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IOWA STATE UNIVERSITY
Institute for Transportation

Iowa Build a Better Mousetrap winners named

What do a shop clean-up squeegee, cold mix placer, and salt/sand spreader lifting jig all have in common?

They're all three innovative projects undertaken this year in Iowa counties, for one. They're also winning entries in the 2022 Iowa Build a Better Mousetrap (BABM) Competition.

The winning entries—from first to third—are the secondary roads departments in Madison County with the shop clean-up squeegee, Jones County with the cold-mix placer, and Linn County with the sand/salt spreader lifting jig.

The winning counties were initially recognized at the ICEA Mid-Year Conference in July and will receive 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 county shop. Each of the innovations has also been submitted to the regional BABM competition in Rapid City, South Dakota. Congratulations to them all!

More details about those innovations are as follows:

Madison County –Shop Clean-Up Squeegee

Madison County Secondary Roads staff members were looking for a way to reduce manpower and time to clean their shop, wash bay, and cold storage truck bays.

Their solution was to use a rainy day to make a squeegee that they could put on their skid steer using mostly reclaimed materials from other projects. Between the materials and man hours, the staff completed the project for less than \$500.

"We managed to reduce the time to clean and wash the shop from 2 hours down to 15 minutes," read the entry. "This squeegee has not only reduced the time it takes but also cuts down on the dust considerably and allows us to take personnel to focus on other projects."

Jones County –Cold-Mix Placer

Jones County Secondary Roads staff members wanted an easier method to fill holes and cracks in their paved roadway system than the ones they had been using that included running the cold-mix asphalt out of the front sander of a dump truck or shoveling mix out of the back of a pickup truck.

BABM winners continued on page 3



Madison County's shop clean-up squeegee (left) and Jones County's cold-mix placer (right)

Acronyms and Abbreviations in *Technology News*

AASHTO	American Association of State Highway and Transportation Officials
APWA	American Public Works Association
FHWA	Federal Highway Administration
ICEA	Iowa County Engineers Association
IHRB	Iowa Highway Research Board
InTrans	Institute for Transportation (at ISU)
Iowa DOT	Iowa Department of Transportation
ISU	Iowa State University
LTAP	Local Technical Assistance Program
MUTCD	Manual on Uniform Traffic Control Devices
NACE	National Association of County Engineers
TRB	Transportation Research Board

About LTAP

LTAP is a national program of the FHWA. Iowa LTAP, which produces *Technology News*, is financed by the FHWA and the Iowa DOT and administered by the Institute for Transportation at Iowa State University:

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From the Director: Embrace it all. Just as it is.

“Oh boy, what rabbit hole is Keith about to go down now?” Was that a thought that came and went as they always do? Great, it’s all good. How could it not be with a title like “Embrace it all. Just as it is.” Please follow along or skip to the end. There, you will find what appears to be the rock steady ground of information related to the comfortable constancy of our upcoming doings. If you stay on for the ride, though, please interpret what follows in your own way and discard it with the same approach. And stay, if you can, to the very end, in curious exploration. Of the joys and unavoidable hardships. Maybe, some difficulty, maybe. But. Teachers all.

In August, I spent a great 10 days in San Francisco and Yosemite National Park. Yes, I walked and hiked, to Haight-Ashbury in San Francisco, and to the top of Nevada Falls and through the Mariposa Grove at Yosemite. Some great days of exploration and dramatic “incline.” As I traveled, I realized and remembered how much I missed the physical act of wandering about but not being lost. Curious exploration brings me great joy, whether in the urban or rural wilds. From how they feed the homeless in the Tenderloin district of San Francisco to the relationship between fire and the growth of a Sequoia. Both systems influenced, with varying impacts, through different human interaction.

My optional exploratory travel, as I’ve described in previous columns, is sometimes planned to be purposefully uncomfortable. Not physically uncomfortable (although that is sometimes a part of it) but most definitely in the investigating of the “I am” deep within. It can be done anywhere, this cultivation of hope toward a path of wise intention and livelihood. It is the sphere I choose to enter in order to learn the most about myself and strengthen that muscle of resilience at the time and place within which I reside. Mind and body. Standing, shaking, and sliding on a floor of scree working toward gaining wisdom, but not always succeeding (similar to and sometimes at the same time as attempting to summit a mountain). A purposeful instigation of impermanence. And life will always test this muscle as reality reveals itself from behind the clouds. Always there but structured in the mind as thoroughly gone and somehow to be avoided.

Within a few days of my arrival back in Iowa, the specter (perhaps, now, an old friend) of ultimate impermanence made itself known. In full force. Not new to my life. A test perhaps? I’m here, don’t forget. This visitor will likely make an appearance in my life several times,

in a similar manner, over the coming years. But this entity is a permanent fixture in our lives, every moment never to be revisited again, special in its own way. Every skin cell replaced every two to three weeks and bones regenerated every 10 years. It is predictable, just as the sun rises and travels the sky, sometimes obscured, and sometimes warm on our faces. Time and time again. How we choose to relate to this phenomena, I believe, is a determining factor in our fate. I choose. I choose to attempt to embrace it all, just as it is. To feel deeply the joys and the hardships. An unavoidable part of being human. Learning and practicing how to move through it. Tripping and falling, time and time again, but picking myself up with what I once knew, expanded in some manner. Many times with help from the communities that surround me. Given a hand up. Arise it will, always personal, for me, the friend, and the stranger. A different time but the same answer. The path with no destination or objective that I have taken, for good or bad. To wander but not be lost.

Big breath. Iowa LTAP activities, in this past quarter and also the upcoming one, are looking more and more like our traditional pre-2020 offerings. In the next few years, though, we will be investigating whether a reorientation to what and how we offer things are in order. No worries, this will not be done in a bubble, but I think I’ve mentioned that there is no going back with what we’ve experienced. While it may not be comfortable (see above), the reality is that the way things can be done in the training/outreach area and local agency staffing everywhere has undergone changes. A closer look, we believe, at this new combination of our abilities and the needs/expectations of our clientele is in order. An investigation to address this new dynamic. This fall, though, Iowa LTAP will be offering our safety series and winter maintenance workshops throughout the state. In addition, our biweekly resource will be restarted along with monthly webinars. The Iowa Chapter of APWA will also offer its fall conference, some winter maintenance training, and the Snow Rodeo. The ICEA Annual Conference is also this December. Please be sure to register for all these events. More details, on most of them, will also be included in our biweekly resource. If you are not getting it, please reach out.

With Gratitude,

Keith ■

BABM winners continued from page 1

Their solution was to develop a portable automated unit that contained the cold-mix asphalt and portioned out the mix at a precise location. Two fabricators in the county produced the unit in 25 hours using a hopper, auger, and hydraulic power unit, with a few other locally purchased materials and components. The total cost of the unit was estimated to be about \$7,250.

“The cold-mix placer enables maintenance crews to get the material where it needs to be placed, resulting in quicker response times, less material wasted, and making an unfavorable task much easier to perform,” reads the entry. “Little or no clean-up is required when the unit is not in use. Any excess material in the hopper can simply be augered back into the stockpile.”

Linn County –Salt/Sand Spreader Lifting Jig

Linn County Secondary Roads mechanics were looking for a safe and effective solution to remove salt/sand spreaders, or sanders, from the back of dump trucks when they were brought to the shop for repair.

Their solution was to build a lifting device that could be attached to the sander from outside the truck and thus eliminate the need for an employee to physically climb over the truck bed and into the sander to attach a lift chain. They designed and fabricated the lifting jig using materials on hand from the weld shop.



Linn County's salt/sand spreader lifting jig

“For less than \$300 and a few hours of labor, Linn County has a safe, efficient and quick way to prep the sander for removal from the dump truck that also helps prevent injury,” reads the entry. “The jig is made from steel, so we expect it will provide many years of service.”

Additional details about this year's innovations will soon be available on the Iowa Innovations web page. In the meantime, check out the previous years' winners at <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 2023 here: <https://iowaltap.iastate.edu/iowa-babm-competition/>. ■

Low Volume Roads Conference: Registration now open!

The 13th TRB International Conference on Low Volume Roads is less than a year away, and registration is now open for this special opportunity for Iowa professionals.

The event 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.

Registration information and a preliminary agenda are available here: <https://trb.secure-platform.com/a/page/lowvolumeroads>. Register by March 23, 2023, for the early-bird rates.



Ben Hull

Additionally, details about the field trip to see low volume road bridge and pavement innovations in surrounding Linn and Johnson counties have been announced. The half-day tour is being organized by the ICEA and so far includes stops to see five different innovations. Along with the tour, the event will feature workshops, plenary sessions, break-out lectern sessions, poster sessions, and exhibits.

The conference has been held every four years since 1975 and was last held in Cedar Rapids in 1979, for the 2nd International Low Volume Roads Conference. The event typically draws between 200 and 300 practitioners and researchers from more than 20 countries. ■

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.

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GTSB reinstating the High 5 Rural Traffic Safety Program



The Iowa Governor's Traffic Safety Bureau (GTSB) is reinstating the High 5 Rural Traffic Safety Program, which identifies

rural counties with an overrepresentation of unbuckled fatalities.

A newly formed Fatality Reduction Advisory Group assisted with identifying the current High 5 counties in Iowa—Fremont, Appanoose, Humboldt, Mitchell, and Keokuk—to target them for increased enforcement, education, and engineering in federal fiscal year 2023.

The program previously ran from 2014 to 2018 after it was identified that 46% of Iowa's passenger vehicle fatalities occur within 8% of the population, and approximately 72% of Iowa's fatalities occur in rural settings. It was reinstated after seeing that the same problems remain in 2022.

As of September 13, 68 fatalities were unbelted, representing 41% of all passenger vehicle fatalities. A total of 71%, or 153 of 215, fatalities were in a rural setting.

The advisory group—composed of GTSB, Iowa State Patrol, Iowa DOT, and InTrans—will oversee the following through the High 5 program:

- Monthly GTSB-funded enforcement projects
- Increased media buys targeting locations and demographics based on traffic safety data

- Introduction of the GTSB-funded Seatbelts Are For Everyone (SAFE) program to school districts in selected counties
- GTSB-funded Child Passenger Safety (CPS) events through Blank Children's Hospital to selected counties
- Review of crash data by LTAP through InTrans with local engineers to seek potential traffic safety improvements

Additionally, GTSB will conduct quarterly seatbelt observational surveys to measure performance. It is also working with the Iowa DOT and InTrans to improve Daily Traffic Fatality Count Information, including reporting the seating position in the daily count.

Through the High 5 program, GTSB also had a presence at the recently completed Iowa State Fair to focus on occupant restraint and partner with other organizations to focus on traffic safety. Some highlights include:

- A partnership with the Farm Bureau to highlight rural/farm safety, with 1,965 people riding the Seatbelt Convincer
- A partnership with the Blank Children's Hospital with a CPS booth
- Crash Test Dummies Vince and Larry engaged fairgoers with occupant protection conversations

A total of 126 volunteers and 7 GTSB employees contributed 225 hours to raising traffic safety awareness during the fair. ■



Iowa State Fair visitors meet with GTSB's crash test dummies as part of the High 5 program (GTSB)

Iowa PWSB aims to connect cities of all sizes

Website features help public works staff throughout the state to “communicate to innovate”

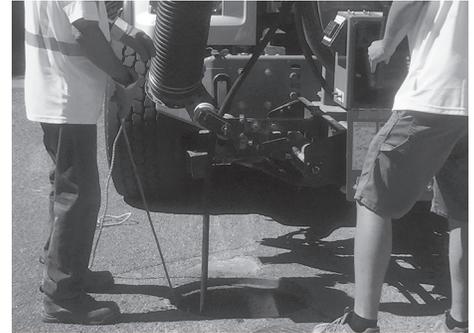
With over 900 cities in the state and each with differing activities within their public works departments, the ability to communicate and exchange information statewide is needed and had been lacking until the new Iowa Public Works Service Bureau (PWSB).

In its first year of operation—the website launched in August 2021—the Iowa PWSB grew to 269 registered users.

“The Iowa PWSB was established to provide information to improve the connectivity, knowledge, and efficiency of these essential workers by opening much-needed communication lines and fostering productive discussions among city staff,” said Paul Wiegand, who is the principal investigator on the Iowa PWSB project and director of the Statewide Urban Design and Specifications (SUDAS) program.

Iowa PWSB members—signing up is free and easy to do—have access to a variety of features available at www.IowaPWSB.org that help them “communicate to innovate.” One of the newest additions is a bid tab database, which includes bid quantities and unit costs using the SUDAS program bid items to provide even more standardization.

“This interactive report, based on awarded contracts from throughout the state, will allow city staff to see what other cities are paying for the same item, potentially saving cities time and money in the bidding process,” said Beth Richards, who is a co-author on the Iowa PWSB project.



The PWSB supports public works staff as they perform essential duties such as the 2020 derecho cleanup (left) and manhole service activities (right)

Other valuable resources for public works staff, most but not all of which is accessible to members only, on the Iowa PWSB site include the following:

- The **Reports** section, which includes more than a dozen interactive dashboards and charts accessible to members, covers finances, streets, bridges, and bid tabulations
- The **Contacts** list is a valuable tool open to members that allows cities to connect and exchange information pertinent to cities of similar sizes or undertaking similar projects
- **Forum** posts give members the opportunity to engage with their peers more broadly on projects and policies and more
- The **Job Board** is publicly available to anyone looking for a job or how to describe a position, but only members can post open positions
- The **Training and Educational Opportunities** page is open to everyone and includes upcoming trainings in the state and a listing of organizations that help connect city staff with the training opportunities in Iowa and online

In addition to these resources, for those who are less web savvy, the Iowa PWSB site has a series of video tutorials that help with some of the more involved options available, particularly using the Reports section. Iowa PWSB staff members are also available to help answer any questions, just send an email or give them a call!

Like the Iowa PWSB? Show your support.

One project task included in the two-year Iowa PWSB grant to SUDAS funded by the IHRB, includes securing permanent financing for the PWSB.

Thus, the service bureau’s goal during this phase is to demonstrate to the Iowa Legislature and municipal leadership across Iowa the value of providing public works staff a platform to “communicate to innovate.”

So, if you’ve found the Iowa PWSB useful, please drop us a line and let us—and your state legislators—know! ■



“The Iowa PWSB was established to provide information to improve the connectivity, knowledge, and efficiency of these essential workers by opening much-needed communication lines and fostering productive discussions among city staff.”

—Paul Wiegand, Iowa PWSB project principal investigator

In brief: Lasting LTAP impacts

Each February and March, the Iowa LTAP offers work zone traffic control and safety training at several Iowa venues so that workers across the state can conveniently participate.

These Iowa Work Zone Safety Workshops cover current revisions in the 2009 MUTCD, particularly Part 6.

Each workshop consists of a general session for all participants, plus breakout sessions tailored to specific categories of work zone activities: city, county, utility, Iowa DOT construction and contractors, and Iowa DOT maintenance. For anyone interested in Iowa DOT specifications and requirements, the Iowa DOT Construction and Contractors breakout session may be most appropriate. The City breakout session may be best for workers interested in urban work zone applications. The Iowa DOT Maintenance breakout sessions are specifically designed for Iowa DOT staff.

The MUTCD recommends that all workers (and their supervisors) whose duties place them on or near the traveled portion of roadways regularly complete work zone traffic control training. It should be noted that is not necessary to attend a work zone safety workshop every year; every three years is recommended.

In addition to street and road agencies, contractors, consultant engineering staff, vendors, and suppliers in the road construction industry are welcome to participate and are encouraged to register for the same breakout session categories as those with whom they do business.

In 2022, 7 workshops were conducted across Iowa with 693 participants.

One participant from the Cedar Rapids workshop said, “It was good to discuss upcoming changes in work zone traffic control and have discussions with others on what they see in their work zones.”



General session of the 2022 Iowa Work Zone Safety Workshop in Ames



County session of the 2022 Iowa Work Zone Safety Workshop in Storm Lake

When asked if the workshop was worthwhile, another participant from Cedar Falls said, “There isn’t anything not worthwhile about safety in a work zone. All information is worthwhile.” And two participants from the Ames workshops called the training “very informative.”

Participants from the Storm Lake workshop found the information good, especially for new hires. One commented saying, “The instructors gave hands-on experience—so they have actually done our job.”

Mark your calendars for next year’s workshops! Once dates and locations are available, they will be posted at iowaltap.iastate.edu/iowa-work-zone-safety-workshops/. If you have additional questions, please contact Paul Albritton at 515-294-1231/palbritt@iastate.edu. This program is partially funded by the Iowa DOT’s Office of Traffic and Safety, through the Traffic Safety Improvement Program pursuant to 2001, Iowa Code Section 312.2(15). This support helps keep the registration fee low to encourage greater participation. Don’t forget to continue sharing your impact stories with us!

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

Workshop and conference calendar

[Information current as of September 15, 2022] Iowa LTAP will continue holding both virtual and in-person events and trainings throughout the fall and winter.

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.

2022	Event Name	Location	Contact
October			
5	Multidisciplinary Roadway Safety Series	Ames	David Veneziano
5	Winter Operations: An Essential Day of Training	Council Bluffs	Kim Pinegar
5–7	APWA Iowa Chapter Fall Conference	Sioux City	Kim Pinegar
6	Multidisciplinary Roadway Safety Series	Iowa City	David Veneziano
6	Winter Maintenance Supervisor Certificate Program	Sioux City	Kim Pinegar
11–13	SPOT and Iowa State Rodeo	Council Bluffs	Kim Pinegar
19	Multidisciplinary Roadway Safety Series	Council Bluffs	David Veneziano
20	Multidisciplinary Roadway Safety Series	Osceola	David Veneziano
26	Multidisciplinary Roadway Safety Series	Storm Lake	David Veneziano
25	New MUTCD Minimum Retro-Reflectivity Levels for Pavement Markings	Webinar (12:00 p.m. CT)	Keith Knapp
27	Multidisciplinary Roadway Safety Series	Mason City	David Veneziano
November			
1	Winter Maintenance Workshop	Spencer	Paul Albritton
2	Winter Maintenance Workshop	Boone	Paul Albritton
3	Winter Maintenance Workshop	Independence	Paul Albritton
8	Winter Maintenance Workshop	Fairfield	Paul Albritton
9	Winter Maintenance Workshop	Greenfield	Paul Albritton
10	Iowa Better Concrete Conference	Ames	Denise Wagner
15	Municipal Streets Seminar	Ames	Denise Wagner
16	Traffic and Safety Forum	Ames	Judy Thomas
December			
14–16	Iowa County Engineers Conference	Des Moines	Jacy Ripperger

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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, iowaltap.iastate.edu/workshops/. ■

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