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Asphalt NEWS

Fall 2009

Missouri Asphalt Pavement Association



**Highway Projects Roll
in Under Budget, On Time**

**Asphalt Pavements are America's
Most Recycled Product**

**Percent Within Limits . . .
What is it? How is it Working?**

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4 Asphalt Pavements are America's Most Recycled Product

It is estimated that recycling of asphalt pavements saves the American taxpayer \$1.8 billion per year. It also saves hundreds of acres of landfill space each year.

5 Highway Projects Roll in Under Budget

For the fiscal year that ended June 30, MoDOT awarded 461 projects totaling \$1.3 billion, 9 percent under budget for a savings of more than \$135 million.

6 Percent Within Limits

States such as Maine, Kansas, Missouri and Arizona use the PWL technique - and they like the way it works.

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The construction boom we've enjoyed the past few years is about to come to a screeching halt. Funding for transportation is being challenged at all levels.

My PERSPECTIVE



Executive Director
David Yates

Asphalt Pavements are America's Most Recycled Product

According to the U.S. Environmental Protection Agency and the Federal Highway Administration, about 90 million tons of asphalt pavement are reclaimed each year, and over 80 percent of that total is recycled.

Reclaimed asphalt pavement (RAP) can be recycled into pavement that is as high, or even higher, in quality as pavements made of all-virgin materials. And, the same material can be recycled again and again; it never loses its value. The asphalt cement, the glue that holds the pavement together, retains its ability to function so that it is reused for the original purpose. The aggregates in the original pavement are also conserved. Many pavements that are more than 20 years old are actually worth more than they were when originally constructed.

It is estimated that recycling of asphalt pavements saves the American taxpayer \$1.8 billion per year. It also saves hundreds of acres of landfill space each year.

Materials from other industries are routinely recycled into asphalt pavements instead of going into landfills. Some of the most common are rubber from used tires, glass, asphalt roofing shingles, and blast furnace slag.

Asphalt plants require about 20 % less energy to produce and construct than other pavements.

Rubblization of concrete pavement with an asphalt overlay also saves energy and landfill space since rubblized concrete does not have to be hauled to a landfill.

Reducing congestion, which wastes fuel, is realized due to speed of construction and nighttime contracting.

Because a new or newly rehabilitated asphalt pavement can be opened to traffic as soon as it has been compacted and cooled, there is no question of waiting for days or weeks, with traffic being detoured or squeezed into fewer lanes, for the material to cure.

One of the keys to sustainability is long life. With Perpetual Pavements asphalt, pavements have an extremely long lifespan.

Public safety, additional fuel mileage and noise reduction are achieved by using asphalt pavements. Smooth asphalt roads give vehicle tires superior contact with the road, thereby providing safety and additional fuel mileage. Studies show that the noise-reducing properties of asphalt last for many years.

Highway Projects Roll In Under Budget, On Time Efficiency, Competition Saved Taxpayers \$135 Million Last Year

Source: modot.mo.gov

They say there's a silver lining to every black cloud. For Missouri transportation, that silver lining is project cost savings that are being used to perform additional highway and bridge work at a time when revenues are on the decline. The cost savings can be attributed to the Missouri Department of Transportation's "radical cost control" philosophy, as well as to increased competition in the construction industry.

For the fiscal year that ended June 30, MoDOT awarded 461 projects totaling \$1.3 billion, 9 percent under budget for a savings of more than \$135 million. The work included 103 recovery act projects and a design-build contract that included 554 bridges to be fixed under the Safe & Sound Bridge Improvement Program.

For the last five fiscal years, MoDOT has awarded 2,151 projects costing \$5.7 billion 5.5 percent under budget saving taxpayers more than \$334 million. The savings to taxpayers went even deeper during that five-year period because the department completed 2,241 projects worth more than \$6.3 billion, more than one percent under budget saving \$64.8 million.

"We put these cost savings right back into our highways," MoDOT Director Pete Rahn said. "We do a good job of estimating our projects and we work aggressively with our contractors to cut costs without compromising quality. That translates into more projects and jobs and safer highways."

Keeping down costs is a philosophy that runs deep throughout MoDOT, Rahn said. "You can practically hear our employees chanting 'better, faster, cheaper' as they work," he quipped.

One of the department's most successful cost control measures is its Practical Design initiative which ensures projects are designed to fix specific needs without the frills. Other cost-curbing tools range from rebidding projects to allowing contractors to propose innovative ways to accomplish the work. That could mean using alternate materials, coming up with improved designs, working off-hours and closing lanes.

Rahn said his department's commitment to completing projects on time and within budget is reflected in the fact that 89 percent of Missourians say they trust MoDOT to keep its commitments to the public.



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Percent Within Limits (PWL) What Is It? How Is It Working?

PWL is defined as the percentage of tests in a lot falling above the lower specification limit and beneath the upper specification limit. PWL uses the sample mean and sample standard deviation to estimate the percentage of the population (lot) that is within the specification limits. In theory, the use of PWL method assumes that the population being sampled follows a normal bell curve, if test results are plotted on the X-axis and the percentage of tests are plotted on the Y-axis.

Some 30 to 35 states use contractors' Quality Control test for acceptance, and then do an independent validation of some kind. Another 25 to 35 states use contractor test for acceptance and use a statistical technique called "Percent Within Limits (PWL)" to validate the consistency of the test.

States such as Maine, Kansas, Missouri and Arizona use the PWL technique - and they like the way it works. "The longer we're involved in it, the more confident we are that it works." says Joe Schroer, field materials engineer, Missouri Department of Transportation. "The contractors who used to take their lumps (in penalized payments) and move on have started making adjustments to their processes."

In Missouri, Schroer says the state uses PWL to calculate the pay factors for four properties: in-place density, asphalt content, voids in the mineral aggregate and lab air voids. There is a separate pay factor for tensile strength ratio, which indicates the asphalt's susceptibility to stripping.

Missouri contractors typically run one each of the required quality control (QC) test per subplot, or 500 to 1,000 tons of hot mix. The state runs its quality assurance (QA) test as one per lot, or 4,000 tons. A typical specification for air voids is 4 percent plus or minus 1 percent.

As contractor may, for example, find that his average QC air voids test is 3.7 percent, with a 0.2 percent standard deviation. The state allows plus or minus two standard deviations, which means the contractor's population of air voids test is said to run between 3.3 and 4.1 percent. If the state's QA test falls between 3.3 and 4.1 says Schroer, "We say we fall into his population, and the material is accepted. But we have a caveat in our spec that says if the air voids fall below 2.5 percent, then the subplot has to be removed and replaced."

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- **TRACK 1**
**Highway
Contractors**
- **TRACK 2**
**Non-Producer
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Tentative agendas on
pages 8 and 9.

Plan now to attend MAPA's 2010 Annual Conference! There will be educational meetings, a large equipment exhibit and plenty of time for networking. The Annual Paving Awards will be presented during lunch on Tuesday and the Conference Sponsors will provide a reception and dinner that evening. Be sure to be on hand for the RAFFLE and LIVE AUCTION fundraisers. If you were there last year, you know how much fun the 10-33 Benevolent Fundraiser was. *Another exciting event is on tap again this year!*

Room reservations may be made by calling (800) 465-4329. Identify your affiliation with Missouri Asphalt Pavement Association (APO) to receive the special conference rate. *The special rate is available until December 28, 2009.*

Registration information and forms have been mailed. If you have not received these materials or for additional inquiries please contact Susan Brand at (573) 635-6071 or susan@moasphalt.org.

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2010 MAPA Annual Conference Tentative Agenda

Track 1 - Highway Contractors

TUESDAY, JANUARY 12

- 8:00-9:00 a.m. Annual Business Meeting - Members Only
- 9:00-10:00 a.m. Pledge, Patriotic Song - Joe Thrasher
How "Street Smart" Are You? - Thommy Halfen, Public Safety Coalition
- 10:00-10:30 a.m. Break
- 10:30-11:00 a.m. Top 10 Most Misinterpreted Specifications - Dennis Bryant, MoDOT
- 11:00-11:30 a.m. Asphalt Supply - Clint Rybak, ConocoPhillips
- 11:30-12:00 p.m. Green Roads: How to Get the Points - Niall Jansson, P.E., MoDOT
- 12:00-2:00 p.m. Equipment Exhibit, Lunch, Paving Awards
- 2:00-2:30 p.m. Pavement Type Selection - Dave Nichols, MoDOT
- 2:30-3:00 p.m. MoDOT Update - Dennis Bryant & Others, MoDOT Field Office
- 3:00-3:30 p.m. Break
- 3:30-4:00 p.m. Advantages and Application for Micro Milling -
Andrea Latham, Keystone Engineering
- 4:00-4:30 p.m. MoDOT Maintenance Update - Don Hillis, MoDOT
- 4:30-5:00 p.m. Thiopave (Paving with Sulfur) - Joe Schroer, MoDOT
- 5:00-9:00 p.m. Equipment Exhibit, Reception, Dinner, MAPA-REF Raffle,
MAPA Continuing Committee Auction and 10-33 Fundraiser

WEDNESDAY, JANUARY 13

- 7:00-8:30 a.m. Breakfast and MoDOT Update
What to Look Forward To - Kevin Keith, Chief Engineer, MoDOT
- 8:30-9:30 a.m. WMA Missouri Experience
Foaming Process:
 - Maxam Equipment Process - Roger Sandberg, Maxam
 - Aztec Process - Jason Stastny, APACAdditives Process:
 - Evotherm - Steve Jackson, N.B. West
- 9:30-10:00 a.m. Alternative Binders - Dr. Chris Williams, Iowa State University
- 10:00-10:30 a.m. Break
- 10:30-11:00 a.m. Baghouse Maintenance - Catherine Choate, Astec
- 11:00-11:30 a.m. Wrap up and Prizes

2010 MAPA Annual Conference Tentative Agenda

Track 2 - Non-Producer and Commercial Contractors

TUESDAY, JANUARY 12

- 8:00-9:00 a.m. Annual Business Meeting - Members Only
- 9:00-10:00 a.m. Pledge, Patriotic Song - Joe Thrasher
How "Street Smart" Are You? - Thommy Halfen, Public Safety Coalition
- 10:00-10:30 a.m. Break
- 10:30-12:00 p.m. Best Practices - Chuck Deahl, BOMAG Americas
- Paving - When to Roll
 - Proper Handwork Compaction
 - Proven Rolling Techniques
- 12:00-2:00 p.m. Equipment Exhibit, Lunch, Paving Awards
- 2:00-3:00 p.m. Proper Distributor Operations, Tack Coat Problems and Solutions - Brian Horner, E.D., Etnyre & Co.
- 3:00-3:30 p.m. Break
- 3:30-5:00 p.m. Best Practices Continued - John Hood, Paving and Milling Products Bomag Americas
- Milling
 - Paver, Tractor and Screed Operations
 - Proper Joint Construction
- 5:00-9:00 p.m. Equipment Exhibit, Reception, Dinner, MAPA-REF Raffle, MAPA Continuing Committee Auction and 10-33 Fundraiser

WEDNESDAY, JANUARY 13

- 7:00-8:30 a.m. Breakfast and MoDOT Update
What to Look Forward To - Kevin Keith, Chief Engineer, MoDOT
- 8:30-10:00 a.m. Panel on Pavement Defects
What caused it?
How to fix it?
- TBA
- 10:00-10:30 a.m. Break
- 10:30-11:00 a.m. Design Guide for Contractor Use - David Yates, MAPA
- 11:00-11:30 a.m. Wrap Up and Prizes



A BIG Thank You

MAPA would like to thank everyone who helped make the 10th Annual MAPA-REF Golf Tournament a success. Thanks to the Bituminous members, Ergon Asphalt & Emulsions, ExxonMobil and ConocoPhillips, for providing the lunch and beverages for the event. Also thanks to Mike DeGraff, Vance Brothers, and Mike Hartman, Missouri Petroleum, for heading up the golf committee and to Laura Lentz and Debbie DuBois, Missouri Petroleum, for their assistance at the special event holes. As usual, we had some great door prizes donated as well. Hats off to those donors!

The Event Sponsors this year were:

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Highway Construction Progress Coming to an End

By Kevin Keith, Chief Engineer • Missouri Department of Transportation

When it comes to transportation in Missouri, we've been living the high life in recent years. That's largely because our citizens recognized the importance of investing in our transportation system and passed Amendment 3 in 2004. That vote of confidence sent additional highway user fees our way and has allowed us to perform record amounts of road and bridge construction.

In fact, in the past five fiscal years, we've awarded 2,151 projects totaling \$5.7 billion. The results speak for themselves:

- 83 percent of our major highways are now in good condition compared to 47 percent in 2004.
- Highway fatalities have decreased 24 percent in the past three years.
- Truck drivers voted Missouri roads as the fifth best in the nation in a survey conducted by Overdrive magazine. They also voted Interstate 44 as the fourth most improved highway segment.
- The Reason Foundation ranked Missouri as the fourth most efficient state in administrative costs per mile.
- 85 percent of Missourians are satisfied with MoDOT, and 89 percent trust us to keep our commitments to the public.

However, the construction boom we've enjoyed these past few years is about to come to a screeching halt. Funding for transportation is being challenged at all levels:

- Reauthorization of the federal surface transportation program, which funds our highway construction program, expires Sept. 30. Its future is up in the air. The House wants to pass a six-year, \$500 billion highway bill that would dramatically overhaul the nation's transportation system and how it is funded.

This proposal would be very bad for Missouri for a number of reasons, but mostly because it ultimately would mean fewer dollars coming to our state for road and bridge construction. That's certainly not the direction we want to go.

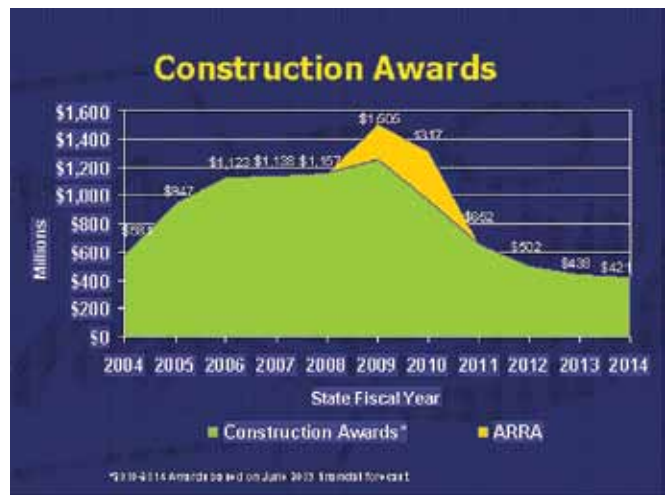
- On the other hand, the Obama administration and the Senate would like to extend the current law for 18 months to buy time to develop consensus for a broad-based, long-term highway act. While this seems to be the more prudent approach, it is clouded by uncertainty because we don't know what level of funding we'll be getting.
- The economic downturn has put a dent in car sales and likewise in the motor vehicle sales tax revenues that fund transportation. In addition, people are driving less and buying more fuel-efficient cars in response to the sluggish economy and last year's spike in gasoline prices, further limiting transportation funds. As a result, state revenue from taxes and fees in fiscal year 2009 was down 4.9 percent, or \$52 million, compared to FY 2008.
- Amendment 3 required MoDOT to sell bonds and use the money for highway construction. We'll sell the last of those bonds in October. After that, the revenue that comes in from Amendment 3 will be used to pay off those bonds over time.
- And while funding from the American Recovery and Reinvestment Act has been a welcome relief, it's not the solution to our transportation funding woes . . . even though that seems to be the public perception.

On a brighter note, we've helped offset our revenue decline through cost savings. In the last fiscal year, our construction projects came in 9 percent under budget for a savings of more than \$135 million. Still, when you plot projected construction awards through fiscal year 2014, the graph in the upper right of page 13 resembles the Matterhorn. We go from a high of \$1.5 billion in FY 2009 to a low of \$421 million in FY 2014.

Highway Construction Progress Continued

Our tentative bid-letting schedule paints a similarly bleak picture.

| Letting | Program Budget (millions) |
|-------------------------------------|---------------------------|
| June 2009 | \$165,415 |
| July 2009 | \$55,134 |
| August 2009 | \$71,731 |
| September 2009 | \$67,297 |
| October 2009 | \$301,643 |
| November 2009 | \$103,657 |
| December 2009 | \$166,349 |
| January 2010 | \$96,623 |
| February 2010 | \$128,473 |
| March 2010 | \$30,969 |
| April 2010 | \$20,526 |
| May 2010 | \$54,812 |
| Economic Recovery Minor Roads - TBD | \$6,000 |
| Fiscal Year 2010 Total | \$1,268,629 |
| June 2010 | \$36,501 |
| July 2010 | \$15,417 |
| August 2010 | \$70,571 |
| September 2010 | \$28,120 |
| October 2010 | \$43,407 |
| November 2010 | \$35,199 |
| December 2010 | \$36,779 |
| January 2011 | \$30,607 |
| February 2011 | \$33,144 |
| March 2011 | \$29,278 |
| April 2011 | \$51,526 |
| May 2011 | \$16,688 |
| TBD | \$59,774 |
| Fiscal Year 2011 | \$487,011 |



So, what's the bottom line? If no action is taken we're probably looking at a future where we'll be struggling to keep existing highways in good shape and will have few dollars to build new roads, bridges or other transportation facilities. But I'm optimistic that won't happen. We've been on the brink before, and we've always risen to meet the challenge and find a workable solution. We have too much at stake – jobs, lives and economic growth – not to find a way off the cliff.

In the meantime, we pledge to do our part. We'll continue to complete projects on time and within budget and provide a dollar of value for every dollar we spend. We can't dictate the solution to our funding problems but we can show what we can accomplish with the resources we're given.



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