





# INNOVATIVE TRANSPORTATION SOLUTIONS

*Tangible Result Driver – Dave Ahlvers, State Construction and Materials Engineer*

MoDOT values innovation. The department empowers employees and seeks input from stakeholders to generate innovative ideas. Collaboration with staff, academia and industry makes unique concepts come to life so MoDOT can serve its customers better, faster and at less expense to the taxpayer.

## Number of external awards received-8a

**Result Driver:** Dave Ahlvers, State Construction & Materials Engineer

**Measurement Driver:** Kelly Backues, Intermediate Organizational Performance Analyst

### Purpose of the Measure:

This measure tracks the number of external awards received by the department. These awards display the department's dedication and efforts toward efficiency, innovation and quality throughout the organization. This information enables the department to measure progress and encourage further participation in award programs. It also provides opportunities for the department to increase public awareness of department activities.

### Measurement and Data Collection:

Each district and division office tracks the awards presented to the department by external organizations. This includes all awards presented to individuals, teams, districts, divisions and MoDOT as a whole. Data for this measure is updated quarterly.

### Improvement Status:

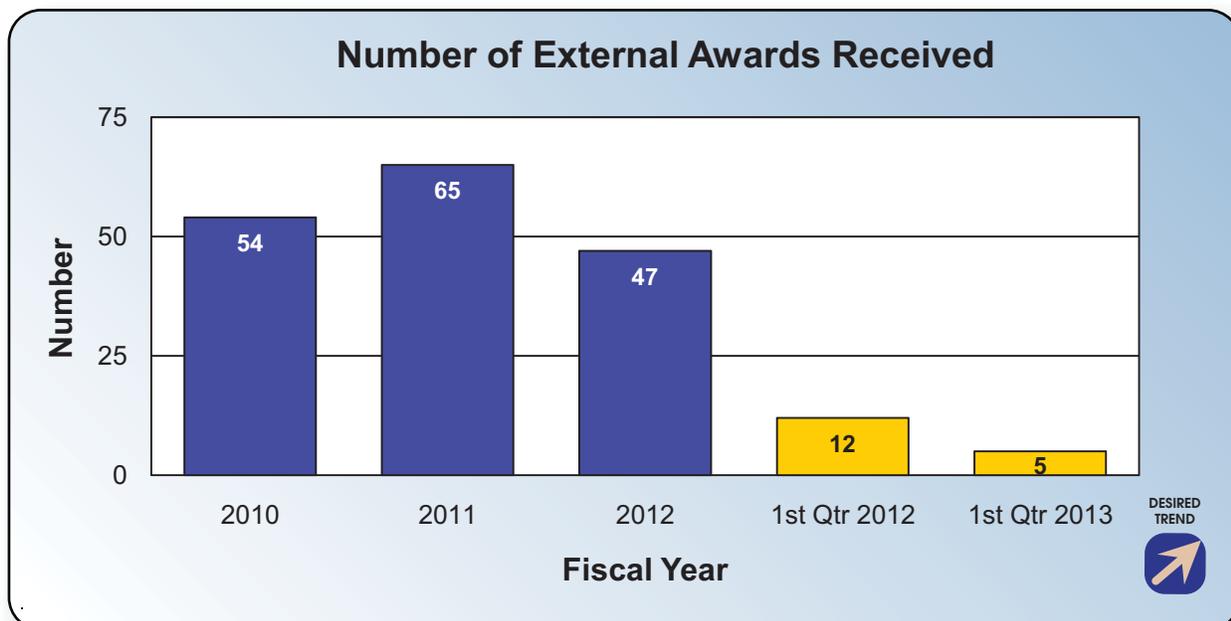
In the first quarter of fiscal year 2013, MoDOT received five awards, compared to 12 in the first quarter of 2012.

Included in this quarter's numbers were two America's Transportation Awards from Mid-America of State Transportation Officials. The kcICON project in Kansas City won in the Ahead of Schedule

category for large projects. The I-270 Dorsett-Page Project in suburban St. Louis won in the Under Budget category for medium sized projects. These two awards are now eligible to compete for national honors to be announced at the American Association of State Highway Transportation Officials annual meeting in November. Jenny Hall, Senior Outdoor Advertising Specialist in the Design-Right of Way division won the 2012 Award of Excellence in Outdoor Advertising from the National Alliance of Highway Beautification Agencies. Jenny earned her award for outstanding work on NAHBA website. Also during this quarter, Barrel Bob's Work Zone outreach earned MoDOT the Work Zone Safety Awareness Award from the American Road and Transportation Builders Association.

Finally, the Construction and Materials division received the Research Sweet 16 2012 from AASHTO for the evaluation of life expectancy of LED traffic signals and development of a replacement schedule.

MoDOT continues to enter various competitions to have its work judged against the efforts of other organizations.



**Number of innovative solutions implemented-8b** New!

**Result Driver:** Dave Ahlvers, State Construction & Materials Engineer

**Measurement Driver:** Jen Harper, Research Engineer

**Purpose of the Measure:**

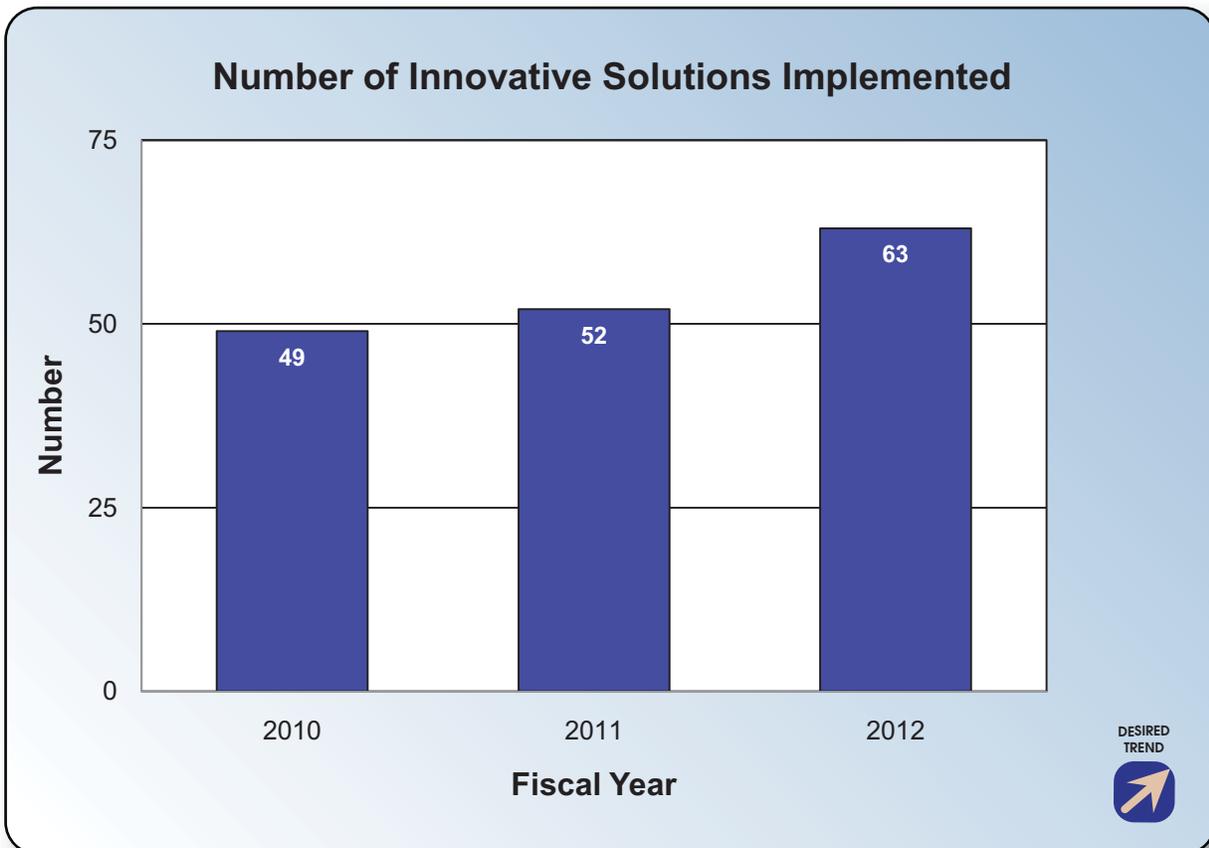
This measure tracks the number of innovative solutions implemented within MoDOT. Innovative solutions show how MoDOT employees are applying innovation to improve daily operations.

**Measurement and Data Collection:**

Innovative solutions are identified and shared with district managers through the Solutions at Work program, the Innovation Challenge, research projects, innovative new products and equipment along with benchmarks from other organizations. Innovative solutions can be an accepted practice at the division, district or statewide level. This is an annual measure reported in July.

**Improvement Status:**

During fiscal year 2012 a total of 63 innovative solutions were identified. This is a 21.2 percent increase from last year and the highest in the three-year reporting period. Approximately one-fourth of those solutions (16) came from the Innovations Challenge competition and another one-fourth (14) of the total innovations were used on construction projects. A few of the notable innovations include two-lift paving operations, flood protection systems, flood bag filler, tree trimming platform, and using the Advanced Control System installed on MoDOT trucks to spray plant growth regulators.



## Number of innovative revisions and dollars saved-8c

**Result Driver:** Dave Ahlvers, State Construction & Materials Engineer

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

### Purpose of the Measure:

This measure tracks the number of innovative engineering policy revisions to MoDOT’s *Engineering Policy Guide*, *Missouri Standard Specifications for Highway Construction* and the *Missouri Standard Plans for Highway Construction* and the dollars saved. Policies and standards are a necessary part of highway construction; without them, there would be no way to ensure quality in the product MoDOT delivers to the public. The standards and policies should be practical in nature, that is to say they shouldn’t be overly prescriptive and should have a positive fiscal impact (represent money saved). It is important to remember that the philosophy of Practical Design is not limited to the Design Division. Vigilance against inflated standards is an excellent way to help this value take hold throughout the entire department. This measure tracks the number of innovative cost control measures implemented during the design stage of projects.

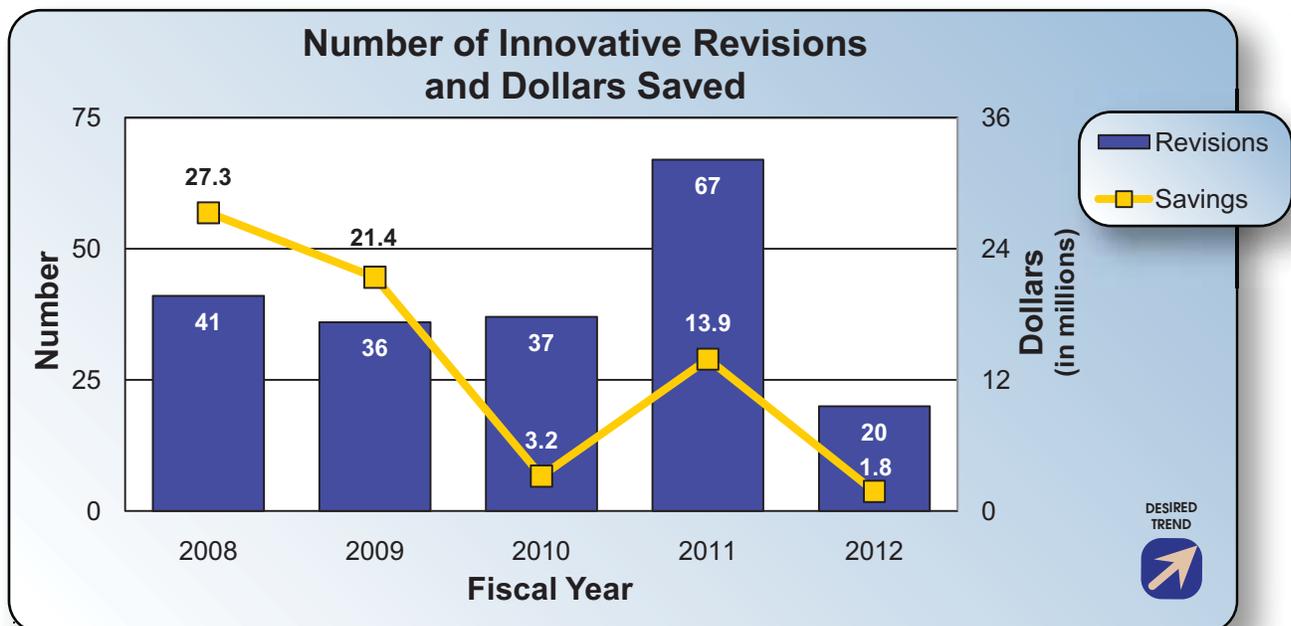
### Measurement and Data Collection:

The staff responsible for coordinating the standards revisions collects the data. Measurement is based

upon the fiscal impact reported with each bi-monthly engineering policy ballot. The fiscal impact per unit is multiplied by the total number of units of the particular bid item that were used in the previous year. For example, an anticipated savings for reducing guardrail posts from 9 feet to 7 feet was estimated at \$1.53 per linear foot of guardrail. With 258,102 linear feet of type A guardrail installed the previous year, the estimated savings would be \$394,896. This is an annual measure reported in July.

### Improvement Status:

Success in this measure is defined as a positive savings of any amount. Improvement would be a larger savings, but since that is based entirely on the number of revisions being proposed by outside sources, it is beyond the control of the Engineering Policy Group. The fiscal impacts reported for fiscal year 2012 represent a positive value (savings) of \$1.8 million. MoDOT’s practical mowing operations efforts account for \$1.7 million of the total savings. The remaining \$84,000 savings demonstrate that standards, in aggregate, are not resulting in higher costs to MoDOT.



**Value of research-8d** New!

**Result Driver:** Dave Ahlvers, State Construction & Materials Engineer

**Measurement Driver:** Bill Stone, Research Administrator

**Purpose of the Measure:**

This measure tracks the organizational impact of research activities from the department’s research program. A strong research program supports innovative solutions where they can make the greatest impact on the department.

**Measurement and Data Collection:**

The data for this measure is collected each June for research activities conducted the previous fiscal year. The MoDOT research program touches many areas of the organization and the public. Research projects and activities include all research (internal and external) funded through the department’s research program. The evaluation of the value of research is compiled as it relates to crashes reduced and organizational savings and benefits. For this reason, each research project will be evaluated individually for its impact and value of anticipated annual savings to MoDOT.

As an example of how the savings is compiled, MoDOT completed research in Fiscal Year 2011 on drilled shafts in the geotechnical program and put the savings at approximately \$45,000 for a typical

bridge. Reviewing the STIP in Fiscal Year 2013, there are 18 bridges incorporating drilled shafts. This results in \$810,000 in annual savings (18 bridges times \$45,000 per bridge).

**Improvement Status:**

For Fiscal Year 2012, there were 10 research projects completed and evaluated which resulted in \$1.9 million anticipated annual savings to MoDOT. The St. Louis District implemented snow route logistics research, which resulted in a reduction on average of 10 minutes per cycle time. Using the cost of operation per truck (salt, fuel, equipment and labor) and calculating that for the fleet (238 trucks) during implementation, in a typical winter would result in savings of \$125,000.

The research section continues to work closely with researchers and MoDOT staff on research projects and activities during the implementation phase and also in the evaluation of the annual savings.

