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Local Technical Assistance Program

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Iowa Local Agency Build a Better Mousetrap winner named

JOHNSON COUNTY EARNS TOP SPOT WITH PAGE COUNTY AND THE CITY OF CARROLL GETTING SECOND AND THIRD, RESPECTIVELY

Improving safety and efficiency are both important to a local agency's objectives, so it's always a win when staff find ways or develop materials that attain one or both of those goals. The Iowa Local Agency Build a Better Mousetrap (BABM) Competition, however, gives those agencies an opportunity to get a literal win after submitting those innovative ideas and developed products to Iowa LTAP.

This year's Local Agency BABM Competition top prize went to Johnson County for an inventive rig that both improves safety and increases efficiency at the agency, which also won the Federal Highway Administration's (FHWA's) "Smart Transformation Award" for their idea. Second place went to Page County for similarly developing a jig that did both as well, and third place went to the City of Carroll for coming up with a simple device that improves efficiency.

The winning agencies were initially recognized at the Iowa County Engineers Association (ICEA) Mid-Year Conference in July and received a plaque at the Iowa Streets and Roads Conference in September. All three received a number of free workshop registrations, and first place will also get a celebratory lunch at their agency shop. Congratulations to them all!

More details about those innovations follow.

Johnson County – Roadway Survey Mobile Rig

The Johnson County Secondary Roads Department wanted a more efficient way to understand existing roadway conditions for engineering decision-making rather than walking the multiple miles with survey equipment.

Iowa Local Agency BABM winners continued on page 2

Johnson County's roadway survey mobile rig

Iowa Local Agency BABM winners continued from page 1

Its SMART—specific, measurable, achievable, realistic, and time-bound—innovation that earned the department the top spot in the Local Agency BABM Competition was the roadway survey mobile rig.

"By attaching the GPS head directly on our hitch-mounted rig, we can drive at a comfortable pace with top lights on and be in the safety of a vehicle as opposed to walking in live traffic," read the county's entry.

The rig is set to give the driver a view from the sideview mirror of the mount's placement to ensure it's on target and doesn't block the view of the driver following the vehicle. The materials, with the exception of a few bolts, were all repurposed or scrap metal, so the cost was a day's labor to figure out the dimensions and connection details.

"By using this rig, we can drive 25 mph, set the data collector to record every 100-foot interval, and survey centerline 4 miles down and back in around 35 minutes. Not only is this a huge time savings, we are also exponentially safer by staying in the vehicle," read the county's entry.

Page County – Teeth Insert Removal Jig

The Page County Secondary Roads Department was looking for a safer way to remove blade segment cutting teeth inserts. Their system had involved multiple people, a balancing act, and unpredictable "pop outs."

The department's pioneering solution involved fabricating a teeth insert removal jig that holds the blade segment in a locked position before a press is engaged to remove the insert, which took care of all of the concerns of the previous system.

In total, the new invention cost $50 in scrap steel and roughly two days of labor in between other duties.

"The most positive impact would be the safety improvement. Removing personnel out of the pinch point to a safe distance and ejecting the insert in a much more controlled way without the unpredictable popping or shooting the insert across the room," read the county's entry.

The entry also noted increased efficiency by "allowing one person to complete the whole process by themselves" and freeing up the other employee to work on other duties.

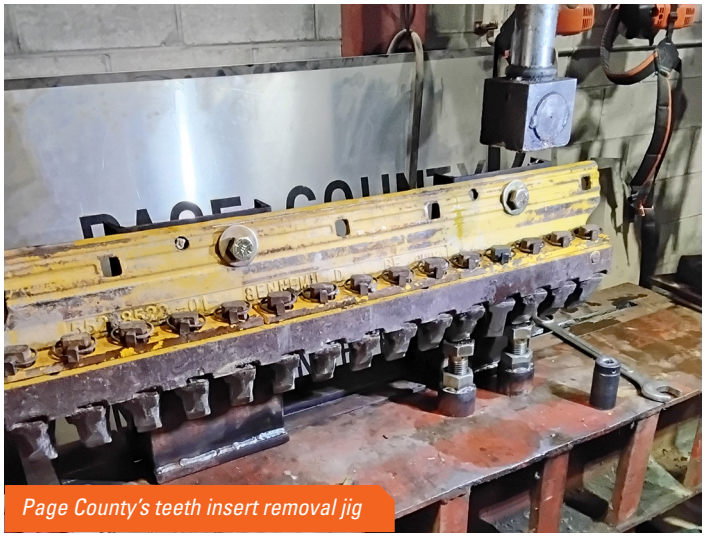
City of Carroll – Crack & Pothole Cleaner

The City of Carroll had a cold patching problem. Dirt and debris can be difficult to clear from cracks and potholes, leading to poor adhesion of the patch and thus a shorter lifespan due to loosening under traffic and water infiltration.

"Even with a blower, some of that material can stay embedded due to moisture, compaction, or being trapped in cracks," read the city's entry.

For a total of $30, including materials and an hour's worth of labor, the city attached a hook and ring to a blower so that it is aligned with the air flow to create the innovative crack and pothole cleaner.

"Now we don't have to use a shovel to try and get the debris out of the crack or pothole," read the city's entry. "The speed and quality of cleaning the potholes has greatly improved." ■



Page County's teeth insert removal jig

City of Carroll's crack & pothole cleaner

From the Director: The monarch effect

As some of you know, having read this column, I sometimes take my motivations on a subject from my time out in the wild. I am more of a day hiker than a trekker, but I try to spend as much time out there as I can. I am taught something each time I go if I pause and keep my ears, eyes, and mind open. The other day, for example, I was walking through the conservation land near my home. This isn't unusual, but something happened that led to my fingers typing this column you're reading today. There is about 37 acres of land, but what caught my attention was that within a relatively small area I saw over a hundred (I lost count) monarch butterflies. By pure happenstance, I had caught one of the days (or the day possibly) that they were migrating through Ames over what can be up to a 3,000-mile journey. My first reaction was just a sense of awe and "Cool!" Then, it was, "It's working. This area and the plants they reintroduced seven years ago is working!" Then, I looked around and I saw the people there with smiles on their faces and interacting with (not touching) these creatures. I tried to count them, but there were single plants with 5 or 10 or more monarchs. So, I stopped and just enjoyed the moment. An unexpected gift.

This column and my experience with the monarch migration would initially appear to be unrelated. My belief, though, is that nothing really holds this characteristic. Sure, there are small actions and the reverberations are slight. But then there are the significant or large actions that without consideration of a bigger picture can leave debris in their wake. Or, or it can leave a place where the migrating monarchs can rest, gain sustenance from the flowers (if the timing of everything is right), warm their weary muscles, and be on their way. Leaving behind smiles and wonder and, if we let them, life-long lessons. The difference in these two potentials, in my opinion, is consideration and collaboration. Among other things, these two characteristics in our approach help us to connect our intention to the potential wider impact. And there is always a wider impact. Don't get me wrong, there are many times I forget about this or don't have the energy (it's not always easy). But we do our best, don't we, and hopefully those close to us understand the same in themselves.

So, this column is a result of the "butterfly effect." Both metaphorically and physically. As I watched these "light as air" creatures (less than a paperclip in weight I've read) I thought of what else they might teach me other than Lesson 1 (i.e., intention and impact) discussed above. Lesson 2: resilience.

Just three of many monarchs seen 9/16/26

These butterflies travel up to 100 miles a day and sometimes as long as 3,000 miles overall. North to south. And these aren't the ones that arrived up north. They are generations apart. It's said they fly by the sun and the magnetic field of the earth to guide them to the place their ancestors started. Lesson 3: inner compass. Don't forget about and remember to listen to your internal compass. It has an intelligence that we often ignore. Reacquaint yourself. And finally, I thought about how they are traveling together—in community. Lesson 4: Look around. Reach out. Community is everywhere—human and non-human. Surround yourself with those that feed and sustain you. Just like the plants and flowers that refuel and the sun that warms us on our journey.

I always hope that LTAP activities have a good impact. Not always seen or immediate. But good overall. Now that it is fall, we have started up our monthly webinar series again. Deck sealing is the subject in October, and we hope to have something on a leadership subject in November or December. The Iowa American Public Works Association (APWA) Fall and Iowa County Engineers Association (ICEA) Annual conferences will be held in the coming months. In between these, Iowa LTAP will be offering several worker safety awareness workshops, winter maintenance workshops, and a bridge inspection refresher course. In addition, coming soon, we will be having a leadership trait assessment workshop and a webinar series called safety champions.

With all my thanks,
Keith ■

CMAT projects provide utility coordination and management guidance

When the American Society of Civil Engineers (ASCE) developed a utility as-built standard specification, the Iowa Department of Transportation (DOT) sponsored a series of projects to help the agency modernize its practices as it relates to utility infrastructure.

The first project, completed in 2023, led by Utility Mapping Services, P.C. and Construction Management and Technology (CMAT) program Construction Engineer Roy Sturgill developed a road map for the modernization. Two more recently concluded projects led by Sturgill used that road map as a guide and had the following titles and goals:

- **Best Practices for Utility Management in the Public Right of Way** developed a comprehensive utility management approach by compiling best practices to help control the planning and installation of utilities within the public right of way (ROW), document utility as-built plans and location information, and manage this information for the benefit of future construction efforts.
- **Project Development and Utility Coordination as a Partnership** developed and proposed procedures for incorporating partnerships with utility stakeholders into the early stages of the project development process at the Iowa DOT, with the broader goal of streamlining workflows to reduce utility-related delays and cost overruns.

"Both construction projects and utility systems are much more complex today," Sturgill said. "Moving utilities out of the way for Iowa DOT projects is often no longer a simple matter or the best option when it comes to scheduling, costs, and public interest. Thus, the Iowa DOT's policies, procedures, and technologies regarding utilities needed updating."

That work by the Iowa DOT has been ongoing since the initial project and will continue with the completion of these two more recent projects, particularly as the agency works to implement the recommendations for developing training programs and updating the Iowa DOT's guidance manuals and policies to foster cohesion and collaboration that are included in the final report for the utility coordination project.

"By implementing these recommendations, the Iowa DOT can streamline its project development processes, reduce utility-related delays, and foster a more collaborative environment with utility stakeholders," Sturgill said. "This will ultimately benefit project managers, designers, utility coordinators, and the public by ensuring more efficient and cost-effective highway projects."

However, the survey conducted as part of best practices for utility management project identified challenges that remain, specifically as it relates Iowa's local agencies' public ROW.

Utility lines marked in the ROW

Some of the findings include the following:

- More than 40% of respondents did not have a standard utility accommodation policy, and a third of respondents felt their existing policies were inadequate or ineffective.
- Nearly 90% of agencies' accommodation policies for primary roads do not align with the state's recently updated policy.
- Three-quarters of the respondents do not require utility providers to survey or record locations after project completion.
- Nearly 85% do not mandate the submission of as-builts after installation, and a concerning 92% do not typically receive as-built documents from utility providers when mandated.

In addition to those gaps, the amount of utilities in the ROW, both underground and above ground, has been increasing during the past two decades with little immediate response to the changes. It can be even more challenging in larger Iowa cities, where public space may be limited to allow new utilities or expansion of existing ones.

"So, we're still dealing with utilities the same way that we dealt with them 20, 30, 40, 50 years ago, and we need to really consider increases in staff, uses of technology to support these installations, and what kind of budget we need to allocate to managing these practices," Sturgill said.

He added, "Consistency would allow municipalities to improve the efficiency of their interactions with one another and lower the burden on utility companies seeking utility permits because these companies would be able to count on more consistency across Iowa municipalities."

These gaps and challenges are not only an issue for local agencies but they can have an impact on the public when there are delays to and additional costs associated with roadway projects because of previous poor utility management and current lack of utility coordination.

CMAT projects continued on page 5

CMAT projects continued from page 4

To help improve utility management practices in Iowa, Sturgill recommends agencies take the three C approach: coordination, cooperation, and communication.

Specifically, the best practices report had seven recommendations: implement statewide policies and practices; mandate statewide digital as-built documentation standards; encourage the use of designated utility corridors to consolidate infrastructure, reduce congestion, and optimize ROW utilization; improve congestion management through streamlined coordination protocols; strengthen enforcement of permitting and installation guidelines; establish rigorous procedures and warranty requirement for utility work on state highways; and develop clear policies and procedures to regulate abandoned utilities.

"By adopting the integrated strategies outlined in the recommendations, Iowa can move toward a more efficient, coordinated, and sustainable approach to utility management, ultimately reducing project costs and delays, enhancing safety, and protecting vital ROW space for future infrastructure needs," Sturgill said.

In addition to the final reports and technical summaries available on their respective project pages for the ROW best practices and utility coordination as a partnership research, Sturgill also conducted a webinar on ROW best practices that is also available on that project page. ■

In brief: Lasting LTAP impacts

"Build a Better Mousetrap" is a statement often used when discussing actions connected to innovation, specifically innovative solutions to everyday problems.

Iowa LTAP Director Keith Knapp described it this way in his "From the director" letter in the January–March 2017 edition of *Technology News*: "The idea being, of course, that a person that builds a better mousetrap will have people beating down their door to use it."

As a national recognition program, BABM represents LTAP/TTAP Centers from around the country by highlighting the innovative ideas of its' local public agencies (e.g., cities and counties). The purpose, according to the FHWA—as the national organizer of the annual national competition—is to show how these local agencies are using innovation to improve their programs by saving time and money on projects, increasing safety, and enhancing quality of life for communities.

Similarly, that was why the Iowa Local Agency BABM program was reintroduced by the Iowa LTAP in 2017: "To show how our local agencies in Iowa are continually innovating how they get the job done," as explained by Knapp.

In 2017, the Iowa Local Agency BABM competition received several entries. Notably, Sioux County went on to garner a national second place win that year for their "survey pin puller." Since then, the competition has been held consecutively every year in Iowa.

"This competition gives local agencies a chance to get some recognition for their ideas," said Knapp. "I've found that innovation is actually happening all the time in Iowa, we just don't call it that."

Perhaps it is just a way to get the job done easier, safer, or more efficiently. Or maybe it is something that "everyone is doing" (but really isn't). At the end of the day, Iowa's public agencies are creating different solutions to problems and finding better ways of doing things. There isn't a greater impact than that.

The top three winners for 2026 include Johnson County (Roadway Survey Mobile Rig), Page County (Teeth Insert Removal Jig), and the City of Carroll (Crack & Pothole Cleaner), in ranking order. Their innovations were also submitted to the national competition for further recognition, where Johnson County won the FHWA's "Smart Transformation Award" for their idea. Their competition at the national level was stiff, as they competed in one of four categories that combined had a record number of more than 100 submissions from both 2025 and 2026.

Additional details about this year's and previous years' innovations are available on the Iowa LTAP's Iowa Innovations web page. Applications can already be submitted for the 2027 contest. Visit the Iowa Local Agency BABM Competition web page to learn more about submitting.

For questions regarding the Iowa Local Agency BABM Competition, please contact Keith Knapp at 515-294-8817/kknapp@iastate.edu. Don't forget to continue sharing your impact stories with us!

Article written by Brandy Haenlein, a communication specialist with InTrans. ■

CTRE project enhances *Iowa Pavement Preservation Guide*

Understanding the performance of pavement preservation treatments can help Iowa decision-makers select the most cost-effective treatments and establish long-term pavement preservation strategies across the state's highway network.

The *Iowa Pavement Preservation Guide*, previously developed by Center for Transportation Research and Education (CTRE) researchers, provided a basis for those decision-makers to improve their treatment selections. A recently completed Phase II project built off the original guide to provide a data-driven framework to enhance pavement preservation decision-making.

Specifically, the second phase sought to overcome the limitations in Iowa performance data and continue transitioning the *Iowa Pavement Preservation Guide* into a dynamic, artificial intelligence (AI)-powered decision-support system.

"The modeling results were translated into practical decision matrices that identify cost-effective preservation treatments for different combinations of pavement type, condition, and traffic level that provide a practical reference to help engineers and pavement managers across Iowa better select preservation treatments," said CTRE Director Omar Smadi, who led the Phase II project.

He added that the results and tools developed through the research can also help the Iowa DOT select cost-effective treatments and establish long-term pavement preservation strategies across Iowa's highway network, ultimately leading to a more efficient and cost-effective transportation network. The treatments that were analyzed included microsurfacing, patching, slurry seal, crack sealing/filling, seal coat, and hot-mix asphalt overlay.

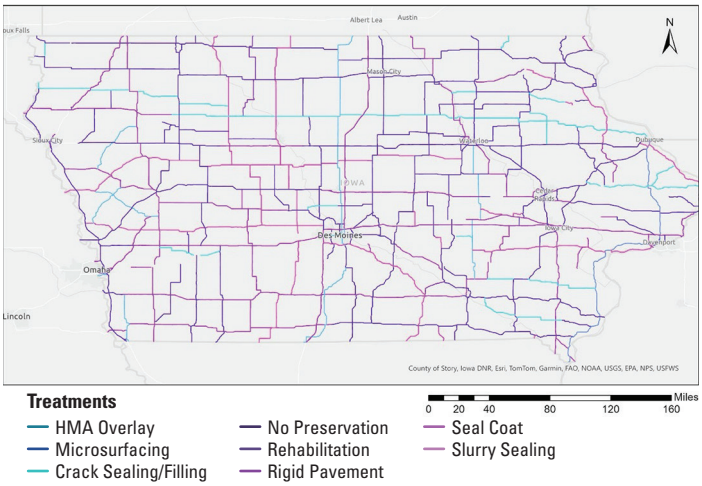
A total of six decision matrices each for flexible and composite pavements were developed by the Phase II project team that included CTRE researchers Alireza Sassani and Sara Arezoumand. These matrices show the optimal treatment under two traffic indicators—annual average daily traffic and annual average daily truck traffic—and three analysis periods—10, 15, and 20 years. Performance was evaluated using life extension—the additional service life gained from treatment—and index benefit—the improvement in pavement condition after treatment.

Additionally, the Phase II project developed a ranked structure-based Cost-Benefit Dashboard using treatment effectiveness values computed from Iowa's Pavement Management Information System (PMIS). The dashboard requires no specialized software or external data connections and can be accessed from a standard browser.

"This ranked structure gives practitioners meaningful flexibility when the primary recommendation is not feasible due to cost constraints, contractor availability, material supply, or site-specific conditions," said Smadi. "Rather than presenting a single rigid prescription, the decision framework functions as a tiered guide that supports informed professional judgment while keeping all recommendations grounded in empirical performance data from the Iowa highway network."

The Iowa Pavement Preservation Treatment Guide toolbox, which was designed specifically for ArcGIS, provides decision-makers within the Iowa DOT with a valuable tool for selecting optimal pavement preservation strategies. However, the toolbox essentially acts as visual representation of decision matrices developed as part of the Phase II project.

To learn more about the research and access the decision matrices in the final report, visit the project page. To learn more about the Phase I research, visit the project page and read the previously developed news article. ■



Screenshot of ArcGIS toolbox showing treatment strategies for Iowa highways based on 2022 PMIS data

Workshop and conference calendar

[Information current as of September 30, 2026] Iowa LTAP will continue holding both virtual and in-person events and trainings throughout the fall.

For the most up-to-date information about in-person attendance requirements and additional upcoming virtual events, please check regularly at LTAP's Upcoming Events page and consider subscribing to our mail list through LTAP's home page for email updates.

2026–2027	Event Name	Location	Contact
October			
7–9	APWA Iowa Chapter Fall Conference	Ames	Beth Richards
13	Worker Safety Workshop Series	Ames	Bret Hodne
13	Iowa Concrete Lunch and Learn: Troubleshooting Concrete Pavement Issues During and After Construction	Council Bluffs	Dan King
15	Bridge Deck Sealing and Material Type Comparison	Webinar (12 p.m. CT)	Sherrie LaFleur
15	Iowa Concrete Lunch and Learn: Troubleshooting Concrete Pavement Issues During and After Construction	Cedar Rapids	Dan King
16	Iowa Concrete Lunch and Learn: Troubleshooting Concrete Pavement Issues During and After Construction	Iowa City	Dan King
19–21	Local Road Conference	Sioux Falls, SD	SD LTAP
20	Iowa Concrete Lunch and Learn: Troubleshooting Concrete Pavement Issues During and After Construction	Ankeny	Dan King
22	Iowa Concrete Lunch and Learn: Troubleshooting Concrete Pavement Issues During and After Construction	Waterloo	Dan King
23	Iowa Concrete Lunch and Learn: Troubleshooting Concrete Pavement Issues During and After Construction	Webinar (12 p.m. CT)	Dan King
27	Winter Maintenance Workshop Series	Atlantic	Sherrie LaFleur
28	Winter Maintenance Workshop Series	Indianola	Sherrie LaFleur
29	Worker Safety Workshop Series	Council Bluffs	Bret Hodne
November			
3	Winter Maintenance Workshop Series	Ainsworth	Sherrie LaFleur
4–5	Iowa Roadway Safety Summit	West Des Moines	Judy Thomas
12	Worker Safety Workshop Series	Cedar Rapids	Bret Hodne
12	Iowa Better Concrete Conference	Ames	Allie Hoffman
17	Winter Maintenance Workshop Series	Oelwein	Sherrie LaFleur
18	Winter Maintenance Workshop Series	Webster City	Sherrie LaFleur
19	Winter Maintenance Workshop Series	Holstein	Sherrie LaFleur
19	Municipal Streets Seminar	Ames	Allie Hoffman
December			
2–4	ICEA Annual Conference	Des Moines	Keith Knapp
January			
10–14	TRB Annual Meeting	Washington, DC	TRB

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EVENT DETAILS AND ONLINE REGISTRATION

Watch for details and online registration information, by specific dates and events, on the Iowa LTAP Workshops page. ■

ABOUT LTAP

The Local Technical Assistance Program (LTAP) is a national program of the FHWA. Iowa LTAP, which produces *Tech News*, is financed by the FHWA and the Iowa DOT and administered by the Institute for Transportation at Iowa State University.

The mission of Iowa LTAP is to foster a safe, efficient, and environmentally sound transportation system by improving skills and knowledge of local transportation providers through training, technical assistance, and technology transfer, thus improving the quality of life for Iowans.

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