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Let's Go HIPRO! High Performance Thin Overlays Take Off

Since its introduction in Iowa three years ago, the excitement around the use of the High-Performance Thin Overlay, aka "HIPRO", has grown exponentially. The reason is clear: HIPRO is a progressive, cost-effective, and long-lasting asphalt pavement preservation technique. It provides additional advantages over more traditional preservation techniques through improving the ride and structural strength of the roadway. In today's era where dollars

with a 58-28E+ polymer-modified asphalt cement. The HIPRO is designed with less than 2% voids making it extremely dense and impermeable to water. The 58-28E+ binder provides an asphalt cement (AC) with 90% elastic recovery. This requirement creates an exceptionally strong, impermeable mix that is highly-flexible and crack-resistant at the same time. When using HIPRO on high-traffic areas, an L-2 friction aggregate can be added to the mix design. HIPRO is generally placed at 1.0"-1.5" thick, over a milled surface, through a conventional asphalt paver and static-rolled (no vibration) with steel drum rollers.



Hamilton County HIPRO project constructed by Mathy Construction Co. in June of 2018.

are short, and taxpayer expectations are high, it stands tall as the top option for cities, counties, and the Iowa DOT as the long-lasting pavement preservation tool.

HIPRO Defined

HIPRO is a hot-mix asphalt that utilizes a fine-graded, 3/8" mix design combined

The Iowa DOT has improved and refined the High Performance Thin Overlay over the past three years through minor tweaks of the original specification. These modifications included: allowing Recycled Asphalt (RAP) into the mix to reduce costs; adding the "+" to the 58-34E asphalt cement (AC) to increase the elastic recovery of the binder from a minimum of 75% to 90%; and reducing target voids to ≤2% to increase the amount of AC in the mix, thereby improving the structural characteristics of the HIPRO. The resulting Iowa DOT Developmental Specification, DS-15066, is a working document from

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Tales from the Road



Positive Energy

My son Henry turned eleven this summer right at the beginning of the Little League baseball season. Although he has declared basketball as his sport of choice, he was excited about baseball this year after having fun and some initial success on last year's team. Because of all the rain this spring, the season started with only one practice with his new team. His new coach had drafted a team of about half all-stars and half boys that needed some coaching up. I offered to help where needed and was quickly relegated to "dugout duty" (keeping the boys in line and stat bookkeeping). As the season progressed, it became readily apparent that the head coach lacked both patience and coaching skills. His unwillingness to spend time to "coach-up" the mediocre players led to a division in the team. His impatience with the less-skilled kids led to more frequent outbursts from him during the games. His tirades were embarrassing and eroded the confidence of the lesser players, including both his son and my son. This finally came to a head with three games remaining in the season when I watched him storm halfway across the diamond to yell at the right fielder for missing a pop-fly. I was furious. "That's not cool, Coach," I told him as he stomped back into the dugout. He glared at me; started to say something and thought better of it. I had had enough of his antics. As I rode home that night with Henry, I told him that I was planning to quit helping coach the

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Upcoming Events

(Click event for more information)

2018 APAI 63rd Annual Convention

Dates: November 28-29, 2018
Location: West Des Moines Marriott,
West Des Moines, IA

2018 APAI Holiday Open House

Dates: December 6, 2018
Location: APAI Offices, Ames
Time: 3-5 p.m.

2018 Iowa County Engineers Conference

Dates: December 12-14, 2018
Location: Community Choice
Credit Union Center,
Des Moines, IA

2019 NAPA Annual Convention

Dates: January 20-23, 2019
Location: JW Marriott Beach Resort,
Marco Island, FL

2019 World of Asphalt

Dates: February 12-14, 2019
Location: Indiana Convention Center,
Indianapolis, IN

2019 Greater Iowa Asphalt Conference

Dates: March 6-8, 2019
Location: Airport Holiday Inn
Conference Center,
Des Moines



(Tales from the Road – continued from Page 1)

team because I didn't like the way his coach was acting. "What do you think?" I asked. "I think you should suck it up and finish the season," he said. "Who does that remind



you of?" asked my wife when I told her the story. I flinched. It was my voice coming out of my 11-year-old's mouth. Life presents us with many difficult tests: a co-worker that we don't agree with, a boss that treats people poorly, or a company that doesn't respect its people. The key to our success as leaders is how we respond. Do we quit, or do we finish our obligations? Can we change the negative culture through our words and actions?

I stayed with Henry's team because I had made a commitment – not just to his coach, but to the players and their parents. My shouts of encouragement to our players were positive, and my presence tempered the negativity from the coach. The other assistant coach and I started holding extra practices to help "coach-up" the kids and raise the team chemistry. It worked. We have all faced these situations in both our professional and personal lives. I have worked for foremen and superintendents that thrived on belittling their workers. I have had projects that I managed that were sabotaged by an inspector. I have worked

for companies that did not treat their employees with respect. I am not without fault. I have been a poor co-worker and a poor leader at times in my life. What I have found, however, is that the lessons we learn from these experiences can shape us into stronger, better people. The commitment we make daily to those around us needs to be a positive message of teamwork and a commitment to excellence.

Good leaders do not abide the presence of negative people for long, nor will they work for an individual or company that does not respect its people. This is the time of year in our industry where the long days and weeks of the season begin to pile up, tempers become short, and the workload seems never-ending. This is also the time of year to honor that commitment to our fellow employees and team members by staying positive and lifting each other up. Taking that same message home at the end of the day is also vitally important. Your family is the support system that feeds this positive energy. Their belief in you is what provides the fuel to get through these trying weeks.

Henry was right. I finished the season in the dugout supporting my son and my team. It was hard, but it was the right thing to do. It made me more conscious of the message that I am promoting and what type of leader I want to be going forward. Be careful out there the rest of this season and look out for each other.

Smoother is Better,

Bill Rosener

APAI Welcomes New Member

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



Located in Des Moines, IA, Central Asphalt Paving Inc. has been offering quality, affordable asphalt paving, maintenance, and repair services. They continue to offer their clients the benefits of their rich experience of 50 years to build residential and commercial spaces.

(Let's Go HIPRO!, Continued from page 1)

lessons learned during the past three years of testing and placement by Iowa Contractors. "The HIPRO is a unique asphalt materials design that adds strength and flexibility to our pavement structure. We are improving the performance of our roadways and doing so in a low-maintenance, cost-effective basis," said Dr. Chris Williams, Professor of Engineering at Iowa State University and a principal designer of the HIPRO mix design. Dr. Williams has done extensive structural testing on the HIPRO mixes and suggests that the structural number and strength of the HIPRO asphalt mixture is a least 1.5X that of traditional dense-graded asphalt.

Where to Use HIPRO

The HIPRO is a long-term pavement preservation tool and is designed to extend "fair" to "good" pavements 7-10 years, or further, before considering more serious rehabilitation methods. Aging asphalt pavements that show oxidation, raveling, top-down surface cracking, limited thermal cracks, or $< \frac{1}{2}$ " rutting are all good candidates for the HIPRO. After milling off 1"-1.5" of the existing HMA surface, the underlying pavement is generally noticeably better than what the surface would foretell. Existing roadways that have fatigue cracking, $> \frac{1}{2}$ " rutting, and/

or serious thermal cracks should use a traditional asphalt rehabilitation method in lieu of trying to preserve the existing roadway.

HIPRO is suitable for all levels of roadways, from low volume residential streets to the busiest interstates. The use by municipalities may be the ideal setting where tax-dollars are stretched thin and the curb line is set. Being able to mill off 1"-1.5" of existing asphalt to improve ride and then adding a new, more-durable wearing surface is an ideal opportunity for cities to extend the life of their pavements. Iowa's county engineers have already begun the adoption of the HIPRO for use on lower volume roadways, and the Iowa DOT has utilized HIPRO on both Primary highways and Interstates with great success.

The History of HIPRO in Iowa

The first HIPRO project in Iowa was constructed in 2015 on I-35 in Warren County 1.4 miles north of the IA 92 interchange. The project consisted of approximately 4 miles northbound (NB) and southbound (SB) over a particularly poor-performing PCC interstate paving originally constructed in 1958. Due to material issues, the PCC had been overlaid eleven years later in 1969 and twice more since then. In addition, millions of dollars

had been spent on PCC patching to keep the pavement section viable. The dollars programmed to reconstruct this stretch of interstate were many years out so the use of the HIPRO as an alternative to the short-lived overlays and continuous PCC patching was discussed. In 2015, Dr. Scott Schram, Iowa DOT Bituminous Engineer at the time, said, "Our goal on this project was to provide the district with a holding strategy until this section could be programmed and funded for reconstruction. We expect the HIPRO to maintain serviceability for five years and reduce annual PCC patching. If we are able to achieve these goals on this stretch of road, the High Performance Thin Overlay will work anywhere."

Three years following the construction of the HIPRO project on Interstate 35, the performance of this new product is unquestionable. After the project's first two Iowa winters, only three noticeable cracks had appeared. This year, after a particularly vicious Iowa winter, a visual driving evaluation of the I-35 section in the fall of 2018 found approximately 90 reflective cracks on the SB 1" mill and fill section, and 65 reflective cracks on the NB 1.5" mill and fill over the four mile stretches. There are two PCC joint repair patches on the NB section and six grinds between

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High Performance Thin Overlay



Northbound Section of I-35 on the first HIPRO placed in Iowa. Fall of 2105 on the left and fall of 2018 on the right.



63RD APAI ANNUAL CONVENTION

DRIVING EXCELLENCE

**NOVEMBER 28-29
2018**



WEST DES MOINES MARRIOTT HOTEL | WEST DES MOINES, IOWA

IOWA ASPHALT REPORT

Wednesday, November 28, 2018 ◆

8:00 a.m. - Registration
4:00 p.m.

8:00 a.m. Final 2017/2018 Board Meeting

10:00 a.m. **Committee Meetings**
Environmental Committee
With guest speaker
Catharine Fitzsimons
& Bruce Trautman
Marketing Committee
Specification Committee



11:00 a.m. **Associate Members Meeting**
Committee Meetings
Specification (cont.)
Safety Committee

12:00 Noon **Buffet Lunch**
(12:30 p.m.) Jim Linn, Technology Technical Support Manager, Ziegler CAT
"Paving the Minnesota Viking's US Bank Stadium"

1:30 p.m. **ANNUAL BUSINESS MEETING**

Presentations by:

- Bill Rosener, Exec. V.P.
- Dr. Chris Williams, ISU
- Dr. David Lee, U of Iowa
- Incoming President – Ray Svoboda
- New Member Introductions

8:00 p.m. – **Life in the Fast Lane**
Drive like a NASCAR star at the APAI Raceway! Enjoy a celebration of the end of the season with your friends in the industry!



11:00 p.m. - Karaoke & Dancing with Jeff Burroughs
1:00 a.m.

IOWA ASPHALT REPORT

Thursday, November 29, 2018 ◆

GENERAL SESSION / Non-Members Welcome

Registration Open: 7:00 a.m. - 4:00 p.m.

8:00 a.m. Introduction by APAI EVP Bill Rosener
Color Guard / National Anthem

Invited Speakers

8:15 a.m. - 8:45 a.m. Mark Lowe, Iowa DOT, Director & Mitchell Dillavou, Iowa DOT Highway Division, Director
"The APAI and Iowa DOT Building Partnerships in Quality"

8:45 a.m. - 9:15 a.m. Jim Gulliford, EPA Region 7, Director
"EPA Region 7 – The Road Ahead"

9:15 a.m. - 10:00 a.m. Deanna Maifield, Iowa DOT, Office of Project Management, Director
"Iowa's Interstate Investment Plan: Balancing Needs and Funding"

10-10:15 a.m. **BREAK**

10:15 a.m. - 11:00 a.m. Jay Behnke, S.T.A.T.E. Testing, L.L.C., and Cynthia Williams, Illinois Tollway
"A Look to the East: Illinois Tollway HMA Success Stories"

11:00 a.m. - 11:45 a.m. Erik Therwanger, President, Think Great!
"Foundation of Leadership" – We Are All Leaders

11:00 a.m. **Depart for West End Salvage for Spouse / Guest Luncheon**
[Program from 11:30 a.m. – 1:30 p.m.]

Noon **ANNUAL AWARDS LUNCHEON**
Presenting the Quality in Paving, Smoothness, and QMA Paving and Hall of Fame Awards Awards.

2:00 p.m. - 4:00 p.m. **Five Things You Need to Know in the Next Five Years**
Dr. Ashley Buss, Iowa State University
"Pavement Preservation Performance"
Dr. Joe McGuire, Oldcastle Materials Group
"Safety: See Something, Say Something, Do Something"
Dr. Scott Schram, Iowa DOT
"Hi-Pro: Thin Overlay Update"
McKayla Loss and Kayla Hagen, Aerotek, Inc.
"Unemployment in the Market and How you are Setting Yourself Apart"
Mike Collins, Knife River Midwest and Dean Herbst, Iowa DOT
"McDowell Commission Report"

6:00 p.m. **Reception & Silent Auction**

7:00 p.m. **PRESIDENT'S BANQUET***
Dinner and Live Auction

8:15 p.m. **Entertainment -- Jared Sherlock**
"Magician and Illusionist"

Followed by Dancing & Karaoke

***Formal Business attire requested.**



Erik Therwanger
Think Great!



Jared Sherlock
Entertainer Extraordinaire

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the two sections where the PCC slabs had heaved up into the HIPRO. The reflective cracks that have appeared over the past year and are generally of low severity. The ride of the pavement, both northbound and southbound, is still exceptional. The success of this demonstration project has propelled the HIPRO initiative forward. "Because we were able to demonstrate success on Interstate 35, we've been expanding the use of this mix as a preservation tool, as well as, a wearing surface course on certain projects," said Schram. "We believe we can extend life 5 to 10 years when using HIPRO as a holding strategy, and 10 or more years when used as a wearing course. Similar life has been reported in other states and we feel we can experience the same success in Iowa."

In 2018, the Iowa DOT placed a one-inch HIPRO mill-and-fill on a six mile stretch of Hwy 18 east of Spencer, IA and did an emergency repair on Interstate 29 through the Council Bluffs reconstruction project. Both Hamilton and Tama Counties built HIPRO projects in 2018 with strong reviews of the product and the process. Nicole Stinn, Hamilton County Engineer had this to say: "When we were evaluating the six mile stretch of D-46, the roadway



Wes Knutson (left), Aspro, Inc. Paving Superintendent, and Lyle Brehm, Tama and Poweshiek Co. Engineer, on the Tama Co. D65 HIPRO project constructed in May of 2018.

seemed to be in relatively good structural shape, but it was just "tired". Many thermal cracks had formed, and although the cracks were not rolling or "thumping", the ride and pavement surface were deteriorating due to those cracks and oxidation. Given the relatively light traffic count of 180 vpd (vehicles per day), doing a full-blown HMA rehabilitation was overkill and was not in the budget. Given the cost of traditional pavement preservation techniques, I felt that the HIPRO would give us much more "bang for the buck", and it would greatly

improve the ride. I was impressed with the impermeability, the flexibility, the structural capacity, and the ability for HIPRO to bridge stress points. HIPRO seemed to be a good long-term pavement preservation option that produced a smooth and strong road similar to a more costly resurfacing. It was a win-win!"

The Future of HIPRO

The use of the HIPRO as a long-lasting pavement preservation tool has gained popularity throughout the State of Iowa. Cities, counties and the Iowa DOT see the potential for this HIPRO to make their asphalt and composite pavements last-longer, ride better, and provide low-cost, high-return performance. Iowa's asphalt contractors are confident in the production and construction of the HIPRO. "It's our next great product," said Bill Rosener, Executive Vice President of the APAI. "HIPRO checks all the boxes: It's durable, smooth, fast-to-construct, 100% recyclable, cost-effective and works at every level of roadway. It's a game changer." If you are interested in learning more about HIPRO or using it on your next project, please contact the APAI at apai@apai.net or 515-233-0015.

A promotional banner for the 2019 Greater Iowa Asphalt Conference. The background is a photograph of a winding asphalt road through a landscape with trees in autumn colors. A large yellow arrow points from the bottom left towards the center. In the top left corner, a black banner with yellow text reads "SAVE THE DATE!". In the center, there is a circular logo for the Asphalt Paving Association of Iowa (APAI) featuring a map of Iowa. Below the logo, the text "2019 GREATER IOWA ASPHALT CONFERENCE" is written in large, bold, yellow letters. At the bottom, the dates "MARCH 6 - 8, 2019" are displayed in large yellow letters, with "AIRPORT HOLIDAY INN | DES MOINES, IOWA" in smaller white text below.

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