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The Rise of the Interlayer

(Part 1 of a 2-part series)

The use of a crack-relief interlayer prior to an asphalt overlay has expanded exponentially in Iowa over the past several years. This issue's article will focus on the use of the asphalt crack relief interlayer to deter PCC reflective cracking.

The next edition's article will focus on the use of a rock interlayer for crack relief.

Asphalt will always be the best product to rehabilitate Iowa's failing Portland Cement Concrete (PCC) pavements, yet there has been one inherent flaw, reflective cracking of the PCC saw cuts. The reflective cracking allows water to penetrate through the overlay and into the already deteriorated PCC pavement, thus causing shorter life spans of the asphalt overlay.

In the past, the Iowa Dept. of Transportation (I D O T) has typically overlaid PCC pavements with a four-inch asphalt overlay. The straight overlay

theory is that you get one year per inch of asphalt before the cracks reflect through the overlay. The PCC reflective cracking greatly reduces the lifespan of an asphalt overlay. The IDOT has begun to address the reflective cracking issue by increasing the use of alternative rehabilitation methods including: crack and seat, cold-in-place recycling and PCC rubblization (see IAR Fall 2011 issue). The newest method to be reexamined is placement of a one-inch

asphalt interlayer over the failed PCC followed by an asphalt overlay.

The asphalt interlayer was first introduced by Koch Materials in the 1990's as a proprietary product called Strata™. Strata™ was engineered hot-mix asphalt placed one inch thick using polymerized asphalt cement and 3/8" minus aggregates. Several test sections were placed in Iowa including

Highway 9 outside of Decorah, IA and on 1st Ave (Bus. Hwy 151) in Cedar Rapids, IA. Unfortunately, the Strata™ product was sold off to another company and

not properly promoted due to several company acquisitions and mergers. However, the ability to create the mix design for an asphalt interlayer and utilize the correct polymer asphalt cement, is well within the abilities of today's APAI contractors. The use of the interlayer may be advantageous to all levels of agencies. Scott Schram, IDOT Bituminous Engineer had this to say about the use of the asphalt interlayer by the IDOT, "PCC

(Continued Page 4)



Heartland Asphalt paving Asphalt Interlayer on I-35.

Tales from the Road



"Leaner, Meaner and Greener"

My boy Henry is going through a growth spurt. He has been eating everything in sight, sleeping long hours, and complaining of growing pains. Last time he did this, he grew two inches in a month. I believe these tough economic times have poised the Iowa Asphalt Industry a similar growth spurt. Why? We have become leaner, meaner and greener.

These have been hard times in asphalt construction. A perfect storm of economic recession, government inaction and heightened competition has led to lower tonnages, idled plants and fewer employees. The Iowa Asphalt Industry has become leaner. This leanness has created more efficient use of trucks and equipment, maximization of labor productivity and evaluations of best practices in production and placement of our material. Companies have trimmed the fat, and maybe even more than that, to get the edge.

Companies are ranging farther and wider to look for work. Prices are extremely competitive and competition is fierce. We have had to change how we do business. We have become meaner. Companies have become more than order takers. APAI

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Upcoming Events

(Click event for more information)

NAPA Webinar: Social Media for Asphalt Companies

Date: September 18, 2012
Time: 2:00 p.m., EDT
Fees: \$25 for NAPA Members**;
\$55 for Non-Members

Click here to register.

**NAPA Members must be logged into the NAPA Web site in order to receive the Discounted

Promotion Code, or you can contact Sandy Lucchesi at slucchesi@asphaltpavement.org for the discount code.

SAC Field Trip (Former QMA Field Trip)

Date: September 19-20, 2012
Location: Southeast Iowa
More information to be coming shortly.
To register, click here – apai@apai.net.

Board of Directors' Meeting

Date: September 25, 2012
Location: APAI Conference Room
116 Clark Ave., Ste C
Ames, IA 50010

Iowa League of Cities Conference

Date: September 26-28, 2012
Location: Sioux City Convention Center
Sioux City, IA

APAI 57th Annual Convention

Date: November 28-29, 2012
Location: West Des Moines Marriott
West Des Moines, IA

2012 County Engineers Conference

Date: December 4-6, 2012
Location: Scheman Building
Iowa State University
Ames, IA

NAPA's Annual Meeting

Date: February 10-13, 2013
Location: The Phoenician
Scottsdale, Arizona

Click here for more information.

2013 Greater Iowa Asphalt Conference

Date: March 6-8, 2013
Location: Airport Holiday Inn
Des Moines, Iowa

2012 Smoothness / QMA Award Submissions Due

September 17, 2012

Submit by sending to:
APAI

116 Clark Avenue, Ste C
Ames, IA 50010

Or send to:
apai@apai.net

(Tales from the Road – Cont. from Page 1)

member companies have become active marketers for asphalt. We can no longer sit idly by while our competition takes market share. City, county and consulting engineers have learned that asphalt is smoother, quieter, faster to construct, and when designed as a perpetual pavement, **asphalt is the pavement that will never be reconstructed.**

The increased cost of asphalt cement has driven the greatest period of innovation in the history of asphalt. We have become greener. Nationally, the asphalt industry has been recycling for nearly forty years, but the use of warm-mix asphalt (WMA), recycled asphalt shingles (RAS), and higher recycled asphalt pavement (RAP) designs have made our product far superior to PCC pavements in reducing our carbon footprint. PCC cannot compete with the 100% recyclability of asphalt, lower CO₂ production from cradle to grave, and the gas mileage smoothness advantage of asphalt pavements. This Green advantage will be the catalyst for asphalt being the

superior pavement choice of states, cities and counties.

The Iowa Asphalt Industry is Lean, Mean and Green. Like Henry, we are ready to grow again. We only await the opportunity to hire new employees, buy new equipment and reenergize our production facilities. The election cycle will be kicking in full force again this fall; please don't hesitate to tell your local and national legislators the story of your company, then tell them the Iowa Asphalt Industry employs over 3000 people, with 1,000's more indirectly connected to our businesses. Tell them we build long-lasting, beautiful, safe roadways for Iowa's men, women, and children. Tell them we are ready to grow.

Smoother is better.

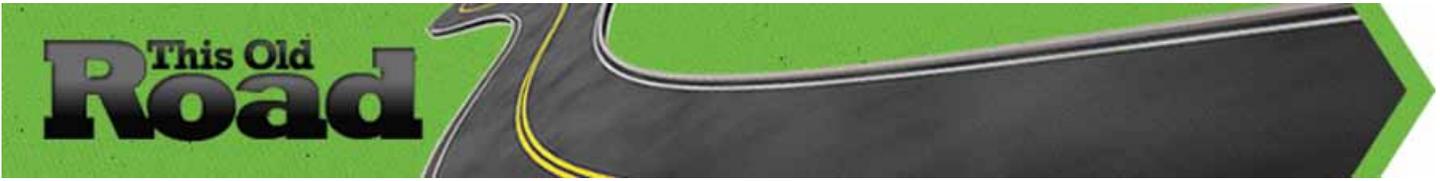
SAVE THE DATE

NOVEMBER 28-29, 2012

2012 APAI 57th ANNUAL CONVENTION
WEST DES MOINES MARRIOTT HOTEL

HIGHLIGHTING:
Governor Branstad (invited)
Karl Mecklenburg – All-Pro Denver Broncos
Asphalt Vegas
Smoothness/QMA Award Luncheon
Johnny Holm Bend

BLACK TO THE FUTURE



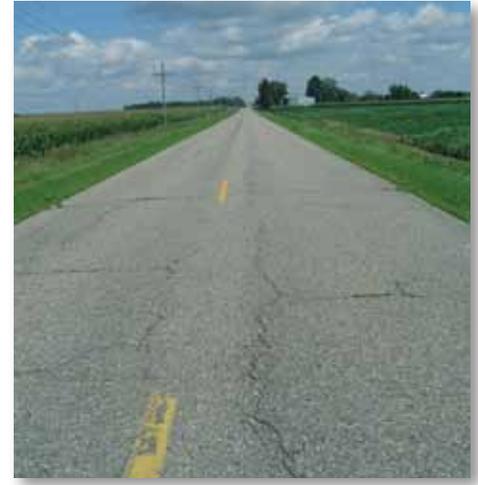
W30 Benton County 37 Years Old

Want proof that Asphalt lasts? Take a drive down W-30 on the Linn-Benton County Line south of Walford. The road looks like many older rural asphalt pavements, slurry filled thermal cracks with an occasional surface patch here and there, **and like many old asphalt roads, the ride is still good.** Good performance for being paved in 1974 with 7" of Type "B" Asphaltic Concrete and this road has NEVER been resurfaced. Crack filling and a few skip patches have been the only maintenance needed in this pavement's 38 years of service. Talk about a pavement that owes the county nothing, this is it.

In visiting with Benton County Engineer Myron Parizek, he says "The road has been placed in the County's Five-Year Construction Program in the past due to its age. However, it just

never reached the Accomplishment Year because it was not that needy". This road continues to perform and provide tax benefits to the citizens of Linn and Benton counties. When this road needs to be rehabilitated (it may be a while yet), a simple overlay or "mill and fill" operation will suffice to rejuvenate this road for another 20-30 years.

Why has this road performed so well? It was designed far different than most "asphalt" roads of its era. Most early county "asphalt" roads were little more than rolled stone bases with a thin layer of asphalt placed on the surface. Many surfaces were only seal coats or a few inches of asphalt concrete. Because the surface was black, it was classified as an asphalt pavement. But W-30 was an "Asphalt Pavement", with its 7" depth of asphalt this road was a forerunner of



today's "Perpetual Pavements".

With the improvements in asphalt cement and asphalt pavement designs over the years, one can only imagine how long today's "Perpetual Asphalt Pavements" will last.

City of Marshalltown Welcomes RAGBRAI Riders with New Asphalt Streets

The City of Marshalltown welcomed the influx of RAGBRAI bicyclists with three brand new asphalt streets last month. "What a great treat for my backside" said Bob Fleming a RAGBRAI rider from Urbandale, "this new asphalt is a real treat at the end of a hard day's ride". The City hired Cessford Construction of LeGrand, IA to pave the streets in July. Cessford took the project to another

level by incorporating recycled asphalt shingles (RAS) into the mix. "These streets were a great success for the residents of Marshalltown," said Bruce Campbell,

Assistant to the City Engineer. "The streets looked and rode great to welcome all of our visitors from RAGBRAI. In addition, the use of recycled shingles in the asphalt was a great advertisement for the emphasis the City puts on being both environmentally conscious and fiscally responsible. We will get a lot of years out of these overlays, this was a real win-win for the taxpayers."



(Building Perpetual Permanent Pavements – Cont. from Page 1)

pavements can be found in roughly 80% of the lane miles in our state; the majority of which cannot be seen by the driver. If you drive on one of these roads today, you'll find the underlying PCC pavement was originally constructed an average of 37 years ago. The traditional strategy has been an HMA overlay. However, freeze/thaw cycling, poor drainage, and deteriorating slabs each contribute to their movement. When these slabs move, cracks develop in the surface of the overlay. Cold-in-place recycling has proven quite effective in



APAI Field Engineer Royce Fichtner measures Interlayer.

reducing these reflective cracks, but this approach is not practical in every situation. The DOT has successfully experimented in the past with crack delay systems, but the strategy has never been routinely applied. Funding constraints necessitate cost-effective solutions.”

The placement of the asphalt interlayer is done using traditional asphalt paving methods with a few slight variations. The asphalt is plant-mixed, hauled to the site, and placed one-inch thick using an asphalt paver. Contractors have opted to not use the traditional belly-dump trucks and windrow pick-up machines and the mat is rolled using the static mode of the steel-drum rollers. The asphalt interlayer is then overlaid with conventional asphalt at a minimum of three inches thick. In a recent open house on I-35 in Cerro Gordo Co., IDOT, City, County, and Consulting engineers were able to witness the plant mixing and paving of the asphalt interlayer first-hand by Heartland Asphalt of Mason City, IA. “We had never placed an asphalt interlayer prior to this I-35 project. With the exception of running the mix a little hotter to accommodate

the polymer asphalt cement and the one inch thickness, it was nearly identical to placing traditional asphalt. We did opt to use straight trucks dumping directly into the paver.” said George Jessen, President of Heartland Asphalt. “We were able to use our belly-dumps and pick-up machine for the intermediate layer over top of the interlayer. I was extremely happy with this operation and I hope we see asphalt interlayers used more often.”

IDOT Design Engineer Chris Brakke talked about why the asphalt interlayer was selected for the Cerro Gordo project, “We had done some test projects in the past where we used an interlayer on portions of an overlay project. Some of the results were promising, but the routine use of interlayers had not occurred. At the conception stage for the I-35 project, we were looking for rehabilitation options. Cold-in-place recycling had not been used at that traffic level, and a more significant structural rehab was not deemed necessary because the existing overlay had performed well. So other ways to reduce reflective cracking were discussed, and we decided to use an asphalt crack relief interlayer as part of the new HMA overlay”

Although the use of the interlayer is gaining momentum with the IDOT, the use of the interlayer has proven to be even more important in the municipal arena. “The use of the asphalt interlayer in a municipal setting, where curb line exposure is at a premium, may be a real cost savings for cities.” Chuck Finnegan, President of the L. L. Pelling Co., was the project manager on the 1st Ave. project in Cedar Rapids, IA done over 15 years ago using Koch’s Strata™ product, “Even today, you can see a distinct difference in the amount of cracking that has come back through the original overlay in 1999, both in the number of cracks and the size. Very few go completely across the pavement, and those that do, are very narrow, minimal reflective cracks. This has been a tremendous success story for the Cedar Rapids Engineering Department and the city’s taxpayers.”

The City of Dubuque, with the technical expertise of River City Paving, was able to incorporate the asphalt interlayer on its

Central Avenue Resurfacing Project (21st to 32nd) in the summer of 2011. “During the planning of this project we were able to identify nearly \$390,000 in direct savings and countless dollars in savings for the merchants along the project through the use of the asphalt interlayer instead of milling down to the original PCC and replacing every joint,” said Jon Dienst, Civil Engineer for the City of Dubuque. “We think we will get better performance for our taxpayers with less hassle for the traveling public and our local merchants. The use of the asphalt interlayer has been a Win-Win for the City of Dubuque.”

The asphalt interlayer’s highly elastic properties retard the reflective cracking of the PCC pavements through the asphalt thereby prolonging the life of the rehabilitation. The asphalt interlayer replaces one inch of the typical four inch overlay and comes at a slightly higher premium due to the additional lift construction and the higher costs of the polymer asphalt cements, but both IDOT and municipal agencies see the value. “If the cost of a 4-inch overlay with a PG 64-28 binder is compared to a 3-inch overlay (PG 64-28) with a 1-inch interlayer (PG 64-34), the increase in binder cost is nearly 13%. It is expected this cost can



Completed Central Ave Project in Dubuque.

be recovered from improved performance and deferred maintenance, which were demonstrated in past trials,” says Schram.

Getting longer life for asphalt overlays is a goal of both the contracting agency and the APAI asphalt contractor. The use of the asphalt interlayer is both fast and cost-effective. Specifying a full-depth asphalt pavement from inception will insure longer performing asphalt overlays, but for rehabilitating failing PCC pavements, the asphalt interlayer may be just the tool for prolonging pavement life.

APAI Open Houses Highlight Benefits of Asphalt “Leaner, Meaner and Greener”



Dickinson Co. Open House attendees at Tri-State Paving plant.

The Asphalt Paving Association of Iowa helped sponsor three Open Houses in the Summer of 2012. Events were held in Story Co. for Highway 69, in Dickinson Co. on three county roads, and in Cerro Gordo Co. on I-35. The three APAI Open Houses were done in cooperation with state and local entities and APAI contractors. The events were extremely well attended with great participation by city, county and IDOT engineers and personnel. Each open house highlighted another method of construction that highlighted asphalt's benefits of being faster to construct, smoother for the driving public, and the greenest pavement choice.

Highway 69 Open House on July 10th showcased the advantage of rubblization in the rehabilitation of a deteriorating Portland Cement Concrete (PCC) pavement. This 8-mile project on US 69 north of Ames consisted of milling

off the existing asphalt, rubblizing the PCC pavement, placing a three-inch rock interlayer, and three lifts of asphalt totaling eight inches. Manatt's, Inc., the Iowa DOT, and APAI staff explained to a crowd of over 50 city, county, consulting, and state engineers the complexities of constructing this project and the partnering that took place between the contractor and agency to complete the project on time and on budget.

In the month of August two open houses were held. The first was held in Dickinson County on August 1 with over sixty agency personnel, APAI contractors, associates and suppliers attending. The Dickinson Co. Open House highlighted the benefits of asphalt as the most cost-effective, fastest-to-construct, and greenest pavement in Iowa. This cooperative effort between Dickinson County Engineering, Tri-State Paving, and APAI featured four paving projects that totaled 48,000

tons. The rehabilitation projects utilized Warm-Mix Asphalt (WMA), Recycled Asphalt Shingles (RAS) and Recycled Asphalt Pavement (RAP). Using these methods emphasized the importance that Dickinson County taxpayers have placed on being environmentally and fiscally responsible.

The second August open house was held on August 6th in Cerro Gordo County on I-35 near Mason City. This I-35 Open House was attended by nearly fifty members of the engineering and construction industries. Heartland Asphalt, Inc., Iowa DOT, Iowa State University, and APAI representatives explained the principles behind the use of an asphalt interlayer to rehabilitate a distressed PCC pavement. Those in attendance were able to view the laying of this interlayer and to observe how it was constructed with the lifts above it. This asphalt interlayer is meant to help prevent and delay reflective cracking caused by the underlying PCC pavement. The presentation was capped with a trip to a Cerro Gordo Co. project on B20 where the failed PCC pavement was being crushed *in situ* and used as a stone base for a full-depth perpetual asphalt pavement.

If you have a project that you feel may be of interest to others, the APAI would love to hear from you. Please call us at 515-233-0015 or send us an email at apai@apai.net.



Participants seeing how an interlayer is laid on I-35 in Cerro Gordo Co.



Manatt's paving on Hwy. 69 Rubblization project



APAI Pres. Duane Hassebrock addresses Hwy. 69 Open House participants.

APAI Summer Meeting Shines on Honey Creek Shores

On July 19-20, 2012, over sixty members of the asphalt family came together for a day of fun on the water and a night of great food, revelry and camaraderie at the beautiful Honey Creek Resort on Lake Rathbun. The 4th Annual APAI Summer Meeting featuring the “Mexican Riviera” theme was another resounding success as the popularity of the family-friendly event continues.

On Friday morning, the 4th Annual



Summer Meeting Golf Open was held under clear skies. The temperatures were high but the golf scores were exceptionally low. Congratulations to this year’s winning team father and son duo, Doug and Ben Clement, and husband and wife pair of Sybil and Matt Ferrier. Photos of the 2012 APAI Summer Meeting and Summer Meeting Open can be viewed here.

APAI contractor and associate members have found this event is an opportunity to take a short break from the hard work and long hours, and celebrate both our fraternal and asphalt families. If you haven’t been able to make a Summer Meeting yet, make time in your schedule for fun, music and laughter in July 2013 for the 5th Annual APAI Summer Meeting. A special thank you goes out to Tania Rosener for all her hard work in putting this event together and to all our sponsors for supporting this tremendous event.

Bituminous Materials & Supplies Co., Inc.
Roadtec, Inc.
Altorfer, Inc. & Ziegler Inc. –
“The Caterpillar Dealers of Iowa”
Burroughs Consulting Group
Construction Materials Testing
Cryogenic Engineering

APAI Welcomes New Members

APAI continues to add new members. At the last Board Meeting of 2012, the Board of Directors elected one Associate Member and one Consulting Engineering Member to the Association. Thank you to those who have helped recruit these new members.



Metro Waste Authority provides answers for safe and smart waste disposal and recycling. Whether it is garbage, recyclables, yard waste, hazardous waste or special waste, they know where it should go and have the resources to

help. They also recycle asphalt shingles and serve as one of the largest providers of DOT certified recycled asphalt shingles. Serving Central Iowa, Metro Waste Authority manages Metro Park East Landfill, Metro Park West Landfill, Metro Hazardous Waste Drop-Off, Metro Compost Center and Metro Transfer Station. A government agency, Metro Waste Authority is self-funded through fees charged to those who use the landfill and its other services; they do not receive tax dollars. Learn more at www.WhereItShouldGo.com.



Celebrating 30 years of excellence, IIW, P.C., headquartered in Dubuque, IA and with a branch office in Davenport, IA provides professional services to several public and private clients. IIW meets clients’ needs in the following areas:

Architecture, Civil, Environmental, Municipal, Structural, and Transportation Engineering, Construction Services, and Land Surveying. Their mission is to deliver imaginative as well as traditional solutions based upon thorough evaluation of a client’s needs. They foster employee expertise and draw upon their dedicated staff to build lasting relationships.

Please welcome these new members and show your support for them, by contacting them and utilizing their services. To find contact information for these members, go to www.apai.net/members.aspx.



Best APAI Golf Outings Ever – Amana & Carroll 2012!

What a great couple of events! The APAI golf outings held June 26th at the beautiful (and challenging) Amana Colonies Golf Course and the Carroll Country Club event held August 29th were HUGE successes. Over 270 golfers attended the 4-person best ball tournaments. The golfers played, celebrated, and won fabulous prizes during these sun-kissed events.

The real winner of this year's golf outings was the APAI Scholarship Fund! Due to the generosity and the competitive nature of our attendees, donations of over \$5,000 were received.

Thank you to all our attendees, our organizers: Rick Brown of Star Equipment and Jeremy Anderson of Tri-State Paving, and our volunteers: Billie Sue Willie, Carrie Herrera and Julie Maxfield from the LL Pelling Co., Kim



Oltmann from Burroughs Consulting Group, April Roeder from OMG/Tri-State, Danielle Hargess from OMG, Ashley Scott from OMG/Cessford, Tania Rosener (Bill's lovely wife, who braved both events) and Josh Patience from UNI Construction Management, and to our very generous sponsors for this year's events:

"Bring a Ringer" Sponsorship

Oldcastle Materials Group / Midwest
Flagger Pros USA, L.L.C.

Silver Sponsorship

Flint Hills Resources, L.P.
Jim Hawk Truck Trailers, Inc.
Mead WestVaco Corp.
Weiler

Gold Sponsorship

Bituminous Materials and Supply Co., L.P.
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Bronze Sponsorship

Altorfer, Inc
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Construction Materials Testing
Dahl Trucking, Inc.
Gee Asphalt Systems, Inc.
Jebro, Inc.
Murphy Tractor and Equipment Co., Inc.
Ziegler, Inc.

In addition, another ten companies were hole sponsors.

To see more photos of this fun filled day in Amana, [click here](#). To see the Carroll outing slideshow, [click here](#).



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Burroughs Consulting Group, Hiawatha
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Denco Highway Construction, Mingo
J.D. Donovan, Inc., Rockville, MN
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Titan Machinery, Des Moines
Unique Paving Materials, Cleveland, OH
Valley Environmental Services, Newton
Walker Construction Company, Emporia,
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Waste Commission of Scott County,
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Weiler, Knoxville
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Whitfield & Eddy, P.L.C., West Des
Moines
Wirtgen America, Inc., Antioch, TN
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NE
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Ziegler, Inc., Des Moines

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