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# The IOWA ASPHALT REPORT

## Pavements that last and last...

In the early 1960's, most asphalt pavements were built with very simple designs. Very little data was available to predict performance over time. It was simply an educated guess as to how long these roadways would hold up. Currently, some of these pavements are in need of replacement while others have served the motoring public quite well for more than 40 years.

Two of these long-lasting 1960's pavements are in Iowa along I-80, one in Cedar County and another in Iowa/Johnson counties. These stretches of highway were both recently awarded the Asphalt Paving Alliance's 2002 Perpetual Pavement Award. This national recognition was granted to six different sections of Interstate Highway System

nationwide, and given the fact that two of those six pavements are in Iowa, is a resounding testament to the quality of roadways our state has produced for many years.

It also provides us with an opportunity to reflect on a major question our industry, our customers and the driving public have been asking since the first dirt road was paved over - just how long should a pavement last? "As these pavements have shown, with the correct design, quality initial construction and proper maintenance, there is no reason a pavement can't last forever. That's what is meant by perpetual pavement," said Mike Heitzman, DOT bituminous engineer. "If the pavement is designed and constructed well, surface maintenance should be the only work necessary to sustain the roadway indefinitely, even with changes in traffic and load levels."



The traffic data we collect shows conditions have changed significantly in the past 40 years. Traffic load levels are more than five times greater on I-80 than when the pavements were built in the early 1960s. "We couldn't place the 1960s pavement design today and expect a similar 40-year life," said Heitzman. "The pavements would look similar, but the mixes and thickness would be different to account for the high traffic load. In the 1960s we used a generalized design for pavements. Today we have technology to allow a more detailed, engineered approach to each project using materials that have

properties shown to perform in a given situation. The goal of good design is to minimize the strain on the bottom of the pavement to eliminate stress cracks. This will make the base last. We design the pavement thick enough to bend, but never break."

"HMA pavement designs can be very precise" according to Heitzman. "If we build the structure well enough and with the proper materials, we only need to renew the surface on a 10- to 15-year cycle. This will have slightly higher up-front cost, but the long-term performance of the roadway will be very cost effective." ■



## The Iowa Glasphalt Project

Many of you may remember hearing Merry Rankin from the DNR's Energy and Waste Management Bureau speak at the Association Conference in Ames in 2001 about Glasphalt. This article will update you on the activities that have occurred since then and how our membership has helped "pave" the way.

During a recent visit to the Landfill of North Iowa's Education Center in Cerro Gordo County, a class of third-grade students found themselves fascinated with an aspect of the facility that most people take for granted.

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## From the Desk of the E.V.P.

You may not realize it, but you are in the midst of an Asphalt Revolution. We are doing things differently in the asphalt industry both nationwide and here in Iowa. The revolutionary changes in the way we construct



*Mike Kvach,  
APAI Executive  
Vice President*

Asphalt pavements has magnified the functional advantages Hot Mix Asphalt (HMA) offers.

Asphalt Pavements are smooth, safe, quiet, constructed quickly, environmentally friendly, 100% recyclable, versatile, architect friendly, have high visibility of pavement markings and lend themselves to stage construction.

Studies have proven that properly designed and constructed HMA pavements are the most economical pavement choice. Some states have reported that HMA pavements are up to 40% more economical than alternative pavement types. They are lower in initial cost and the savings continue to increase throughout the life of the pavement. This has been demonstrated with the award winning sections on our own Interstate 80.

The smoothness of HMA not only makes for a smooth, safe and quiet ride but contributes to the economics as well. The ability to pave uninterrupted and the absence of joints every 15-20 feet results in a smoother pavement. The National Cooperative Highway Research Project (NCHRP) examined the effects of initial pavement smoothness on the future smoothness and life of the pavement and found an estimated life increase of 15% for a 50% increase in smoothness. Research has also found that a 10% reduction in IRI (International Roughness Index) resulted in a 4.5% increase in miles/gallon.

Surveys conducted by the Federal Highway Administration leave little doubt about what the motoring public expect in their roadways. They want: smooth, safe, long lasting pavements in good condition, a rapid response when problems do arise, with the least amount of disruption when routine maintenance, rehabilitation and emergency repairs are necessary. All of these expectations are met best by using asphalt pavements. This may explain why 94 percent of pavement owners in the United States make HMA their surface of choice. ■



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## A Tale of Two Projects

In 2001, the City of Iowa City completed two projects with the same objective, rehabilitate a worn PCC pavement. They found the cost to crack-and-seat the Court St. pavement with HMA overlay was less expensive than diamond milling the PCC roadway. These projects ran nearly simultaneously with the Court St. project taking eight days to complete and the Rochester Ave. project taking nearly four weeks. The diamond milling method will need to be examined in five to ten years, whereas, the crack-and-seal/overlay is designed for a fifteen to twenty year life span. The City of Iowa City acknowledges the dramatic cost difference; the residents of Court Street acknowledge they got the better deal. ■



**Court Street, Iowa City, IA  
Crack-and-Seat with 4in. HMA**

Total Cost: \$135,024.40  
Price per Square Yard: \$9.80  
Total Square Yards: 13,778



**Rochester Avenue, Iowa City, IA  
Diamond Grinding of 7in. PCC**

Total Cost: \$173,951.40  
Price per Square Yard: \$12.45  
Total Square Yards: 13,972

## APAI's Fresh New Look

May 1st marked the debut of APAI's newly redesigned web site and printed newsletters. The new look features newsletter articles you'll find easier to read, with unabridged versions available on the web site.

Inside the web site you'll find all of the information in each month's printed newsletter and much more. It's all part of APAI's continuing commitment to our members. ■

## GLASPHALT

*Continued from page 1*

They were checking out the parking lot. This is no ordinary parking lot, though. It's made with glaspphalt, a hot mix asphalt that uses crushed glass as one of the aggregate sources.

"Everyone who visits the Education Center is amazed at the "cutting-edge" concept of using broken glass for a surface like this," noted Bill Rowland, education coordinator for the Landfill of North Iowa.

"The third-graders couldn't wait for an explanation as to why the parking lot was so shiny," Rowland said. "Once



I explained what was in the asphalt, they spent the next ten minutes on their hands and knees, looking at, feeling and discussing the glass." ■

*Please visit the new APAI web site at [apai.net](http://www.apai.net) for the rest of our Glaspphalt story.*

## Calendar of Events

### 48th Annual APAI Convention

December 4-5, 2003  
West Des Moines, IA Marriott

### North Central Asphalt User/Producer Group Annual Meeting

January 28-30, 2004  
Location to be announced

### 48th Annual Asphalt Paving Conference

February 3, 2004  
Scheman Bldg, Iowa State University  
Ames, Iowa

### 45th Annual Workshop

March 5-6, 2004  
Des Moines, IA Holiday Inn Airport

### APAI Mini-Workshops

April 1, 2003  
Buena Vista University  
Harold Walters Siebens Forum  
Storm Lake, IA

April 3, 2003  
Holiday Inn at Ameristar  
Council Bluffs, IA

April 8, 2003  
Holiday Inn  
Coralville/Iowa City, IA

April 10, 2003  
Comfort Suites  
Ames, IA

For the second year in a row, the **APAI state wide Mini-Workshops** have proven to be a terrific benefit for our association! Focusing on practical information for the practicing pavement design engineer or technician, these one-day workshops provide individuals with easily digested information and process training that is clear, to the point, and easily repeated once back at the office.

This is HMA to go! After attending one of our workshops, pavement design engineers can provide their customers with an alternate pavement that will perform equal to or better than Portland Cement Concrete and afford them the functional advantages that only Hot Mix Asphalt can provide.

## New Members

**Mid Continental Chemical Co., Inc.**  
Leawood, KS

**D. Storey, Inc.**  
Grimes, IA

**Quad City Testing Laboratory, Inc.**  
Davenport, IA

**Terracon**  
Cedar Rapids, IA

## Other Information

APAI is planning 3 regional golf outings for 2003! Please check [apai.net](http://www.apai.net) and your mail for dates and locations.