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Building a Road that Lasts Forever

“We want to use asphalt on the reconstruction of West Broadway,” said Pat Miller, Public Works Operations Director and Jeremy Noel, Streets Director for the City of Council Bluffs, Iowa. And so it began, the reconstruction of a five lane, 10,000 foot stretch of a heavily commercialized arterial roadway through the heart of Council Bluffs would be designed as a Perpetual Asphalt Pavement. The use of asphalt on a project

used in all reconstruction projects in Council Bluffs. City Engineer, Matt Cox, was familiar and comfortable with using asphalt from his time designing projects designing projects in Illinois, Nebraska and while serving in the Air Force. “Council Bluffs has traditionally used PCC pavement when reconstructing our roadways, however, the use of asphalt on the West Broadway project allowed us to maintain access to businesses and keep through traffic moving during construction. It also significantly contributed to a faster project completion. Asphalt provides the option of a future rehabilitation of the street surface, without having to go through a full reconstruction again,” said Cox.

The Project

The West Broadway reconstruction project was/is an extremely high-profile project due to the importance of the “gateway” effect into the City of Council Bluffs.

The City determined that the 10,000 lineal feet of roadway would be reconstructed in five phases over the next five years beginning with roughly four blocks from

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Omni Engineering crews paving final surface of West Broadway in October.

like this would be the norm in the rest of America, but in Council Bluffs, and the majority of the rest of Iowa, major arterial streets paved with asphalt are rare. Prior to the West Broadway project, Portland Cement Concrete (PCC) was the standard material

Tales from the Road



A Level Playing Field

I coached my son Henry’s 10-12-year-old flag football team this year. At the first practice, I looked out across my new group of players and noticed two things about the Buccaneers: we were small and we were young. These two things were even more apparent when we stepped on the field the first week against the 49ers. They were nearly all 12-year olds. They were bigger, faster, and more experienced. They killed us by 40 points. The next week was more of the same and it became apparent to me that the controlling organization had created some terrible team inequities through their roster management. I believe the Buccaneer’s roster inequality bears a strong resemblance to the current state of the Iowa Department of Transportation (IDOT).

The Iowa Legislature, in a desire to be fiscally responsible, have cut the staff levels of the Iowa DOT through the underfunding of the IDOT’s Operations budget. This has caused the IDOT to spend over \$80 million this year out of the Road Use Tax Fund (RUTF) to hire consulting engineers to do the work that would have normally been done in-house under the DOT operations budget. The \$80 million spent on outside engineering services will come right off the top of the \$800 million dedicated to funding highway projects. The results

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Upcoming Events

(Click event for more information)

APAI 62nd Annual Convention

Date: November 29 - 30, 2017

Location: West Des Moines
Marriott

County Engineers Conference

Date: December 5 - 7, 2017

Location: Scheman Bldg., ISU,
Ames

APAI 2017 Holiday Open House

Date: December 14, 2017

Time: 3 p.m. to 8 p.m.

Location: APAI Offices
(116 Clark Ave., Ste C;
Ames)

NAPA 2018 Annual Meeting

Date: Feb 11 - 14, 2018

Location: Hilton Bayfront Hotel,
San Diego, CA

2018 Greater Iowa Asphalt Conference & Equipment Expo

Date: Feb 28 - March 2, 2018

Location: Des Moines Airport
Holiday Inn Conference
Center

World of Asphalt 2018

Date: March 6 - 8, 2018

Location: George R. Brown
Convention Center,
Houston, TX

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

of this change in funding is dramatic and far-reaching. The initial impact is less road work being done for the taxpayers. The use of consulting engineers to design, bid, and inspect DOT work comes with its share of problems. With no disrespect to our friends in consulting engineering, they are generally not as



experienced as those they are replacing from the IDOT. This leads to more construction issues, higher risk for contractors and increased costs for projects to get constructed. The more far-reaching effect is that the legislative's punitive measures have made the Iowa DOT a much less attractive place to work. Working for the IDOT was never going to be a high-paying job, but the benefits, retirement fund, and job security made up for much of the difference in pay. Those days are gone. Young engineers now see an organization with yearly lay-offs, increasing health insurance premiums, and a retirement program (IPERS) that is continually attacked and threatened by legislators. Working for the IDOT is no longer attractive and the trend toward outsourcing services will continue to rise.

The Iowa DOT, to the credit of its

leadership, has done its best to cover the holes created by this underfunding and the loss of experienced people, but it is not a game they can win. Iowa legislators love to talk of "cutting waste" in government, but they have gone too far with the DOT and have left them in an untenable position. The situation is unfair to those that remain, and the ability to cover

the loss in experience and personnel is deteriorating rapidly.

The Buccaneers played with great heart all season and managed to squeak out a few victories here and there, but they weren't competing on a level playing field. The Iowa DOT isn't competing on a level playing field either. They continue to have small successes, but the once proud organization has been reduced to a shell of its former self. Iowa's legislators need to recognize and address the impending collapse they have created through their punitive actions and underfunding of this great Iowa resource.

Smoother is Better,

Bill Rosener

APAI Enjoys Busiest Open House Season Ever



The Asphalt Paving Association of Iowa had its busiest season of Open Houses in the history of the organization. Eight different Open Houses were featured across the State of Iowa allowing attendees to see everything from newly constructed Perpetual Pavements to innovative new asphalt cement additives that will allow greater percentages of recycled materials into asphalt mixes. The use of the asphalt interlayer to deter reflective cracking through the HMA overlays was highlighted in uses over both PCC and HMA pavements.

“It is an honor for the engineers of the APAI to highlight the great work being done by Iowa’s contractors,” said Bill Rosener, Executive Vice President of the APAI. “The innovations demonstrated on these projects, in improving both asphalt materials and construction methods, is something that sets Iowa’s local agencies, IDOT and asphalt contractors apart from the rest of the nation.”



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the west end of the street. This section included two of the busiest intersections, 34th and 36th streets, as well as a strong contingency of service businesses that counted on the 25,000 vehicles per day having constant access. The underlying premise when designing the project was to insure that customers had access to businesses during construction. HGM Associates, Inc. was selected to design the roadway, as well as to determine the best staging for the project. In addition to the removal and replacement of the existing pavement, sewer and water main needed to be replaced along with the addition of several artistic effects to beautify the new corridor. During the design process, HGM Engineers, Terry Smith and Brian Reineke, met with business owners, city officials, the APAI and contractors to listen to concerns, glean information and develop a plan to keep business flowing while limiting the amount of time required to construct the project.

Designing the Road

The City of Council Bluffs is a strong believer in building their streets from the bottom-up. The pavement section, as determined by HGM and approved by the City of Council Bluffs, specified an eight inch recompacted subgrade with triangular geogrid to be placed at the discretion of the engineer. The subgrade compaction was followed with nine inches of granular subbase, with an additional six inches available at the engineer's discretion. Subdrains were placed behind the curbs to insure ground water was

drained away from the pavement.

The principles of building a Perpetual Pavement include designing an HMA pavement section thick enough to ensure that the pavement distresses occur only on the surface of the pavement by limiting the



Omni Engineering paving crew placing the Perpetual Pavement base course.

shear forces on the base of the pavement to less than 70 microstrains. This insures that there is no bottom-up cracking, thus allowing the pavement to last indefinitely. The surface of the pavement requires only periodic milling and paving every 20+ years to insure quality ride and performance. The construction of a Perpetual Pavement also requires utilization of an asphalt-rich base course to insure a supple, flexible base. The asphalt base course is overlaid with a strong, durable intermediate course(s) and a surface course with high aggregate crushed content. If necessary, polymer-modified asphalt cement and high-friction aggregates may be used in the surface course depending on

traffic loadings and speed limits. When analyzing the required pavement depth with the I-Pave pavement design software, 8.5" of HMA was recommended for the traffic loading on West Broadway. The PerRoad, Perpetual Pavement Design Software, recommended ten inches of HMA. Reinke went forward with the ten-inch HMA design utilizing a 4" Base course of 3/4" High Traffic (HT) with a PG 58-28S binder. The intermediate consisted of two 2" lifts of 1/2" HT with a PG 58-28S for the first 2" lift and a PG 58-28V for the second lift. The surface course consisted of a single two-inch lift of 1/2" HT with PG 58-28V to be placed with two pavers paving in echelon to remove the longitudinal joint.

The hardest part of the project design was to insure constant accessibility to businesses along the street during construction. To their credit, Reineke and HGM Associates, listened to all parties: business owners, City Engineers, Public Works officials, and local contractors.

Staging the Project

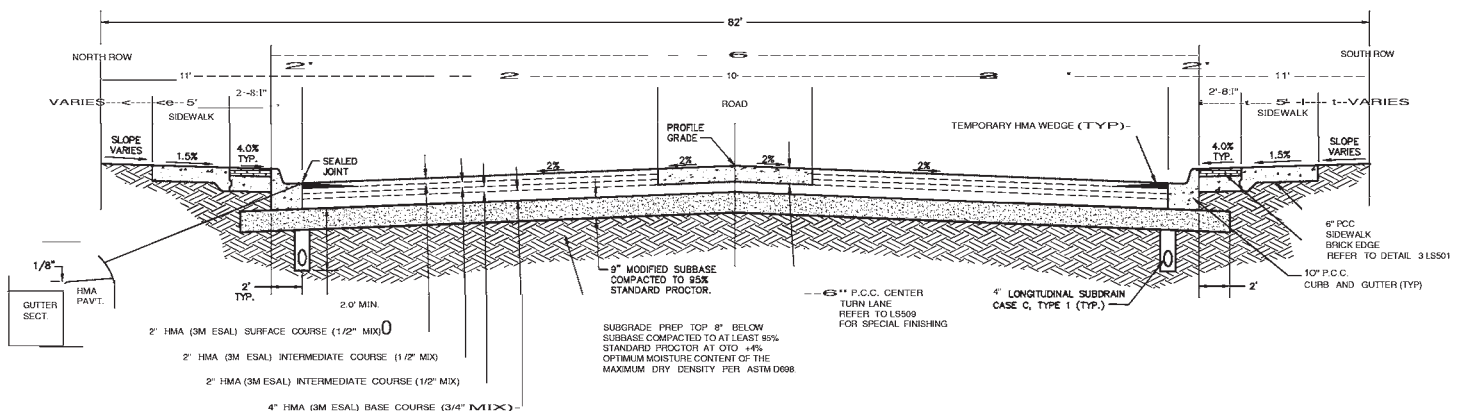
STAGE 1: Replace Water main behind the curb on North side

Remove and replace water main behind the curb on the North side of West Broadway.

STAGE 2: Remove and Construct North 13.5'

Remove 22' of the north side of the road. Construct new storm sewer, subdrains, subbase, curb and gutter. The base and

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1 TYPICAL SECTION - WEST BROADWAY
B.01

Image courtesy of HGM Associates

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Jeremy DeLaney, Senior Estimator/Project Manager, Omni Engineering and Troy Alexander, Project Manager, Hawkins Construction.

intermediate 13.5', the remaining 8.5' of pavement was wedged to match the old pavement elevations. Traffic was allowed to use the remaining 36' of roadway as three, 12 foot lanes.

STAGE 3: Remove and Construct South 13.5'

This was a mirror image of Stage 2 construction on the South 22' of West Broadway.

STAGE 4: Construct Middle 33'

Traffic is displaced to the outside two lanes, with no left turn traffic allowed except at intersections. The temporary asphalt is removed along with the remaining existing roadway. The subgrade is over-excavated, compacted and stabilized with geogrid as necessary. The four-inch HMA base course is placed in preparation for the ten-foot wide 6" decorative PCC whitetopping turn lane. Once placed and cured, the remaining 11.5' of HMA on each side is completed to within two inches of final surface.

STAGE 5: Final HMA Surface

The plan specified that the 23' between the PCC turn lane and PCC curb and gutter was to be placed in echelon with two pavers while traffic was placed head-to-head on the other side.

STAGE 6: Work Behind the Curb

The final stage included temporary closures at the outside lane to allow crews to finish much of the decorative work behind the curbs.

Constructing the Project

Hawkins Construction was the winning bidder on the \$6.1 M project. The scope, complexity and exposure of the project limited the number of bidders, but the bid came in within .5% of the engineer's estimate. The City of Council Bluffs awarded the project and work began on Stage 1 in February 2017. Progress was slow at first due to the placement of the storm sewer and the complexity of keeping access to businesses at all times. The placement of the HMA also required multiple mobilizations to pave the base and intermediate courses to keep the project on schedule. Temporary wedging was placed along the route to ease traffic entry and exit at the businesses' driveway. "Hot Mix Asphalt was the ideal paving material for this project, because of the multiple stages and numerous move-ins that were required on this job to keep access to the businesses on this stretch of road. This highlighted not only the speed of construction, but also the immediate access afforded to these businesses using Hot Mix Asphalt," said Jeremy Delaney, Senior Estimator and Project Manager for Omni Engineering.

The first schedule milestone was reached in July on time, but without early completion incentives. All subsequent

progress milestones were reached with maximum incentives achieved. Once the Stage 2 North side was complete, the progress really accelerated on Stage 3. This was due to lessons learned in Stage 2, and only storm sewer connections needing to be placed. Stage 4 allowed the traffic to run on the two outside lanes while the center 33' was removed and replaced. The center turn lane was a six-inch thick decorative, colored concrete with artistic accents placed on the four-inch HMA base. Stage 4 was complete once the HMA was all brought up to within two inches of the final surface.

The final surface course was placed by Omni Engineering on two consecutive days in the middle of October. The attendees of the APAI Open House on October 24th watched the westbound two lanes being paved in echelon by Omni's crews. The paving was followed closely by a striping crew utilizing a rolled-in-place pavement marking tape that needed to be completed before the mat temperature dropped below 120 degrees. The resulting pavement finish was outstanding and the smoothness of the final lift came in at 1.80" on the Iowa zero blanking band. "The West Broadway project presented a unique

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A shot from Phase 3 of the project looking west at the Omaha skyline.

APAI Welcomes New Members

APAI continues to add new members. At their last Board Meeting, the Board of Directors elected one Contractor-Producer Member; three Associate Members, and two Consulting Engineering firms to the Association. Thank you to those who have helped recruit these new members.



Community State Bank

At Community State Bank (CSB), they're **Redefining Simple**. Every day, they aim to give their clients the tools that make it effortless for them to manage their finances and achieve their goals. CSB makes banking easier for their clients in every product and service they offer.

Community State Bank is proud of their history and reputation in the communities they serve. They were established in 1902 as the Bank of Ankeny and have since expanded to 10 branches in the Ankeny, Altoona, Des Moines, Johnston, Pleasant Hill, and Waukee communities. In 2016, CSB was voted Best Bank and Best Financial Advisors in Ankeny. CSB is excited to be a subsidiary of QCR Holdings, Inc. (QCRH), a relationship-driven, multi-bank holding company, which serves the Quad City, Cedar Rapids, Cedar Valley, Des Moines/Ankeny, and Rockford communities.

Community State Bank (CSB) offers a suite of business products and personal reward accounts.



Shive Hattery Architecture + Engineering

Founded in 1895 by T. R. Warriner and E.P. Boynton in Cedar Rapids, IA, Shive Hattery Architecture + Engineering is an employee-owned architecture and engineering firm. Shive-Hattery has offices in seven locations in Iowa, Illinois, and Indiana.

Shive-Hattery is a Client-intimate consulting firm that goes beyond traditional design. With deep knowledge of their Client's business, they offer customized solutions and provide support as an extension of your staff. They do not pursue one-time transactions; they cultivate relationships. To be your trusted advisor is the highest honor and their ultimate goal.



Engineers & Architects

Knight E/A, Inc.

Knight E/A, Inc. recently established their new office in Ames, Iowa under the leadership of John Adam, former Iowa Department of Transportation's Highway Division Director and Chief Engineer. Mr. Adam brings the Knight team an unparalleled knowledge of Iowa DOT processes and regulations with ongoing relationships with DOT staff. Knight provides their Iowa clients a full range of services including civil/site engineering, architecture, public transit infrastructure, site development and engineering consulting. Knight is eager to partner with others in the A/E/C community to assist Iowa in advancing its infrastructure to improve the safety and mobility of the Iowa transportation system and helping Iowans to their destinations safely, efficiently and conveniently.



InRoads, L.L.C.

For InRoads, asphalt is a family legacy. Joe Manatt's grandfather, Merlin Manatt, started in the asphalt paving business in the 1960's. Brad Manatt, Joe's father, served as an industry leader for nearly 40 years and Joe was exposed to the great leadership principles of his father and grandfather, both voted by their peers into multiple construction related Hall of Fame classes. Among these insightful principles, Brad Manatt taught his son the value of family, integrity, and surrounding yourself with quality people. The conviction to upholding these principles and characteristics are what would ultimately and unknowingly lead to the birth of InRoads, an asphalt paving company.

Spring of 2018 will mark the first paving season for InRoads, but not the first for its company of seasoned employees comprised of four key individuals: Joe Manatt, Steve Armstrong, Brian Armstrong, and Jeff Steinkamp. InRoads will primarily serve central Iowa, but has the capability to bid and operate portably on any asphalt project throughout the state. We take pride in high quality, efficient, and safe projects.



Purple Wave

Purple Wave of Manhattan, KS specializes in liquidating equipment and vehicles through no-reserve public Internet auctions — providing the easiest and most straightforward way to sell used equipment. From marketing and listing your assets to selling and collecting payment, sellers benefit from a full-service experience.



TruBank

TruBank, a locally owned bank since 1883, is a financial services provider with branches throughout Iowa. From personal and business banking to mortgage financing, insurance and retirement income planning, TruBank is focused on what makes their clients successful.

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, please [click here](#).

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combination of challenges: a heavily commercialized corridor, limited right of way, multiple stages, unstable subgrade, artistic elements, tight time frames and differing road materials. By working with the City of Council Bluffs, HGM and our subcontractors in partnership, we were able to deliver an exceptional project on time and on budget,” said Troy Alexander, Project Manager, Hawkins Construction.

Final artistic touches and finish work continue into November of this year, but the project can be considered nothing less than a tremendous success. “I commend the City for taking a step back and considering the many factors that go into reconstructing what is arguably their most important transportation corridor. There is a tremendous effort that goes into attempting to balance all the concerns of business access, through traffic, community gateway corridor, quality of construction and the long term maintenance of this roadway. APAI and their member contractors were a great resource in providing design inputs from mix designs to constructability concerns. During construction, the Hawkins team did an outstanding job of keeping the project moving, fostering good relations with local businesses and meeting a

necessarily tight project timeframe. I’m very optimistic about the long term performance of perpetual HMA pavement. We are wrapping up the design of the second segment project that is scheduled to be let in early 2018 and have been able to apply some lessons learned that we think will enhance the constructability, quality and take advantage of even more the contractor capabilities,” said Terry Smith,

Project Engineer.

The APAI would like to thank the Engineers of HGM Associates; Troy Alexander, Project Manager, Hawkins Construction; the crews and management of Omni Engineering and The City of Council Bluffs Engineering and Public Works for designing, managing, constructing and believing in building a road that will last forever.



Dave Vermillion, City of Council Bluffs; Terry Smith, HGM Associates; Matt Cox, City of Council Bluffs; and Brian Reineke, HGM Associates at the APAI Open House in October.

APAI Members

CONTRACTOR MEMBERS

Advanced Asphalt, Carlisle
 Aspro, Inc., Waterloo
 Barkley Asphalt, Sioux City
 Blacktop Service Company, Humboldt
 Determann Asphalt Paving, L.L.C., Camanche
 Duinink Inc., Prinsburg, MN
 Fort Dodge Asphalt Company, Fort Dodge
 Gee Asphalt Systems, Inc., Cedar Rapids
 General Asphalt Construction Company, Davenport
 Grimes Asphalt & Paving Corp., Grimes
 Hansen Asphalt, Inc., Iowa City
 Heartland Asphalt, Inc., Mason City
 Henningsen Construction, Inc., Atlantic
 Illowa Investment, Inc., Blue Grass
 InRoads, L.L.C., Des Moines
 Kluesner Construction, Inc., Farley
 Knife River Midwest, L.L.C., Sioux City
 Koss Construction Company, Topeka, KS
 Manatt's, Inc., Brooklyn
 Mathy Construction Company, Onalaska, WI
 River City Paving, Dubuque
 McCarthy Improvement Company, Davenport
 Midstate Reclamation, Inc., Lakeville, MN
 Norris Asphalt Paving Company, Ottumwa
 Oldcastle Materials Group
 Cessford Construction Company, LeGrand
 Des Moines Asphalt & Paving Company, Ankeny
 Omni Engineering, Omaha, NE
 Tri-State Paving, Inc., Estherville
 L. L. Pelling Company, Inc., North Liberty
 Shamrock Construction Company, L.L.C., Coralville
 Tri-City Blacktop Inc., Bettendorf
 Valley Construction, Rock Island, IL
 Western Engineering Company, Inc., Harlan
 W.K. Construction Co., Middleton, WI

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 Flint Hills Resources, Dubuque
 Jebro, Inc., Sioux City

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 Concrete Materials Co., Sioux Falls, SD
 L. G. Everist, Inc., Sioux Falls, SD
 Hallett Materials, Des Moines
 Martin Marietta, Des Moines
 Schildberg Construction Company, Greenfield
 Wendling Quarries, DeWitt

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Akzo Nobel Surface Chemistry, Chicago, IL
 Altorfer, Inc., Cedar Rapids

Antigo Construction, Inc., Antigo, WI
 Astec, Inc., Chattanooga, TN
 Barga Inc., Mountain Lake, MN
 James W. Bell Company, Inc., Cedar Rapids
 Bitco Insurance Companies, West Des Moines
 BOMAG Americas, Ridgeway, SC
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 Construction Materials Testing, Des Moines
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 Denco Highway Construction, Mingo
 Dynapac (Atlas Copco), Andover, KS
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 J.D. Donovan, Inc., Rockville, MN
 Earthwave Technologies, Indianapolis, IN
 Elite Flagging, Inc., Cedar Rapids
 Fahrner Asphalt Sealers, Plover, WI
 Flagger Pros USA, L.L.C., Ames
 Arthur J. Gallagher, Des Moines
 Gencor Industries, Inc., Orlando, FL
 Glendandy Marketing & Advertising, Ames
 Go Big Promotions & Apparel, Des Moines
 Hawkeye Truck Equipment, Des Moines
 Heartland Outdoor Services, Grimes
 Henriksen Contracting, L.L.C., Grimes
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 Ron Monson and Sons, Britt
 Murphy Tractor & Equipment Company, Inc., Wichita, KS
 National Minerals Company, Hastings, MN
 Natural Soy Products, Cedar Rapids
 Pine Test Equipment, Grove City, PA
 Purple Wave Auction, Manhattan, KS
 Quality Striping, Inc., Des Moines
 Quality Traffic Control, Inc., Des Moines
 Quick Supply Company, Des Moines
 Rexco Equipment, Inc., Cedar Rapids
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 Star Equipment, Ltd., Des Moines
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 Unique Paving Materials, Cleveland, OH
 Valley Distribution Corp., West Burlington
 Valley Environmental Services, Newton
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 Weiler, Knoxville
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 Wirtgen America, Inc., Antioch, TN
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 Zydex, Inc., Morrisville, NC

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 Clapsaddle-Garber Associates, Marshalltown
 DGR, Rock Rapids
 FOTH, Cedar Rapids
 Fox Engineering Associates, Ames
 French-Reneker-Associates, Fairfield
 HGM Associates, Inc., Council Bluffs
 I & S Group, Storm Lake
 IIW, P.C., Dubuque
 JEO Consulting Group, Inc., Carroll
 Knight E/A, Ames
 McClure Engineering, Clive
 Shive-Hattery, Inc., Cedar Rapids
 Snyder & Associates, Inc., Ankeny
 Terracon, Cedar Rapids
 Thiele Geotech, Inc., Omaha, NE
 Veenstra & Kimm, West Des Moines

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Scott County Engineering