Inside this issue

2 From the Director: Inserting humanity back into the conversation
3 In brief: Lasting LTAP impacts
3 Work Zone Sign Package Program application period opens this fall
4 “I’ve had a good run”
5 Traffic studies are useful tool for local agencies
6 Improving safety through vegetation control and maintenance of drainage features
7 Workshop and conference calendar

Iowa Build a Better Mousetrap winners named

Jones, Crawford counties also earn national recognition for innovative projects

The Jones County Secondary Roads Department has been testing and research equipment options that would improve shoulder maintenance but never found more than marginal advantages. Their persistence paid off this year, and their solution earned them the top award in the 2021 Iowa Build a Better Mousetrap (BABM) competition.

Jones County staff developed an apparatus for stone placement that they expect will result in less material wasted, reduced labor and equipment costs, and produce more lane miles covered when they test it out in the field this season. It was developed after staff saw the Iowa DOT's District 6 maintenance method and the fabrication team got to work on sketches and eventually production of the units.

Across the state, Crawford County had a different problem with a different kind of stone.

Staff there were looking for a less challenging means of placing riprap beneath bridges near abutments. Due to clearance and slope issues, this can be a difficult process.

The county’s bridge crew staff ultimately developed and fabricated an excavator bucket extension using a section of heavy boilerplate pipe that could be fitted to the bucket of a CAT 323F excavator to simplify the process. Their invention earned them second place in the 2021 BABM competition.

Both counties were recognized at the ICEA Mid-Year Conference in July and received free workshop registrations. Their recognition extended outside of Iowa.

During the National Local & Tribal Technical Assistance Program Association (NLTAPA) summer conference in July, the FHWA announced that Jones County’s invention had won the national BABM competition in the Innovative Project category. Crawford County earned the honorable mention in the same category.

More details about this year’s innovations, as well as previous years’ winners in Iowa, are available here: https://iowaltap.iastate.edu/iowa-innovations/.

If you think you have an innovative solution to an everyday challenge, learn more about the BABM competition and get a head start on applying for 2022 here: https://iowaltap.iastate.edu/iowa-babm-competition/.

Jones County’s stone placement apparatus (left) and Crawford County’s excavator bucket extension (right)
From the Director: 
Inserting humanity back into the conversation

I’ve been listening, reading, and thinking a lot about gatherings and technology lately. Probably just the result of the last year.

Humans have used tools for millions of years. Tools, in my engineering brain, are something that serves. Something that helps. Something that assists. But, what happens when a tool is specifically designed to produce a physiological change in its user for a targeted reaction. Occurring multiple times a day forever. Is this a designed addiction? And, what if these same interactions sometimes negatively impact the user's self-worth, but at other times they have also been used for the greater good of the human psyche throughout the world? Here, the user and used may start to blur.

I take my phone with me for various reasons when I walk in the woods, but I always turn my notification chime off. Recently, I forgot to mute it. That sound, the one that has been shown to provide users a shot of dopamine and/or instill thoughts of FOMO (fear of missing out). This time, while in quiet conversation, the notification went off, and I felt my body shift ever so slightly. Almost in an automatic, or automaton, manner. Was there also a felt level of anxiousness when I chose not to check it? All in a matter of microseconds. This intruding disrupter that calls out to me to check it? All in a matter of microseconds. This intruding disrupter that calls out to me through sound and vibration straight into my brain chemistry over and over again every day. I may not be representative of many people reading this, but there is almost never a chime that represents something that can't wait. So, what has changed? What has led to the idea that it is unacceptable to be unavailable? It feels like humanity needs to be reinserted back into the conversation.

This tool we call technology will be different than ours. In the book *The Art of Gathering: How We Meet and Why It Matters*, it has also been suggested that one approach may be for people not contributing or learning to exit the room. This approach would likely not only have an impact on how people prepare and give presentations but also on the learning that occurs. Interesting to consider shutting them down and inserting humanity.

Not to worry, these are just ideas for discussion and for everyone to think about.

Coming up for your attendance includes our twice-a-month webinars (various subjects), One-D Modeling of River Encroachments with HEC-RAS, Multidisciplinary Roadway Safety Series (formerly the Local Road Safety Workshops), and some Winter Maintenance Workshops. We look forward to seeing you all.

“Welcome to the Machine” (Pink Floyd), but with all due humanity.

Keith
In brief: Lasting LTAP impacts

Due to continued demand, the Iowa LTAP has added a second trailer-based speed feedback sign to its LTAP Equipment Loan Program collection.

That means there are now two speed feedback sign trailers available for loan (free of charge) to local agencies. This addition will also allow for more scheduling and deployment flexibility.

Just like before, the objective of loaning this type of speed feedback equipment is to provide local agencies the opportunity to determine if they would like to purchase their own sign after testing. The intended use of the trailers is to address speeding problems along roadways but may also be used for other issues (e.g., special events, work zones, etc.). Agencies are no longer required to conduct a speed study to justify their loan request.

“In May, the Iowa LTAP completed a study of the speed feedback signs in the loan program and their effectiveness in reducing speeds,” said David Veneziano, LTAP Safety Circuit Rider. “We understand the value of being able to first become familiar with the signs’ general operation, setup, and case-by-case value before making the decision to invest.”

Veneziano added that past evaluations by researchers have shown that these signs produce mean vehicle speed reductions ranging from almost nothing up to 10 mph. The Iowa LTAP study found that sign deployments were successful from the perspective of having an impact on driver behaviors. Based on data collected from eight deployments, mean speeds were reduced at six of eight sites, while 85th percentile speeds were reduced at all eight sites. The extent of speed reductions at each site varied, and mean speed reductions were typically small (i.e., less than 1 mph), while 85th percentile reductions did not exceed 3 mph. Still, these results point toward the signs capturing driver attention over the short term.

The full report and findings can be found here: https://intrans.iastate.edu/app/uploads/2021/05/speed_feedback_sign_loan_program_w_cvr.pdf.

If interested, fill out the form here to request the equipment: https://iowaltap.iastate.edu/speed-feedback-signs/, LTAP has been expanding its Equipment Loan Program since it launched. Check out all the currently available equipment available here: https://iowaltap.iastate.edu/equipment-loan-program/, and don’t forget to share your impact story with us!

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

Work Zone Sign Package Program application period opens this fall

The Iowa LTAP will once again be offering its Work Zone Sign Package Program for small cities, after the Iowa DOT funded the program for another year.

The program offers an avenue for smaller cities—with populations less than 10,000 people—to obtain a basic work zone sign package in compliance with the 2009 MUTCD and to make their work zones safer for operations personnel and motorists.

The application process for this year will open in November, and details will be provided here: https://iowaltap.iastate.edu/iowa-ltap-work-zone-sign-package-program/. The package includes a variety of work zone signs, barricades, traffic cones, and personal protection vests that cities can use to aid in temporary traffic control.

The application will consist of about a dozen questions designed to determine the need that each eligible city has for the work zone sign package program. Questions include basic information about the department, past staff attendance at trainings, and details about the department’s current work zone related equipment.

The program began as a pilot in 2017 to provide small cities with temporary traffic control devices or allow them to replace their outdated equipment. Last year, the Iowa LTAP received 95 applications and 12 cities were awarded packages through the program.

Contact Iowa LTAP Technical Training Coordinator Paul Albritton at palbritt@iastate.edu or 515-294-1231 with any questions.
Iowa LTAP Mission
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.

Staff
Keith Knapp
Director of Iowa LTAP
kknapp@iastate.edu

Paul Albrighton
Technical Training Coordinator
palbrighton@iastate.edu

Sharri Butterfield
Administrative Event Coordinator
sharri@iastate.edu

Christina Crippes
Technology News Editor
ccrippes@iastate.edu

Theresa Litteral
Statewide MDST Facilitator
litteral@iastate.edu

David Veneziano
Safety Circuit Rider
dveneziano@iastate.edu

Advisory Board
Tyler Christian
Marion County Engineer
641-828-2225
tchristian@co.marion.ia.us

Maggie Greiner
Public Works Director, City of Johnston
515-278-0822
mgreiner@cityofjohnston.com

Tim Herrstrom – Chair
Road Foreman, Boone County
515-795-2825
bctjh@iowatelecom.net

Ron Knoche
City Engineer, City of Iowa City
319-356-5138
ron.knoche@iowacity.org

Corey Mellies
Operations Manager, City of Ames Public Works
515-239-3276
zmellies@cityofames.org

Nicole Moore
Iowa DOT, Office of Local Systems
515-239-1506
nicole.moore@iowadot.us

Brad Skinner
Appanoose County Engineer
712-623-5197
bskinner@montgomerycoia.us

Steve Stubble
Harrison County Engineer
712-644-3140
sstubble@harrisoncountyi.org

Wade Weiss
Greene County Engineer
515-386-5650
wwesw@co.greene.ia.us

Andrew Zimmerman
Transportation Engineer, FHWA - Iowa
515-233-7334
andrew.zimmerman@iowadot.gov

James W Hoffmeier, known as Buck, had spent the summer before he turned 18 doing odds and ends jobs for Crawford County. He worked for a few weeks with the oiling crew and then to the bridge crew, and by September 1, he had a full-time job as a maintenance laborer with the county.

He’s been working there ever since, and on September 1, 2021, he will celebrate 50 years on the job.

“I just liked the work that we do, because I’ve had different jobs with the county. I was on the bridge crew, then for a while I drove a small truck, then I ran a scraper for a while. Now, I run a maintainer,” Hoffmeier said. “I just liked the variety. There’s always different things to do.”

Hoffmeier, who was born in Denison and raised south of there in Buck Grove, said he didn’t necessarily intend to continue with the county for his entire career, and calls it more of a coincidence of circumstances.

Still, he only considered leaving for a different job one time. He took military leave to serve as a Navy Seabee from 1973–1975 during the Vietnam War, and he thought he might take that experience to the city. By the time he made it back home, Hoffmeier decided to stick with the county and see where things went.

“Next thing I knew, I’ve been here so many years,” Hoffmeier said. “I’ve had a good run.”

Crawford County Engineer Paul Assman, who has worked with Hoffmeier for 21 of those 50 years, said Hoffmeier’s years have proven his dedication to his county and maintaining Iowa’s secondary roads.

“For someone to commit 50 years of their life to an organization, I think it speaks a lot to that person’s dedication,” Assman said. “Buck’s been a great employee. I’ve known him and worked with him for 21 years. He’s always done a good job, reliable, dedicated, and again takes pride and ownership in what he does.”

Assman said Crawford County has had several long-time employees—which he credits to a mix of job satisfaction, a good work-life balance, and a good community—but he’s only worked with one other aside from Hoffmeier who’ve stuck with their career for 50 years.

“It’s somewhat uncommon for us to have someone start working for us and switch careers under my tenure. Not very many have moved on,” he said, adding, “Ask yourself how many people do you know with 50-year careers in one place. I know of two, and they both worked here.”

For Hoffmeier, his job satisfaction came in part from the variety of his work. However, there were other changes happening in Hoffmeier’s life as well after his military service. He married his wife Kim in 1978, and they had 3 children. In 1983, the family moved to Charter Oak where they’ve been since.

Though the children have since grown and moved away, they—and Hoffmeier’s three grandchildren—are all little more than an hour from Charter Oak.

As Hoffmeier’s 68th birthday approaches—just days before his work anniversary—he said he is starting to think about retirement, though he still feels good on the job. For the most part.

“The only thing is now that I’m getting older, I don’t like the snow near as well,” he said, adding, “I think that goes for everybody.”

No retirement date has been set, but he said he’s thinking about it and expects it will be before next spring.

“At times, it seems like 50 years is a long time; other times, it seems like it went by really fast. I don’t know how to explain it,” Hoffmeier said. “I look back and say, ‘Where did the 50 years go?’”
Traffic studies are useful tool for local agencies

Virtual workshop offers a refresher in data collection, analysis

“Just like riding a bike” is a common adage to suggest how easily muscle memory kicks in when performing tasks that we do infrequently or irregularly, but reflex only works so well and usually only for simple chores.

When it comes to complex actions, a better adage may be, “Practice makes perfect.”

That’s why LTAP Safety Circuit Rider David Veneziano led a pilot workshop on completing traffic studies back in March. The workshop was held virtually and is still available for viewing here: https://iowaltap.iastate.edu/completing-traffic-studies-webinar/. As part of a now-complete research project, Veneziano had asked local agencies to complete a speed study to borrow a speed feedback sign, and the question that came back as often as not was “How would I do that?”

The response reminded him that these studies are often taught in college courses or conducted by local agencies on such an infrequent basis that many could use a refresher.

The workshop covered how to conduct traffic volume, speed, sight distance, curve speed, and intersection traffic control studies to provide a better understanding of the approaches to data collection and basic data evaluation and presentation knowledge.

“Data collection provides the basis for identifying problems, quantifying the impacts of changes, determining the nature of magnitude of improvements, or confirming a hypothesis,” Veneziano said. “Valid results require careful, standardized collection and analysis.”

He added, “When you’re in doubt, though, it’s better to collect more data than it is to collect less data.”

Though the virtual workshop discusses the options and aspects of the various studies, Veneziano said they all have some common aspects, equipment, and terminology. He stressed the first step should always be field safety.

“The first and foremost that I will stress is safety, both yours and your coworkers’ safety when you’re out in the field,” Veneziano said. “No data collection is worth losing your life over.”

He said anyone who cannot conduct a study safely may need to investigate setting up temporary traffic control. Veneziano also said that practicing before going out into the field is key to ensuring that the equipment, if applicable, is working and that staff feels comfortable while working in live traffic conditions without having to troubleshoot.

In addition to the webinar, the Iowa DOT also has a traffic engineering assistance program that smaller local agencies can use. More details on the program is available here: https://iowadot.gov/traffic/traffic-and-safety-programs/traffic-engineering-assistance-program-teap.

Recommended reading:

- MUTCD: https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm

Did you know?

Iowa LTAP has an equipment loan program that includes two pieces of equipment useful in completing traffic studies and one that can aid after a speeding issue has been determined from a study. These items include the following:

Radar recorders. These assist in collecting bi-directional data on vehicle speed, length, gap and volume. They mount to utility poles and provide a non-invasive way to collect a variety of traffic data, particularly on unpaved roadways.

Digital ball banks. These can be used to assist in completing an engineering study to determine advisory speeds in curves. The unit provides measurements of the degree of bank collected when passing through a curve to assist in determining whether an advisory speed plaque is recommended or required.

Trailer-mounted speed feedback signs. LTAP has two trailer-mounted signs available, and no prior speed study is required to borrow them. These signs can be used to address speeding, as well as for other issues (e.g. special events, etc.).

For additional details about these and other pieces of equipment or to make a request for them, visit https://iowaltap.iastate.edu/equipment-loan-program/ or contact David Veneziano at dvenez@iastate.edu or 515-294-5480.
Improving safety through vegetation control and maintenance of drainage features

The question is: Why is the maintenance of drainage features needed and how does it affect roadway safety?

In 2018 alone, over 2.7M people were injured in crashes on US roadways, which equals approximately 5 people every minute. At the same time, over 36,000 people were killed in crashes. This results in a huge loss of life and a massive economic impact ($242B as of 2010).

Nicole Oneyear, a safety researcher at the Institute for Transportation’s Center for Transportation Research and Education had this to say:

“A good maintenance program is necessary to have a safe road.”

Vegetation control for safety

Vegetation can be a hazard on the road or in the right-of-way. For example, trees can be fixed object hazards and vegetation can block or limit a driver’s view of traffic control devices, other vehicles, wildlife, and pedestrians and bicyclists.

Oneyear noted that the overarching goals of a good vegetation control program should address or correct these issues by:

• Keeping signs visible to drivers
• Keeping road users (e.g., vehicles, bicycles, and pedestrians) visible to drivers and vice versa
• Keeping sidewalks and pedestrian paths clear and free from overhanging vegetation
• Improving the visibility of livestock and wildlife near the road

Efforts should be made to eliminate and control vegetation through preventative strategies like mowing, brush cutting, herbicides, livestock grazing, etc.

“When developing a roadside vegetation management program, you should consult with a local weed control specialist,” Oneyear suggested. “That way you can properly identify what weeds are present on your roadside as well as identify the best way to address them. Some weeds should be mowed down while others, if you mow them, will spread and then next year you will have an even bigger problem.”

Three types of mowing used frequently to address vegetation issues are: safety, transition, and contour or selective mowing. The FHWA released in 2008 their Vegetation Control for Safety: A Guide for Local Highway and Street Maintenance Personnel, which describes these types of mowing in detail and when they should be used.

Winter maintenance also plays a role in roadside safety, especially as a preventative strategy. For example, trees and shrubs can cast shadows on pavement, which leads to black ice.

“It is suggested that taller vegetation be cut (known as daylighting) and provide light to the roadway to help keep the pavement temperature up and hopefully not freezing.”

Maintenance of drainage features for safety

Drainage structures are systems that remove stormwater run-off from streets and highways. Examples include curbs, gutters, channels, ditches, pipes, grates, and drop inlets.

According to Oneyear, a good drainage system ensures the safe operating condition of a roadway surface (i.e., it removes storm run-off, provides for snow removal, and reduces the ability for ice to form) and that they do not result in a reduction in crashworthiness.

“A good drainage system is not a hazard itself,” Oneyear said. “Drainage structures are often fixed objects, which can be hazardous to drivers.”

Poor drainage systems often affect travel way pavement surfaces. Water ponding can increase stopping distance, thin layers of standing water can lead to hydroplaning, and vehicles may try to avoid standing water completely by swerving and increasing the likelihood of a roadway departure. Additionally, erosion due to deterioration of the pavement edge is likely.

“Ditches and side slopes can also be hazardous, mainly because of erosion,” Oneyear added. “Ditches need to be cleaned to prevent them from silting and forcing water onto the travel way surfaces.”

Drainage ditches should be traversable (i.e., so an errant vehicle can cross without overturning, being abruptly stopped, or causing the driver to lose control).

It should be noted that pedestrian and bike paths face similar issues as the streets; however, users are more able to avoid or compensate for standing water or ice on the path. Maintenance activities and low-cost drainage improvements can prevent these problems.

The best way to identify drainage problems is through citizen complaints, local police noticing problems during patrols or when responding to crashes, crash data, reading the road, and field reviews.

“Ultimately, the ability to recognize maintenance tasks related to vegetation and drainage and how they impact safety will only benefit agencies as they develop and better their vegetation control programs and routine maintenance efforts,” Oneyear said.
Workshop and conference calendar

[Information current as of September 16, 2021] Iowa LTAP will continue with some virtual efforts throughout the fall, but it will also continue planning and holding some in-person events and trainings.

For the most up-to-date information about in-person attendance requirements and additional upcoming virtual events, please check regularly at https://iowaltap.iastate.edu/events/ and consider subscribing to our mail list at https://iowaltap.iastate.edu/ for email updates. Thanks for bearing with us as we work through this transition.

<table>
<thead>
<tr>
<th>2021</th>
<th>Event Name</th>
<th>Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>Multidisciplinary Roadway Safety Series (formerly the Local Road Safety Workshops)</td>
<td>Waverly</td>
<td>David Veneziano</td>
</tr>
<tr>
<td></td>
<td>APWA Iowa State Roadeo</td>
<td>West Des Moines</td>
<td>Kim Pinegar</td>
</tr>
<tr>
<td></td>
<td>Multidisciplinary Roadway Safety Series (formerly the Local Road Safety Workshops)</td>
<td>Ames</td>
<td>David Veneziano</td>
</tr>
<tr>
<td></td>
<td>2021 One-D Modeling of River Encroachments with HEC-RAS (NHI Course 135041)</td>
<td>Ames</td>
<td>Paul Albritton</td>
</tr>
<tr>
<td></td>
<td>Multidisciplinary Roadway Safety Series (formerly the Local Road Safety Workshops)</td>
<td>Storm Lake</td>
<td>David Veneziano</td>
</tr>
<tr>
<td></td>
<td>Multidisciplinary Roadway Safety Series (formerly the Local Road Safety Workshops)</td>
<td>Atlantic</td>
<td>David Veneziano</td>
</tr>
<tr>
<td></td>
<td>Multidisciplinary Roadway Safety Series (formerly the Local Road Safety Workshops)</td>
<td>Marion (Cedar Rapids)</td>
<td>David Veneziano</td>
</tr>
<tr>
<td></td>
<td>Multidisciplinary Roadway Safety Series (formerly the Local Road Safety Workshops)</td>
<td>Marion (Cedar Rapids)</td>
<td>David Veneziano</td>
</tr>
<tr>
<td>November</td>
<td>Winter Maintenance</td>
<td>Storm Lake</td>
<td>Paul Albritton</td>
</tr>
<tr>
<td></td>
<td>Winter Maintenance</td>
<td>Hampton</td>
<td>Paul Albritton</td>
</tr>
<tr>
<td></td>
<td>Winter Maintenance</td>
<td>West Union</td>
<td>Paul Albritton</td>
</tr>
<tr>
<td></td>
<td>Winter Maintenance</td>
<td>Atlantic</td>
<td>Paul Albritton</td>
</tr>
<tr>
<td></td>
<td>Traffic and Safety Forum</td>
<td>Ames</td>
<td>Judy Thomas</td>
</tr>
<tr>
<td></td>
<td>Winter Maintenance</td>
<td>Knoxville</td>
<td>Paul Albritton</td>
</tr>
<tr>
<td></td>
<td>Winter Maintenance</td>
<td>Iowa City</td>
<td>Paul Albritton</td>
</tr>
</tbody>
</table>

Contact information
David Veneziano, 515-294-5480, dvenez@iastate.edu
Kim Pinegar, 515-222-3546, kimberly.pinegar@wdm.iowa.gov
Paul Albritton, 515-294-1231, palbritt@iastate.edu
Judy Thomas, 515-294-1866, jathomas@iastate.edu

Event details and online registration
Watch for details and online registration information, by specific dates and events, on the Iowa LTAP Workshops page, iowaltap.iastate.edu/workshops/.

Save the date
The 13th TRB International Conference on Low Volume Roads will be held July 23–26, 2023 in Cedar Rapids. The conference is convened by the Transportation Research Board and is a global forum to examine new technologies and new techniques in planning, design, construction, operation, maintenance, and administration of low-volume roads. A draft agenda is available here: https://trb.secure-platform.com/a/page/lowvolumeroads. Mark your calendars today.

Vegetation control continued from page 6

For more information
• For guidance on vegetation control, see the Vegetation Control for Safety: A Guide for Local Highway and Street Maintenance Personnel at https://safety.fhwa.dot.gov/local_rural/training/flwasa07018/.
• Nicole Oneyear led a LTAP webinar in late 2020 on this topic. To view a recording of the webinar, visit the LTAP website at https://iowasudas.org/events/vegetation-control-webinar/.

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

Order library materials
Add a name to our mail list
Correct your mailing information

To make a change to the Technology News mail list or to order library materials, please complete the information below and mail or fax this page (including mail label) to the InTrans address below:

Institute for Transportation
2711 S. Loop Drive, Suite 4700
Ames, IA 50010-8664
Fax: 515.294.0467

☐ Add the name/address below to the Technology News mail list.
☐ Delete the name/address below from the Technology News mail list.
☐ Correct the name and/or address below on the Technology News mail list.

New or corrected mailing information:
Name ____________________________________________
Title ____________________________________________
Organization ______________________________________
Address __________________________________________
City __________________________ State __________ Zip ____________

☐ Send the following library materials to the address above:
Title: ____________________________________________
P., V., DVD or CR-number: __________________________
Title: ____________________________________________
P., V., DVD or CR-number: __________________________

Subscribe to Technology News online at
iowaltap.iastate.edu/subscribe-to-technology-news/