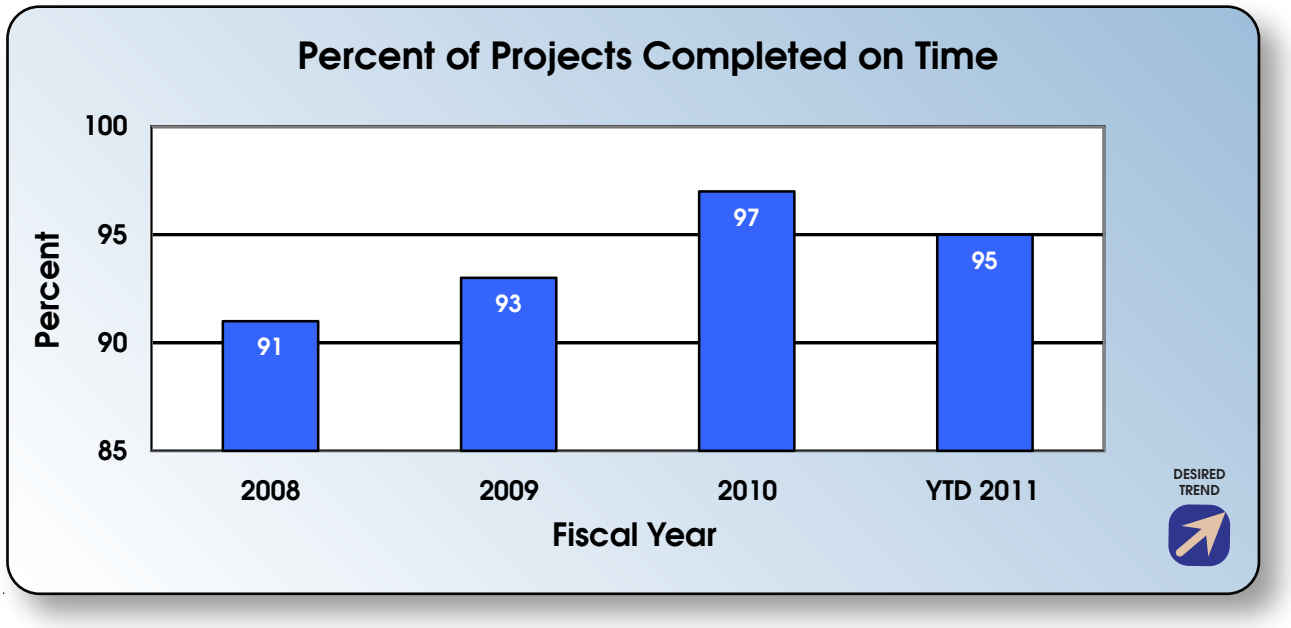
Measurement and Data Collection:

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 an annual measure updated each quarter.

Improvement Status:

The results indicate that 95 percent of projects completed in fiscal year 2011 have been 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: Dave Ahlvers, State Construction & Materials 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.

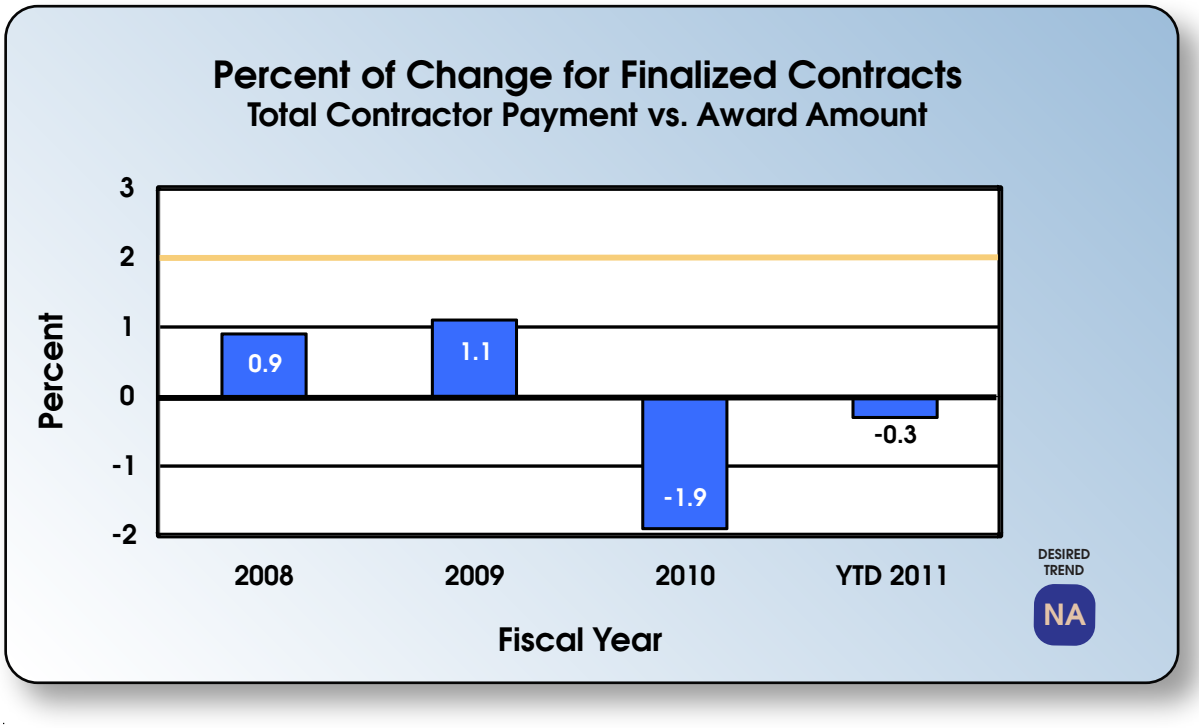
Measurement and Data Collection:

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

This is an annual measure updated each quarter.

Improvements Status:

MoDOT's performance of -0.3 percent in fiscal year 2011 is below the target of 2 percent. 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.



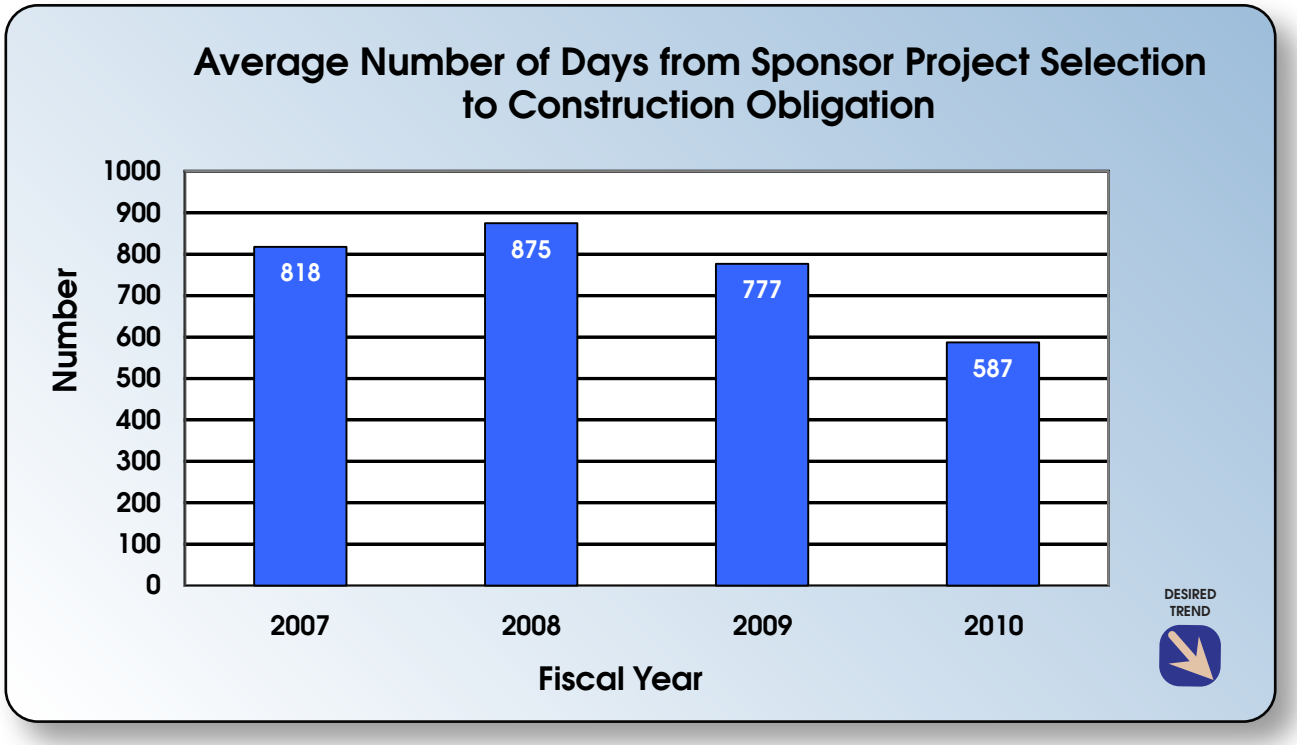
Average number of days from sponsor project selection to construction obligation-9e

Result Driver: Dave Nichols, Chief Engineer
Measurement Driver: Andy Mueller, 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. This is an annual measure updated each quarter.

Improvement Status:
In the past three years, the average number of days has consistently decreased. This improvement is a direct 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.



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

Results Driver: Dave Nichols, Chief Engineer
Measurement Driver: Andy Mueller, Local Program Administrator

Purpose of the Measure:

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

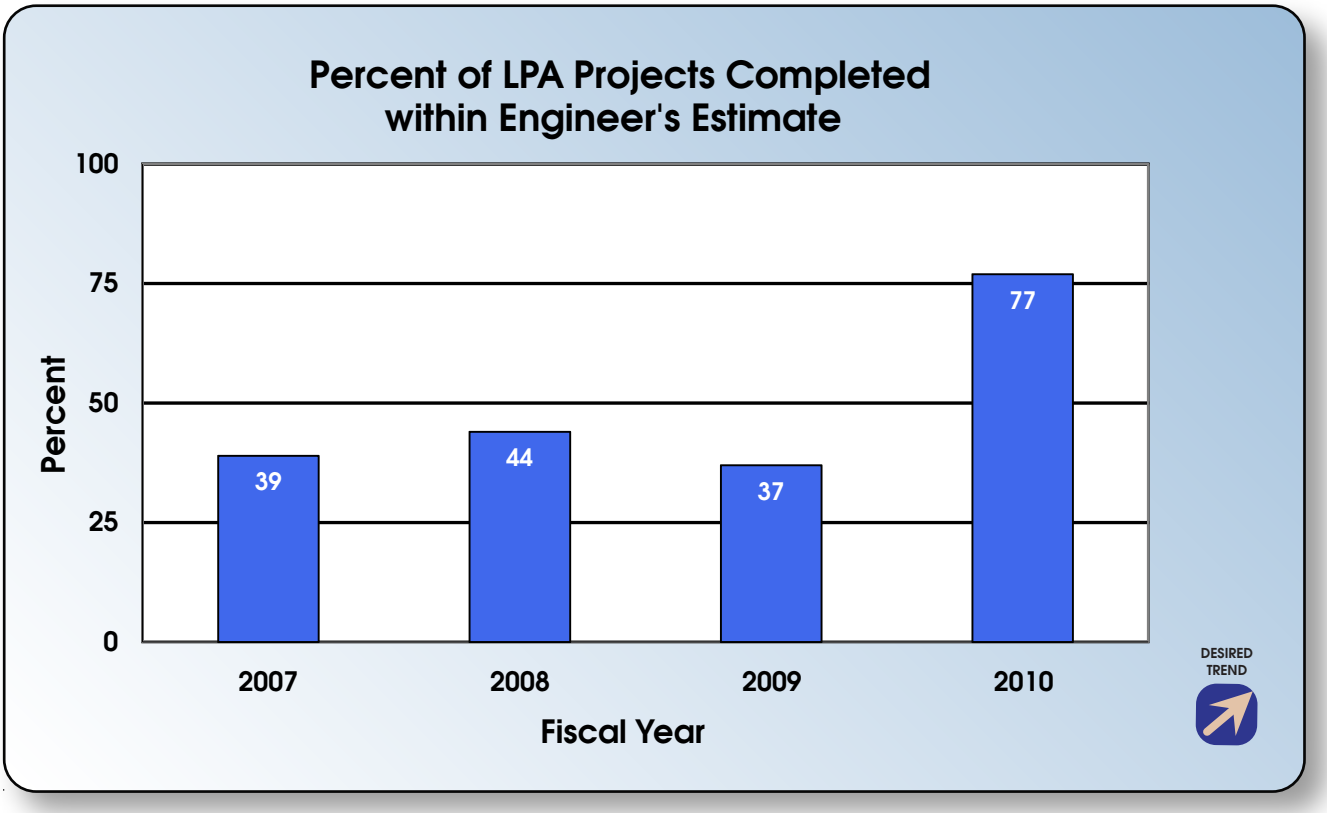
Measurement and Data Collection:

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

This is an annual measure updated each quarter.

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 the majority of projects obligated in 2010 are being completed within their original programmed amount. There is a substantial increase from past years to 2010 indicating the sponsors had a better indication, in the programming stage, of the cost of a project.



Percent of LPA projects completed on time-9g

Results Driver: Dave Nichols, Chief Engineer
Measurement Driver: Andy Mueller, Local Program Administrator

Purpose of the Measure:

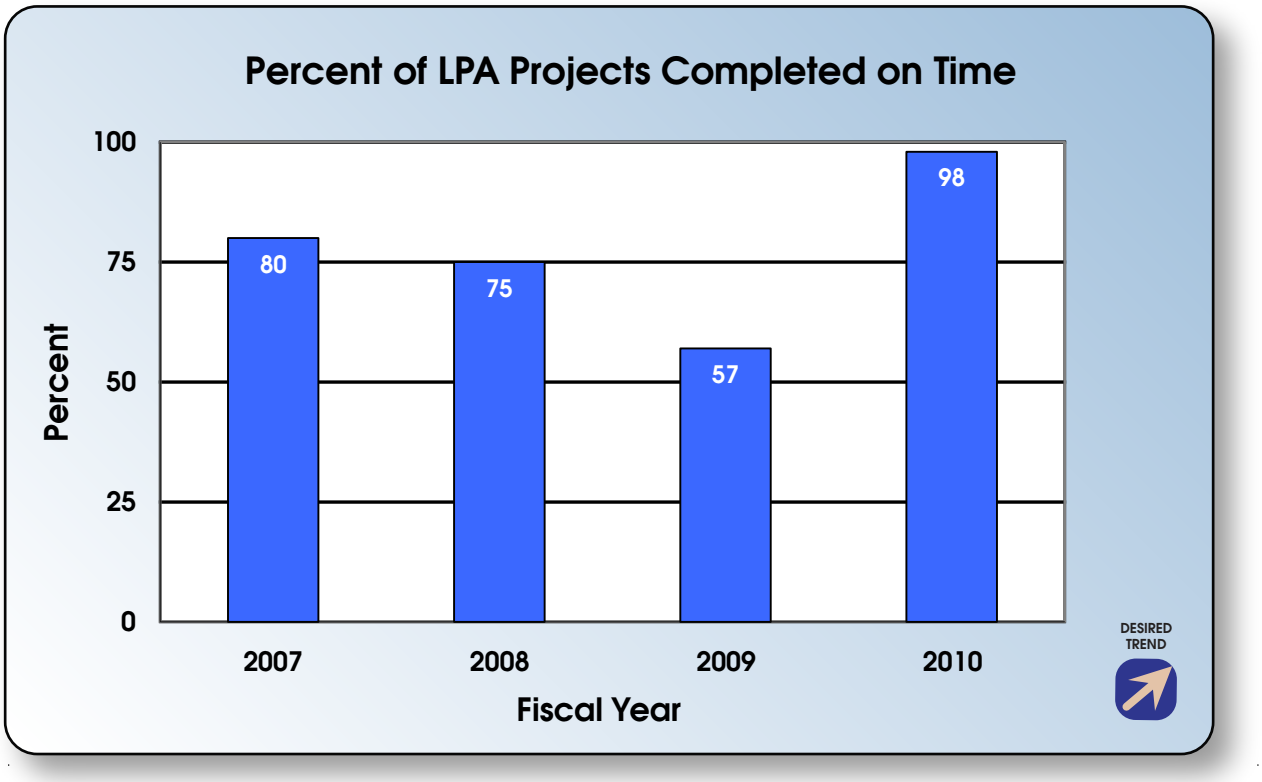
This measure tracks the percentage of projects completed by the commitment date established in the contract. Adjustments to the completion date are made when additional work is required or for unusual weather occurrences. It indicates the local sponsor's ability to complete projects by the agreed upon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

Measurement and Data Collection:

The local sponsor will establish project completion dates 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. This is an annual measure updated each quarter.

Improvement Status:

The results indicate that 98 percent of projects obligated in 2010 that are now complete, have been 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: Andy Mueller, Local Program Administrator

Purpose of the Measure:

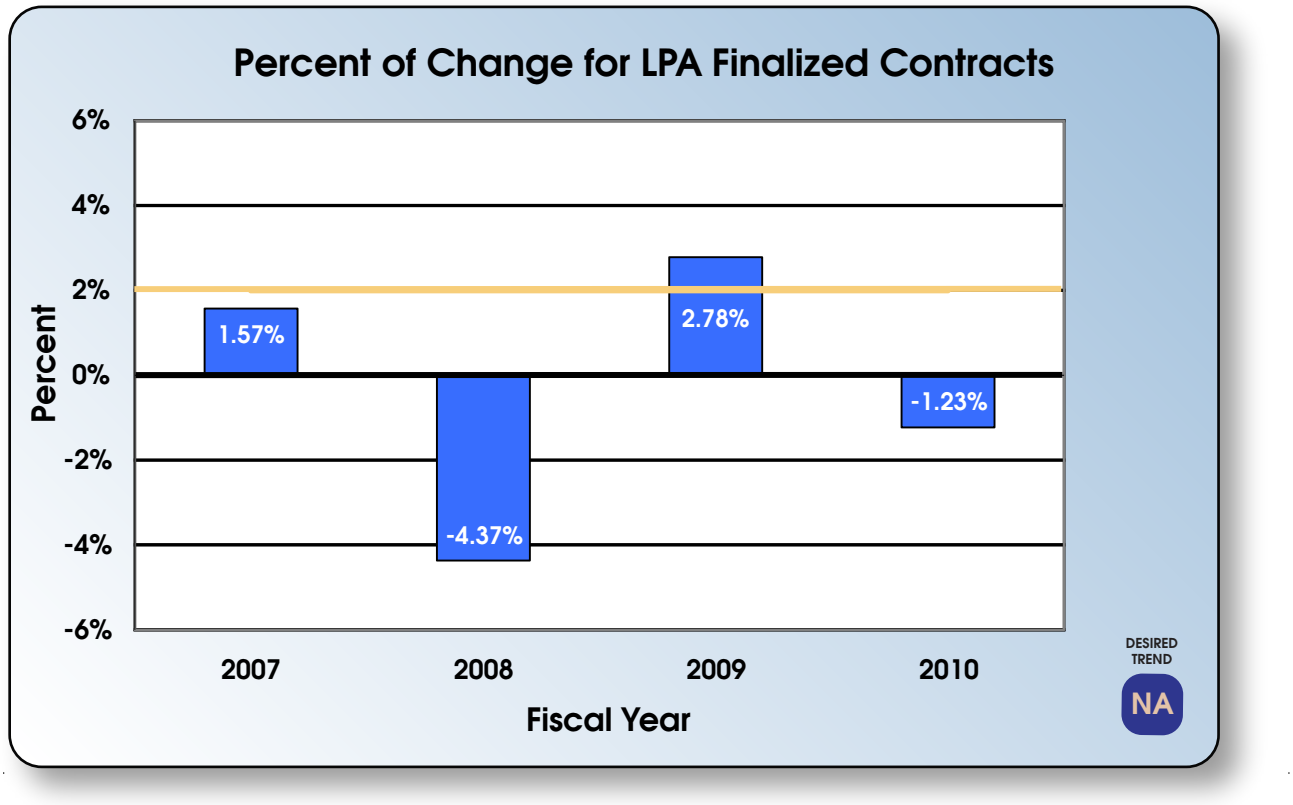
The measure tracks the percentage difference of total construction payouts to the original contract award amounts. This indicates how many changes are made on projects after they are awarded to the contractor.

Measurement and Data Collection:

Local agency payments are generated and reimbursements processed in the financial management system for payment. Change orders document the under run/over run of the original contract. This is an annual measure updated each quarter.

Improvements Status:

The Local Public Agencies' (LPA's) performance of -1.23 percent in 2010 is within the target of 2 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:

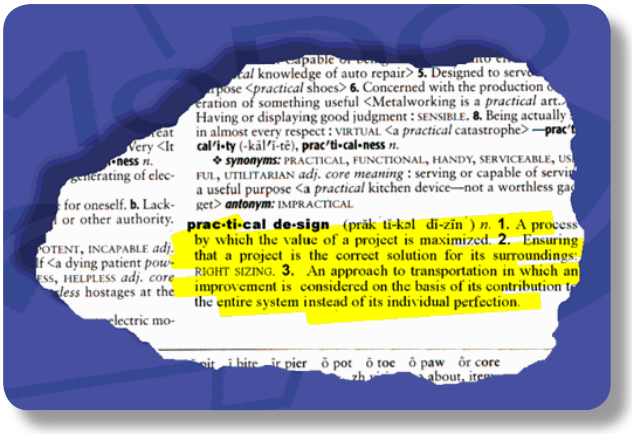
This measure provides information regarding the comparison between baseline per-mile and per-bridge costs of projects completed prior to 2005 to projects awarded since 2005 and their awarded per-mile and per-bridge amounts. This component of the measurement captures the savings of applying practical 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.

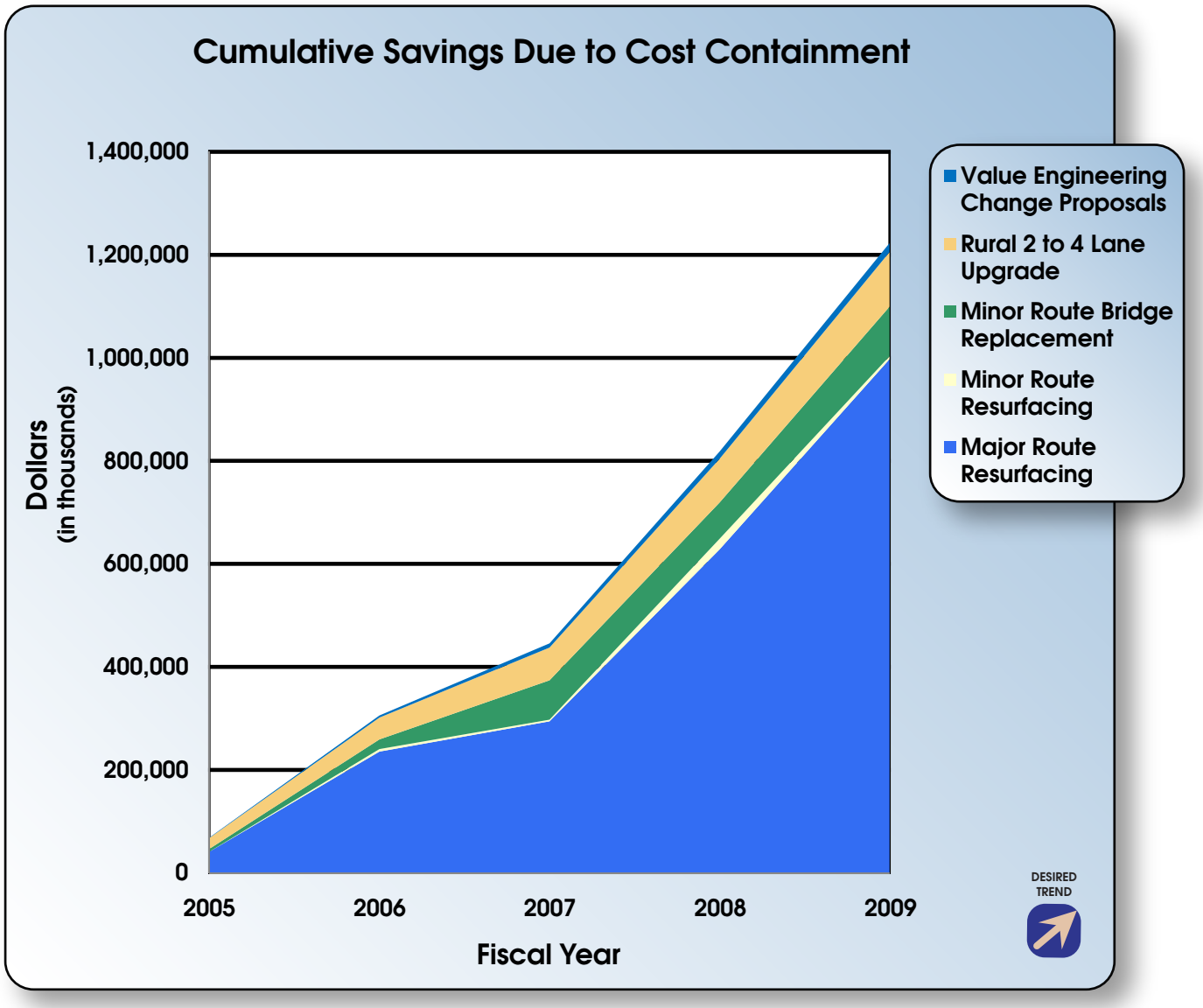
Measurement and Data Collection:

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 July of each year. The baselines also have a 3 percent inflation factor applied to them 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 $1.2 billion. The bulk of these savings are from major route resurfacing projects. It is important to point out that this savings is 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 amount of interchanges.





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:

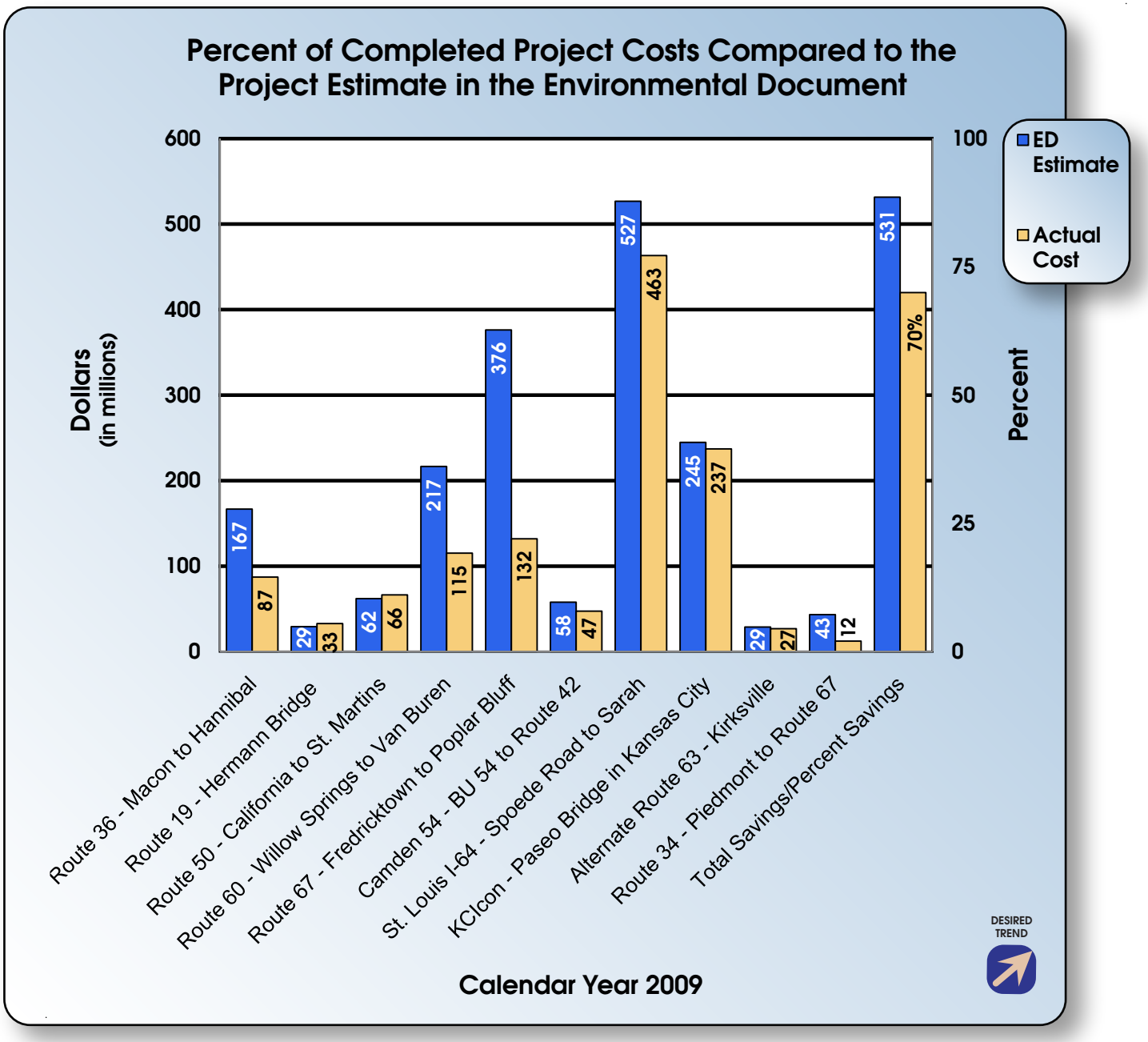
Data for this measure is collected by reviewing the cost estimates required by the National Environmental Policy Act (NEPA) and contained within environmental documents. Some of these documents have a single component, such as a major bridge, and others are comprised of several smaller projects that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

Currently, $531 million has been saved 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 70 percent of the estimates developed in the environmental documents.


Percent of Completed Project Costs Compared to the Project Estimate in the Environmental Document
Dollars (in millions)
Percent
600
500
400
300
200
100
0
100
75
50
25
0
ED Estimate
Actual Cost
167
87
29
33
62
66
217
115
376
132
58
47
527
463
245
237
29
27
43
12
531
70%
Route 36 - Macon to Hannibal
Route 19 - Hermann Bridge
Route 50 - California to St. Martins
Route 60 - Willow Springs to Van Buren
Route 67 - Fredricktown to Poplar Bluff
Camden 54 - BU 54 to Route 42
St. Louis I-64 - Spoede Road to Sarah
KCIcon - Paseo Bridge in Kansas City
Alternate Route 63 - Kirksville
Route 34 - Piedmont to Route 67
Total Savings/Percent Savings
DESIRED TREND
Calendar Year 2009

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

Result Driver: Dave Nichols, Chief Engineer
Measurement Driver: Jay Bestgen, 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:

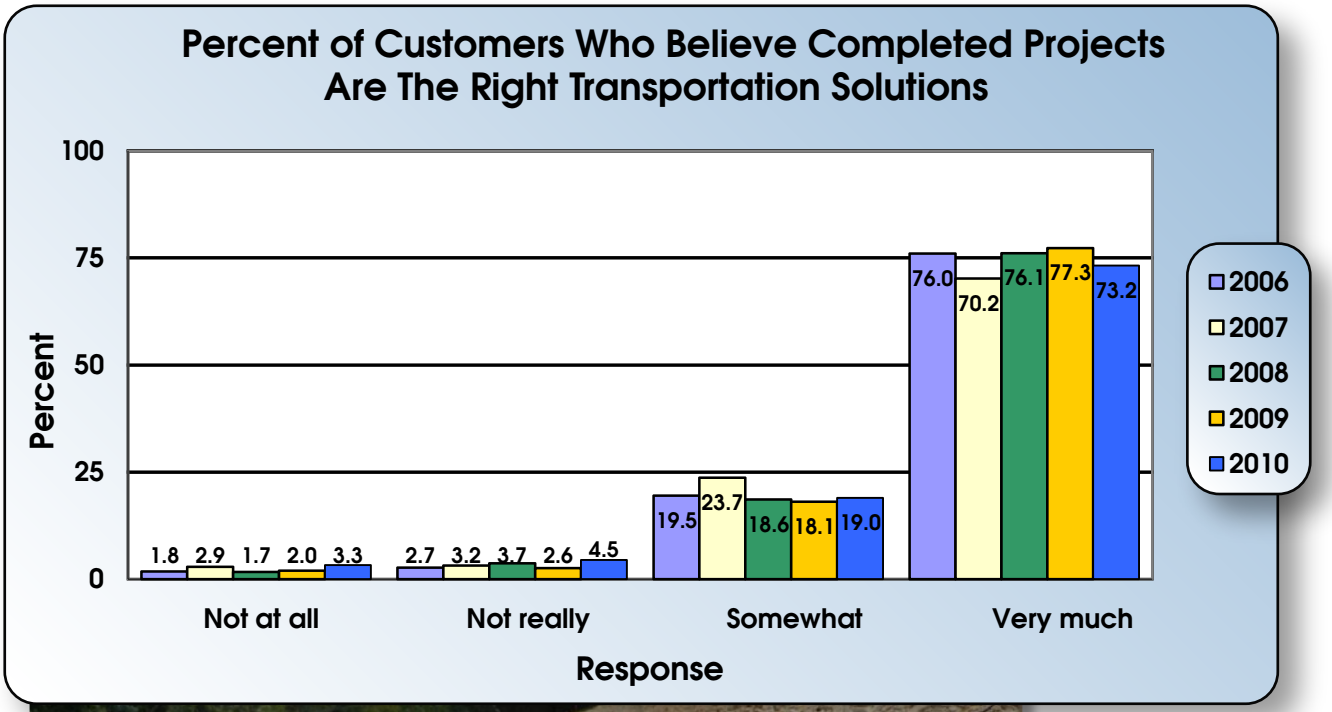
Project-specific questions were asked of MoDOT customers and each showed a high level of satisfaction with important goals such as safety, convenience, less congestion, handles traffic efficiently, easy to navigate, easy to understand and well-marked.

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. 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.


Percent of Customers Who Believe Completed Projects Are The Right Transportation Solutions
100
75
50
25
0
Percent
1.8 2.9 1.7 2.0 3.3
2.7 3.2 3.7 2.6 4.5
19.5 23.7 18.6 18.1 19.0
76.0 70.2 76.1 77.3 73.2
Not at all
Not really
Somewhat
Very much
Response
2006
2007
2008
2009
2010

MoDOT