



Vol. 34, No. 3 – Summer 2022

# The Bridge



A quarterly newsletter from Michigan's Local Technical Assistance Program



Photo: Shutterstock

Traffic poses a big risk to road maintenance crew members. New innovations are now being used in Michigan to make road work safer.

## Making Road Work Safer through Innovation

Allison Szlachta, Technical Writing Intern  
with an introduction by Anna Lindgren, Technical Writing Intern  
Center for Technology & Training

### Inside



Mike TenBrock:  
Building Bridges and  
Relationships  
▶ Page 7



Bringing Out the  
Power Tools:  
Mindfulness in the  
Workplace  
▶ Page 10



Keep Calm...And Carry  
On...How to Handle  
Uncomfortable  
Customer Interactions  
and Provide A Good  
Level of Service  
▶ Page 13



Tick Check! How to  
Identify Ticks  
and Prevent Lyme  
Disease  
▶ Page 14

#### Also Inside:

Meet the CTT's New Training  
Specialist ▶ Page 10

Motor Grader Training ▶ Page 15

### Back Page

Upcoming Events  
Engineering Tech Assist



Michigan's  
Local Technical  
Assistance Program

When working on road maintenance, one of the biggest hazards is arguably the traffic.

Fatal work zone crashes are also increasing, according to a recent report by the National Workzone Safety Organization. Michigan had nine fatal work-zone accidents in 2009.<sup>1</sup> By 2017, that number rose to 23.<sup>1</sup> In 2020, fatalities remained relatively high with 11 total deaths despite decreased traffic volumes.<sup>2</sup> Two of those deaths were road crew members in a construction zone who were struck by a suspected drunk driver.<sup>2</sup>

Michigan also saw 1,050 work-zone related injuries and 4,035 crashes in 2020.<sup>3</sup>

Jenessa Rankin, an equipment operator for the City of Farmington Hills Department of Public Works, knows the risks related to traffic all too well. "We're on the road a lot, just working there in a safety vest with big flashing trucks," she shared. But, sometimes that's not enough: "It could be 10 degrees outside and snowing, and people still want to go 80 miles an hour because they've got stuff to do and they're busy."

Similarly, Jason Rinkinen, a lead transportation maintenance worker for the Michigan Department of Transportation (MDOT) L'Anse Maintenance Garage, concurs. He explained, "When we're doing lane closures, we have to have eyes in the back or our head because you don't know when some driver is not paying attention." He's had first-hand experience with distracted drivers while performing traffic-regulating duties. "I don't know how many times I've done flagging, and I've had people come up on my stop paddle and they're slamming on their brakes and squealing their tires

to come to a stop," he shared. "People just don't pay attention to the signs, and they say 'where are your signs?' when they missed them all. I'm just glad they stopped."

Rankin reflected, "Traffic,...we deal with it on a daily basis."

"We're always dealing with traffic," Rinkinen added. "The traffic makes your life a little bit difficult when you're trying to maintain the roads."

But, now the transportation industry is seeing developments in traffic control devices that can improve safety for road maintenance crews. In 2022, many road projects on highway and interstate corridors featured portable rumble strips. And, some projects are now using other innovations like mobile barriers, audible trucks, and sign-board integrations to improve safety for road maintenance crews working in close proximity to distracted drivers. ■ AL

*This article continues in four standalone segments: Temporary Rumble Strips (page 3), Mobile Barriers (page 4), Audible Attenuators (page 5), and Connected Technologies (page 6).*

#### RESOURCES

1. National Workzone Safety Information Clearinghouse. American Road & Transportation Builders Association, 2022. Available: <https://workzonesafety.org/work-zone-data/work-zone-fatal-crashes-and-fatalities/>
2. Weidmayer, Marie. Michigan road worker deaths rise in 2020 as families grapple with 'devastation' left in their wake. MLive, 21 Jan 2022. Available: <https://tinyurl.com/mlive-wz-2020deaths>
3. Michigan Department of Transportation. Fast Facts. State of Michigan, 2022. Available: <https://www.michigan.gov/mdot/travel/safety/road-users/work-zone-safety/fast-facts>

▶ continued on page 3

## Letter from the Editor

I'm an outdoors person. I've hiked and camped around the United States and Canada and across the globe. For many years, I've followed all the safe practices for these activities and never really had a problem despite the variety of wildlife and climate extremes that I've encountered. Surprisingly, last year was my first encounter with ticks, and it happened right here in the Upper Peninsula where I've lived and enjoyed outdoor activities for well over a decade. After a 45-minute hike, I found myself sitting by the side of the road picking off tick after tick—both lone-star and black-legged ticks, about 50 of them all told.

If it can happen to me, it can happen to anyone! Many local-road-owning-agency employees go through a tick prevention training as part of their onboarding process or as an annual refresher. But, being ever-vigilant is the best way to avoid ticks and prevent Lyme disease. Alarming, tick exposure is increasing. The director of the SUNY Center for Environmental Health and Medicine says he has already seen a 43-percent increase in the number of ticks being submitted for testing this year and is seeing ticks in places where they've never been reported before.

In this issue of *The Bridge*, we'll give you guidance on what you can do to avoid ticks and prevent Lyme disease.

In these pages, we also take a look at health from a different angle—we look at how mindfulness in the workplace can affect one's overall well-being! The Center for Technology & Training's (CTT) new training specialist, Dayna Browning (who you'll meet in these pages), introduces the concept of mindfulness and provides some easy exercises to do in your office or cubical, on the road, or at home. And, stay tuned! Dayna will be offering related mental health trainings through the CTT in the upcoming months.

Also in this issue, we look at how road maintenance crew members can stay safe when working on roadways. And, we share strategies to stay calm and provide a good level of service when faced with uncomfortable customer interactions.

In the meantime, if there are training topics or newsletter article topics that would benefit you and your agency, please let us know. In our webinars or virtual events, please share your suggestions with us in our exit polls or event evaluations. Or, share your suggestions with us by e-mail at [ctt@mtu.edu](mailto:ctt@mtu.edu), by visiting our conference pages and completing the Present tab form, or by visiting <http://michiganltap.org/TheBridge> and completing the Topic Suggestions form.

Victoria

Photo: Shutterstock



## PHOTO CONTEST!

### CATEGORIES

**Summer road maintenance**  
(pavement repairs, mowing, grading, dust control, tree cutting, safety)

**Winter road maintenance**  
(plowing, deicing, anti-icing, cutting banks, removing snow)

**Bridges & culverts**  
(inspection, repairs, maintenance)

**People**  
(work crews, community outreach, public events, school events, training)

**Equipment**  
(new or historic equipment, innovations, equipment for a cause)



### DEADLINE: December 31st

**Photos judged on:**  
- fit for the category  
- general composition  
- aesthetic appeal (e.g., perspective, lighting)

**Submitted photos should follow safety requirements for the depiction and should be clear and high resolution**

### PRIZES

Per Category: Free CTT webinar of your choice

Grand Prize: Free one-day conference registration of your choice

**SUBMIT ENTRIES at**  
[michiganltap.org/2022photocontest](http://michiganltap.org/2022photocontest)

## Connect With Us!

Find the Center for Technology & Training on...



Facebook:  
[facebook.com/ctt.mtu](https://facebook.com/ctt.mtu)



Instagram:  
[https://www.instagram.com/ctt\\_mtu/](https://www.instagram.com/ctt_mtu/)



LinkedIn:  
<https://www.linkedin.com/company/center-for-technology-and-training/>





Photo: Courtesy of MDOT

## Temporary Rumble Strips

Even though roadway construction work zones have plenty of safety measures like proper signage, traffic cones, and barriers, drivers still fail to notice work-zone elements or their own driving behaviors that put road maintenance crew members at risk of injury or death. In fact, Chuck Bergmann, Michigan Department of Transportation (MDOT) work zone technical specialist, shared, “We’ve had a lot of flaggers killed over the years because they are the first person that drivers encounter in a work zone.” He says that “distracted driving is prevalent now...it’s everywhere”. To “wake up” distracted drivers, one innovation now being used on MDOT projects is the temporary rumble strip. Temporary rumble strips may be either portable or fixed.

Temporary portable rumble strips are 107-pound rubber strips that lay on the pavement surface and don’t require adhesive; they are placed in two arrays (or sets) in advance of the work zone. Notably, they are hinged, which allows them to be folded.

Since 2021, MDOT has been requiring two sets of RoadQuake® 2F Temporary Portable Rumble Strips—the only temporary rumble strip product that’s passed their field tests—on all of their construction projects lasting more than four hours. To help manage the portable rumble strips, the RoadQuake® CRIB can be added off the back of a work truck to hold the rumble strips; the positioning of this cargo carrier simplifies deployment and retrieval of the rumble strips (see photo inset).<sup>1</sup> The RoadQuake® RAPTOR can also be added to the front of a truck that holds and ejects rumble strips onto the road and also retrieves rumble strips from the road via remote control oper-

ated by the driver; the “raptor” eliminates the need to have road crew members on the road placing the rumble strips (see photo inset).<sup>2</sup>

Temporary fixed rumble strips are one-time-use, pre-formed thermoplastic (often orange) strips with adhesive on the back. They require road crew members to install them on the roadway by tamping them in place with a heavyweight roller. Bergmann noted, “It’s a lot more worker exposure to put them down, but it’s done under lane closures.” Temporary fixed rumble strips are placed in three arrays—at 700 feet, 1400 feet, and 2800 feet—in advance of the arrow board beginning the work zone. Each array is spaced differently to create different sounds as drivers approach the work zone. “We have two applications for temporary fixed rumble strips,” Bergmann explained, “one is in advance of a new stop condition, as in a detour situation, and the other is in advance of a free-way work zone that will be in the same location for 14 consecutive days or longer.” Bergmann says these rumble strips have been in use for about 10 years in various applications.

Aside from issues related to worker exposure, Bergmann cautions that placing either kind of temporary rumble strip involves time, which limits their application to more lengthy projects. He also says that the temporary portable rumble strips move: “they skew a little bit, maybe a couple inches at a time, so they have to be maintained”.

Another concern related to temporary rumble strips is the cost. The temporary portable rumble strips are approximately \$2000 per strip. Bergmann notes that their cost could pose a potential obstacle for use by local road-owning agencies. He added, “That’s why

they are only required for our construction projects as opposed to maintenance projects, because we can build them into that project.” In comparison, the temporary fixed rumble strips cost significantly less, ranging between \$84 and \$300.

The goal of temporary rumble strips is to create a “primary defense” and get “vehicles to slow down or stop before entering the work zone...and coming into contact with the flagger station”. Not only do these strips notify road users, they have proven to be more effective than other road hazard countermeasures.<sup>3</sup>

Since implementing temporary rumble strip requirements, MDOT has seen significant reduction in the mean speed at low-speed and high-speed sites. This indicates that drivers on the road are more aware of the unusual traffic conditions. This innovation is proven to be a beneficial tool to “wake up drivers and to keep people going slowly through your work zones”, according to Bergmann. ■ AS

### RESOURCES

1. PSS. CRIB-6. <https://pss-innovations.com/safety-products/rumble-strip-systems/crib-6>
2. PSS. Raptor. <https://pss-innovations.com/safety-products/roadquake-tprs-system/roadquake%20AE-2f-temporary-portable-rumble-strip/related-products-folder/raptor>
3. Yang, Hong; Ozbay, Kaan; Bartin, Bekir. *Effectiveness of Temporary Rumble Strips in Alerting Motorists in Short-Term Surveying Work Zones*. ASCE Library, 2015. Available: <https://ascelibrary.org/doi/full/10.1061/%28ASCE%29TE.1943-5436.0000789>

### MDOT SPECIAL PROVISIONS

For temporary portable rumble strips: [https://mdotcf.state.mi.us/public/dessssp/spss\\_source/20SP-812D-01.pdf](https://mdotcf.state.mi.us/public/dessssp/spss_source/20SP-812D-01.pdf)

For temporary orange rumble strips: [https://mdotcf.state.mi.us/public/dessssp/spss\\_source/12SP-812II-01.pdf](https://mdotcf.state.mi.us/public/dessssp/spss_source/12SP-812II-01.pdf)

## Mobile Barriers

Portable concrete barriers have historically been the only option for separating road maintenance crew members from the flow of traffic and potentially distracted drivers in high-speed work zones. While these concrete barriers are effective at keeping the workers safe, they weigh 4,000 pounds for a 10-foot segment. As such, they require heavy equipment and time to install them properly, rendering them only suitable for longer-term road projects.<sup>1</sup>

Traffic cones or barrels, on the other hand, are lightweight and easy to move in temporary work-zone projects, but they offer very little protection from distracted drivers.

To increase safety on short-term projects, the Michigan Department of Transportation (MDOT) is procuring an innovative, new safety device called a ‘mobile barrier’ after investigating its use on the Illinois Tollway<sup>1</sup> and by the Colorado Department of Transportation<sup>2</sup>, according to Lisa Marsh, transportation maintenance superintendent for the MDOT Southwest Region.

“A mobile barrier is basically a mobile version of a concrete barrier wall,” explained Marsh. “It’s made of steel and looks like a semi trailer that’s connected to a semi tractor that pulls it from work site to work site.” She says it can be used in either stationary

or mobile “modes”, with crews working alongside it for short periods of time while moving down the roadway.

It can also be set up for work zones on either the left or right side of the mobile barrier. “On the back, it has what we call a ‘crash attenuator’ so, if somebody were to run into the back of it, it has a cushioning system that helps reduce the crash velocity and extensiveness,” shared Marsh, noting that mobile barriers increase safety for the traveling public.

“There are situations where road crew members have to work and can’t set up their work zone to be safe enough without a lot of time-consuming and extensive planning and rentals for concrete barrier walls or other apparatuses,” Marsh explained. “We can drive the mobile barrier out to a site for a couple hours, maybe half a day or even a day, set it up, the workers can work there and, as soon as they’re done, drive it away.”

The mobile barrier MBT-1, manufactured by Mobile Barriers, can accommodate up to three 20-foot barrier wall sections (see [www.mobilebarriers.com](http://www.mobilebarriers.com)). The front deck is interchangeable and can allow for a hot asphalt box or water tank to be bolted in place. Other options and upgrades include cranes, a scissor lift, a skid steer carrier, a rear platform dump box, and ambient improvements for the

barrier wall like fans and misters.

But, driving the mobile barrier may be a challenge, predicts Marsh. A mobile barrier is a 78-foot semi truck consisting of a 62-foot barrier system trailer that connects to a 12-foot cab. “It can be challenging to drive that down the highway and maneuver it,” she noted. She also adds that it can be time consuming to change the barrier to accommodate work zones on the left versus right sides.

One other concern is cost. Mobile barriers cost just under \$500,000.<sup>3</sup> A dedicated semi tractor to pull the barrier is approximately \$170,000. “The cost is expensive but, for the intended use and to potentially save a worker’s life, you can’t put a dollar amount on that,” said Marsh. If MDOT finds the mobile barrier beneficial, she’s hoping the cost comes down for local road-owning agencies interested in using mobile barriers on their projects.

“The number one goal is worker safety,” Marsh said. “Just the amount of work-zone crashes and worker injuries and fatalities, we’re trying to make our work zones as safe as possible.” ■ AS

### RESOURCES

1. Lintner, Stephanie. Distance No Barrier to Interest In Illinois Tollway’s Mobile Barrier System. Illinois Tollway, August 2021. Available: <https://www.illinoistollway.com/media-center/inside-the-tollway-2/-/blogs/distance-no-barrier-to-interest-in-illinois-tollway-s-mobile-barrier-system-1>
2. Mobile Barriers. A Highly Efficient and Cost Effective Solution for Guardrail Maintenance. Available: <https://www.mobilebarriers.com/media/docs/CO Guardrail Repair - Increased Efficiency w Mobile Barriers MBT-1.pdf>

Work Zone Barriers. An Online Guide to Reducing Work Zone Intrusions Using Positive Protection. 2021. Available: <https://www.workzonebarriers.com/>



Photo: Courtesy of MDOT

▶ continued on next page



Photo: Courtesy of MDOT

## Audible Attenuators

Road maintenance crews work in close proximity to live traffic. Their work zones are considered high-risk, especially in the case of short-term or “mobile” work zones, which often lack the same degree of driver alert methods and barrier devices that longer-term, fixed work zones have. One innovation that is helping to make short-term or mobile work zones safer is the audible attenuator.

Lisa Marsh, transportation maintenance superintendent for the Michigan Department of Transportation (MDOT) Southwest Region, says that MDOT is in its first year of piloting the audible attenuator, which was developed by the Missouri DOT in conjunction with Alert Warning Systems (AWS) and widely tested by Iowa DOT.<sup>2,3</sup>

“It’s actually an installation kit that we put in the back of a truck, which would be the shadow vehicle behind a work zone,” explained Lisa Marsh, transportation maintenance superintendent for the Michigan Department of Transportation (MDOT) Southwest Region. Most patching work zones have a vehicle that acts as a “shadow” and are equipped with a large, illuminated arrow board on the back, letting drivers know that they need to merge over to give the road maintenance crew enough space to work safely on the road. Shadow vehicles equipped with an audible attenuator package are commonly referred to as ‘audible trucks’.

“The audible truck has additional lights and an audible alarm that is pointed towards the traffic, and the driver in that vehicle has a remote control to activate the extra lights that

flash or both those lights and an audible warning alert that is extremely loud,” said Marsh.

**See and hear  
an audible truck in action at**  
[https://www.youtube.com/  
watch?v=TLM7G6sqgrY](https://www.youtube.com/watch?v=TLM7G6sqgrY)

Installation kits that are manufactured by AWS and come in three different packages, according to Marsh. The “Lite” version comes with six specialized LED lights with optics designed to get the attention of distracted motorists.<sup>1</sup> The “Sound Jr.” package, which is typically installed on small support vehicles, has three light modules and two-directional 100-watt speakers that sound an alarm while the “Sound Pro” package, which is installed on larger vehicles like the 26,000-pound trucks that MDOT road crews use, has six lights modules and a 400-watt speaker array.<sup>1</sup> The AWS packages cost up to approximately \$6,000.

“Typically, we use this in a mobile work zone for situations like patching where an employee in a vehicle gets out into a lane to put patch material in a hole,” Marsh said. “The truck with the audible device is behind them to help keep the distracted driver from getting too close to the work zone, to help get their attention, and to let them know that there’s somebody out there working.”

Marsh notes that MDOT is planning to rotate the audible truck through its various maintenance garages to get feedback on its possible uses, benefits, and drawbacks, if any. From their initial experience with the audible truck, Marsh warns that the alarm is loud, so

road maintenance crews should avoid standing behind the audible truck and triggering the alarm, and operators of the audible truck should use discretion as to when to engage the alarm to avoid scaring drivers.

Nonetheless, she says that audible attenuators can “improve the safety of workers and drivers” and believes they are “viable option” for road-owning agencies. “I would probably recommend agencies start small, maybe with the ‘Lite’ package, to see how it works within their operation.” She noted that the audible attenuator kit can be installed in a day and is “versatile” in that it can be moved from vehicle to vehicle. “You don’t always have the same equipment at every job site,” she commented.

Marsh concluded, “The audible truck gives the worker in the seat of the shadow vehicle a little more confidence that they can do something to keep their crew safer.” ■ AS

### RESOURCES

1. Alert Warning Systems, LLC. <http://www.alertwarningsystems.com/>  
See *Alert Warning System* at [http://www.alertwarningsystems.com/flyers/Alert\\_Warning\\_Systems.pdf](http://www.alertwarningsystems.com/flyers/Alert_Warning_Systems.pdf) and *Alert Warning System Pro Cut Sheet* at [http://www.alertwarningsystems.com/flyers/Alert\\_Warning\\_Systems\\_Pro.pdf](http://www.alertwarningsystems.com/flyers/Alert_Warning_Systems_Pro.pdf).
2. Powell, Joy. *Iowa DOT testing audible warnings on attenuators to better protect road crews*. Equipment World, 26 July 2018. Available: <https://www.equipmentworld.com/better-roads/video/14969777/the-iowa-dot-is-testing-audible-warnings-on-attenuators>
3. Iowa DOT. *Iowa DOT using audible attenuators to increase short-term work zone awareness*. Roads & Bridges, 30 April 2021. Available: <https://www.roadbridges.com/work-zone-safety-attenuators/news/10653915/iowa-dot-using-audible-attenuators-to-increase-short-term-work-zone-awareness>

► continued on next page

## Connected Technologies

With smartphones in the hands of almost 85 percent of Americans<sup>1</sup>, road-maintenance-related innovations are leveraging that ubiquity to make work zones safer. The innovative iCone ConnectedTech™ product line communicates real-time work-zone and accident data to popular satellite-based navigation software designed for mobile devices, like Waze or Google Maps. The various iCone ConnectedTech™ devices can be integrated into different work zone features.

One of these devices is the Arrow Board Kit. The kit includes a device that is installed on an arrow board and, in turn, communicates the location of the arrow board, the arrow board's mode (e.g., direction of the arrow, caution flashers), and whether the arrow board is activated.<sup>2</sup>

Another device is a truck-mounted Hazard Light Kit. These kits can be installed directly into a vehicle, wiring into the vehicle's 12-volt DC power, and communicate vehicle information, location, and whether the vehicle's hazard lights, arrow boards, or boom are in use.<sup>2</sup> Lisa Marsh, Michigan Department of Transportation (MDOT) Southwest Region maintenance superintendent, says MDOT staff and maintenance crews are referring to these kit-equipped vehicles as “first responders”. She explained, “If there is a crash on a roadway or state trunkline, then these vehicles get called by dispatch to go assist with traffic control or any other needs that the

responding police or firefighters may have.”

A third ConnectedTech™ device is the solar-powered iPin, which can be “dropped into a construction cone”, according to Marsh. “The devices just turn on with a switch,” she explained, “and, once the units are turned on, anybody that’s using a navigation app can see that there’s construction work ahead, either to the right or left depending on where the driver is at.”

Marsh is involved in a two-year pilot study for iCone ConnectedTech™ devices on MDOT Southwest Region roads. She explained, “They were a suggested safety improvement, and we volunteered to pilot them.” MDOT’s Southwest Region has installed four Arrow Board Kits on both freeway and two-lane maintenance-garage-jurisdiction arrow boards, three Hazard Light Kits in their maintenance transportation coordinators’ trucks, and two iPins in cones used by their survey crew and their environmental crew. All nine devices being used in the pilot plus a required per-unit annual communication fee cost just under \$6,000. Marsh said, “The end of September will be the end of our first year, and we’re going to evaluate it at that point in time and see if we feel that the benefits of it are worth the additional costs.”

So far, the biggest challenge Marsh has seen is remembering to turn on the iPin devices. “The road maintenance crew members have to get the iPin out of the vehicle and

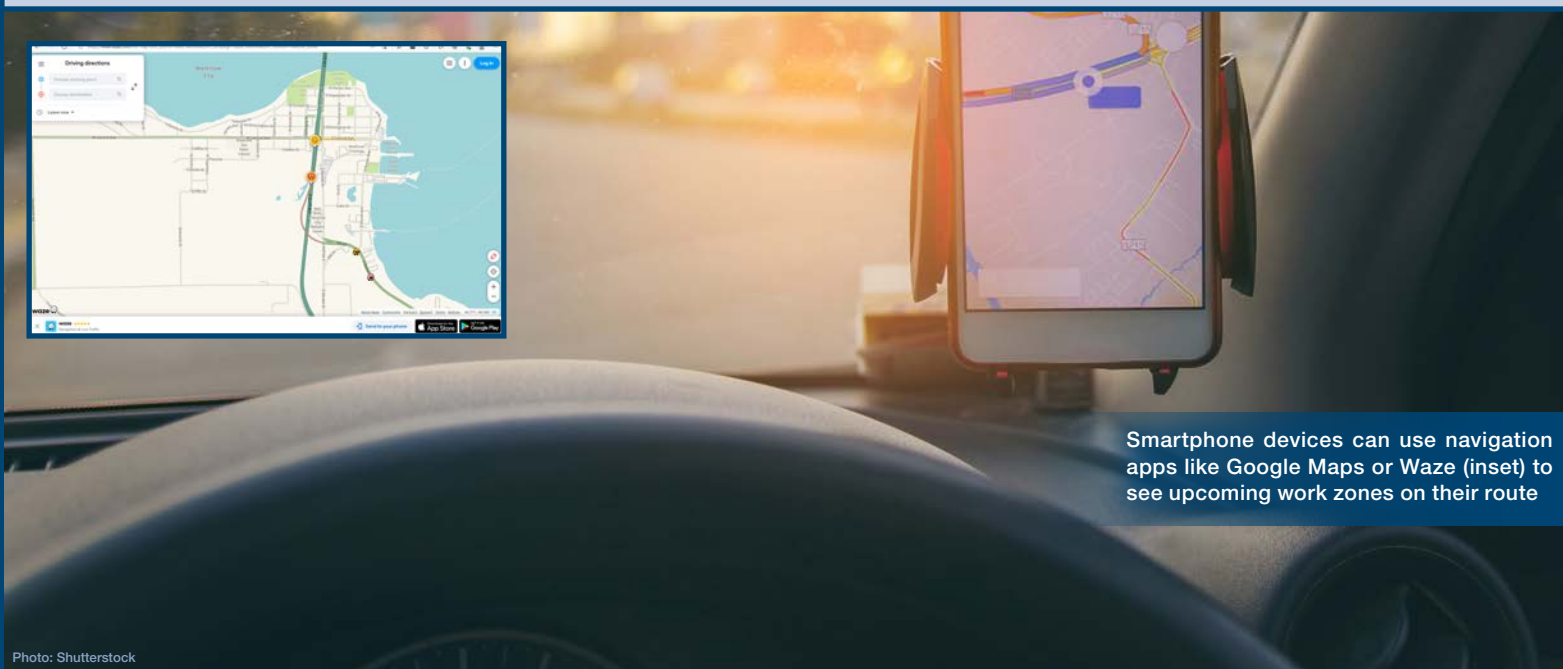
drop it into a cone or they have to turn it on since it is a separate unit,” she shared. “Now, with the arrow board and the truck kits, those are very easy because, once they turn on the arrow board and or turn on the hazards or the strobes in the truck, the ConnectedTech™ device is automatically turned on.”

But, the devices have already exhibited one benefit: the ability to gather data over a period of time. MDOT has been able to pull data like when the devices are turned on, where the devices are located, and vehicle identification. Marsh says that those pieces of data can be “overlaid” with speed data that MDOT gathers through other data collection processes to see “how vehicles are reacting”. However, she calls the process for accessing the data “time consuming” and notes the resulting data is limited.

Reflecting on the potential benefits of signboard integration, Marsh remarked, “Our operators...feel they are seeing some response of traffic moving over sooner than what they would typically see them moving over.” ■ AS

### RESOURCES

1. Pew Research Center. *Mobile Fact Sheet*. Pew Research Center, 7 April 2021. Available: <https://www.pewresearch.org/internet/fact-sheet/mobile/>
2. iCone Products, LLC. *All Products – Welcome to ConnectedTech™ by iCone*. <https://www.iconeproducts.com/all-products>. Accessed 07 July 2022.



Smartphone devices can use navigation apps like Google Maps or Waze (inset) to see upcoming work zones on their route

Photo: Shutterstock



# Mike TenBrock: Building Bridges and Relationships

Grace TenBrock – Manufacturing Engineer  
Shape Corp.

**M**ike TenBrock, project engineer at Kent County Road Commission (CRC), grew up in Leelanau County, surrounded by beautiful scenery, clear lakes full of fish, and—thanks to his father—road construction. His father owned a small road construction company and involved TenBrock in the family business from a young age. TenBrock recalled, “When I was a little kid, my dad would take me out on projects and show me around.” This led to TenBrock developing an interest in road construction and pursuing a civil engineering degree at Michigan Technological University.

## Building from the Start

During his university years, TenBrock worked in road construction with his dad during the summers. Afterwards, he briefly worked at a construction firm and then was the city engineer at the City of Holland. He feels these early experiences were a very important component of his overall education, saying, “These roles gave me an insight into how roads and bridges are built and maintained and, to this day, I use that knowledge to help me in the things that I design, layout, and build.”

While working at the City of Holland, TenBrock acted as a co-manager for the construction of a major bridge on River Avenue over the Black River, just upstream of Lake Macatawa. Although he didn’t have a hand in designing the bridge, he was significantly

involved in the process for getting the bridge built. “That was a tough project with a lot of stakeholders and a lot of challenges, including the need to consider aesthetics and the maintenance of traffic during construction,” he shared. “The stakeholders ranged from pedestrians, cyclists, and downtown merchants, to the Holland Department of Public Works and the Ottawa County Road Commission.” TenBrock reflected, “To this day when I pass over that bridge, I’m still reminded of the civic-minded nature of Holland area residents, businesses, and government, and how working together provided a great outcome.”



TenBrock, early in his career

## Bridging the Gap for Motorists

Now, TenBrock is responsible for bridge construction, maintenance, and inspection within Kent County. Of his role at Kent CRC, he said, “My life really focuses on bridges.” He keeps busy managing the 172 bridges Kent CRC is responsible for inspecting, along with several hundred large culverts. “It’s been pretty exciting over the last 10 years that I’ve been involved with the bridges here and am helping to make the best of a difficult situation,” he said, referring to the challenges of limited

financial resources and aging infrastructure

that most local road-owning agencies face. TenBrock’s impact on West Michigan has stretched from the shores of Lake Macatawa near Lake Michigan eastward to the Thornapple River. One of his most challenging projects—his first major bridge project that he was able to design and oversee construction—was a heavy rehabilitation of the 108th Street bridge over the Thornapple River on the southern border of Kent County. The steel-beam bridge with its concrete deck was originally built in the 1930s and was showing its age. Under TenBrock’s direction, Kent CRC removed the superstructure and added concrete girders, a new concrete deck, concrete approaches, and a new railing. Seven years after the rehabilitation, the old bridge still has a “sweet and smooth ride and nearly looks like the day it was built”, according to TenBrock.

According to TenBrock, bridge construction and rehabilitation can be very rewarding. In Cascade Township of Kent County, Grand River Drive passes under the Grand Rapids Eastern Railroad at a crossing called Ada 42. About ten years ago, this crossing featured two very narrow lanes and “a hairpin 90-degree turn in both directions of travel”, which was restricted by the gravity-based foundations of the railroad bridge. All of this made for a “very difficult situation from a motorist’s standpoint”. TenBrock and his team at Kent CRC modified the bridge to

► continued on next page



108th Street bridge project over Thornapple River: left top – beam ends in the worst condition before project; left bottom – removing beams with crane during project; center – near-finished condition; right – finished condition (photos courtesy of Kent CRC)

► provide more vertical space for trucks passing underneath the bridge and to increase the width considerably. For the average motorist, the impact was significant. TenBrock shared, “When you increase the width by a foot or two, it’s a game changer for safety of the motoring public.”

Aside from the successes and rewards associated with road and bridge construction, TenBrock also has to face the challenges that come with the job. Along with its bridge and culvert assets, Kent CRC’s expansive network includes nearly 2,000 miles of county roads. This large network requires ongoing and careful management. One of TenBrock’s greatest challenges is making sure every asset is in working order, which he compares to the challenge faced by a goalie during a hockey game: “I can’t let a puck slip by me into the net, so to speak.”

As a response to that challenge, TenBrock along with Tom Byle and Wayne Harrall, both from Kent CRC, recently collaborated to develop an innovative culvert rehabilitation technique to extend the life of their culverts and save money for the county. This innovative method involves pouring a new structural concrete base for corroded culverts. He says it can extend the life of the culverts by about 30 years and can improve the hydrology. This technique costs about one quarter of the cost of replacing culverts and also works out to be a savings over the life of the culvert (see *The Bridge 33.3* for more information).

In the near future, TenBrock and the Kent CRC team plan to do important preventive maintenance on the Knapp Street bridge over the Grand River. Even though the bridge is nearly 55 years old and is beginning to show its age, TenBrock said, “It’s so critical to the county and the region anytime you can work on a project like that; it provides a great deal of benefit.” By improving the bridge’s safety and level of service for residents in the area,

he sees this project as another opportunity to give back to the community.

### Relationships: TenBrock’s Measure of Success

As part of his enthusiasm for working with people, TenBrock enjoys both giving back to the community and being involved in the community firsthand. For a number of years he has participated in Engineering Week at the Grand Rapids Public Museum, a joint effort with the Michigan Society of Professional Engineers, the West Michigan chapter of the American Society of Civil Engineers, and the City of Wyoming Clean Water Plant. The program is designed to make science, technology, engineering, and mathematics—or STEM—more accessible to local elementary school students. Kent CRC’s involvement in Engineering Week began with Byle, who serves as the assistant director of engineering. After a few years, responsibility for the program shifted from Byle to TenBrock, who supervised the program until 2020.

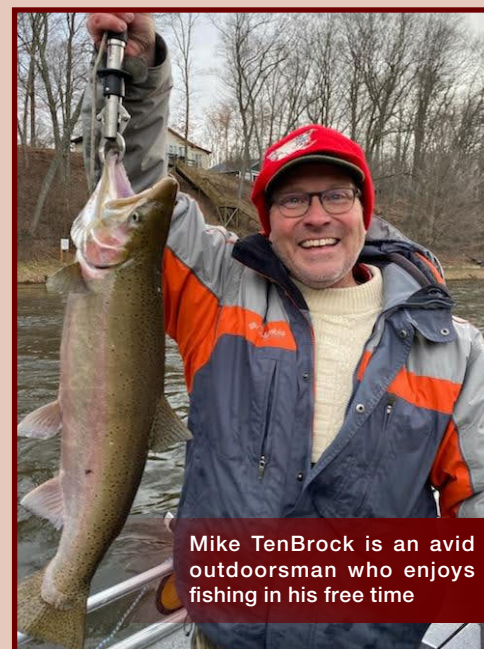
Under TenBrock’s supervision, elementary students participated in a lab experience, making “concrete” by mixing oats, honey, and other foods in a process similar to making ready-mix concrete. TenBrock appreciated the opportunity to teach local elementary students about civil engineering and transportation and encourage students who might not typically pursue engineering to consider it as a future profession.

While he enjoys giving back to the community, TenBrock is particularly grateful for the Kent CRC team’s determination: “Seeing my team persevere day by day and try to provide the best value for our motorists, users, and stakeholders, makes me very proud.” He also values collaborating with other road-owning agency personnel around the state of Michigan and networking at conferences and events.

But, most importantly, TenBrock realizes

the importance of the relationships he’s had with his colleagues, past and present, recognizing he could not have accomplished what he has without them. “There’s a debt I owe those I’ve worked with like the folks at the City of Holland and my colleagues at Kent CRC Tom and Wayne,” TenBrock shared. “We all owe a debt to those before us.”

When he’s not designing and preserving the bridges and structures in Kent County, TenBrock enjoys fishing, boating, and mountain biking. Whether or not he actually catches anything while fishing, he simply loves being in nature. He reflected, with a laugh, “Well, I’ve been blessed with some good catches in my day, and I’ve been blessed with a lot of empty-handed days also.” TenBrock, who sees successes not only in terms of what he does with his hands but the lives he’s touched, shared, “But, equally—and especially when you enjoy the company of a good friend or two when you go fishing—it’s very rewarding either way.” ■



Mike TenBrock is an avid outdoorsman who enjoys fishing in his free time



## TenBrock: My Role Model, My Champion, My Dad

Grace TenBrock – Manufacturing Engineer  
Shape Corp.



TenBrock and his daughter Grace enjoying the outdoors together at Lake of the Clouds in Porcupine Mountains Wilderness State Park near Ontonagon, Michigan (left), and Munising Falls near Munising, Michigan (above).

bridge is one of my first recollections of him excitedly sharing his love for building transportation infrastructure. I now appreciate how my dad was excited to show his latest work project to his family. His enthusiasm for civil engineering did spread into our family life and influenced my own life.

Early in his career, I remember my dad sharing with our family that he chose the blue paint color for the railings of the River Avenue over the Black River bridge project in the City of Holland. Although the blue paint has faded in the years since the bridge was built, those faded blue railings remind me every time I drive over the bridge of the positive impact my dad's civil engineering career has had on the region in which we live.

Both of my parents fostered my curiosity as a child and encouraged me to pursue my interest in engineering as I moved through high school. My dad played a special role in this: he influenced my decision to attend Michigan Technological University, his alma mater, and enroll in the mechanical engineering program. While at Michigan Tech, I worked as an engineering and technical writing intern for the CTT, which supports road- and bridge-owning

agencies in the state of Michigan. At the CTT, I gained valuable experience in technical communication and problem solving, especially related to engineering problems, while also pursuing my education. After graduation next week, I will be returning to West Michigan and assuming a full-time role as a manufacturing engineer, thanks to the influence and inspiration of my dad. ■

### *A Word about the Author*

*Grace TenBrock joined the Center for Technology & Training (CTT) as an engineering intern in the fall of 2018. She worked at the CTT while pursuing her undergraduate studies at Michigan Technological University and authored several articles for The Bridge newsletter during that time. In the spring of 2022, TenBrock graduated with a Bachelor of Science in Mechanical Engineering and accepted a job as a manufacturing engineer for Shape Corp. Her final writing project for the CTT was to author a spotlight article on her dad, Mike TenBrock. From all of us at the CTT, thank you, Grace, for your hard work and dedication, and all the best to you!*

The Center for Technology & Training (CTT) chose to spotlight Mike TenBrock, project engineer at Kent County Road Commission, because of his involvement with the bridge community in Michigan and because local road-owning agency personnel who do not work with bridges may not know him that well. The CTT team assigned the article to me because Mike TenBrock is my dad, and they thought it would be interesting to have me do the spotlight on him.

Throughout my early childhood and adolescence, many of our drives home from visiting family in southern Kent County included stopping at dad's latest bridge project along the way. As a child, this extension to our long drive was often met with groans. On one of our family road trips, I specifically remember stopping at the 108th Street bridge. The memory of my dad showing us this

# Meet the CTT's New Training Specialist

Dayna Browning joined the Center for Technology & Training (CTT) in the fall of 2021 as a training specialist. In this new CTT position, Dayna works with staff engineers to design and deliver engaging training



content, and develops CTT marketing materials. Dayna also serves as a well-being strategy consultant for the Michigan Technological University (MTU) Athletic Department and has taught mindfulness and mental health courses to MTU coaches and student athletes, most recently leading a Koru Mindfulness workshop for the Nordic Ski team.

Prior to joining the CTT, Dayna worked in public relations, marketing, secondary education, health and wellness, and higher education. "I've always loved helping people find the best versions of themselves," Dayna said. "From working with middle and high schoolers to college students and adults, it's truly a joy to help others build on their strengths and play around with possibilities."

Dayna is a certified Koru Mindfulness teacher and a Mental Health First Aid trainer, and holds both a Bachelor of Arts in English from the University of Michigan ("Go Blue!") and a Master of Education in Secondary Education from Auburn University. "I've been teaching mindfulness courses at Michigan Tech since 2019 and, as a mindfulness teacher, much of my training centers around reflective processes," shared Dayna. "The CTT is getting more requests in for 'soft-skills' types of training, and well-being and mental health issues are being more directly addressed in the workplace, which is my background, so I'm excited to fill in that gap and think about how to pair subject-related training with the rest of the skills that it takes to be happy, successful and innovative at work."

Outside of work, Dayna enjoys mountain biking and skiing with her husband and their three- and five-year-olds, a good farmers market, black coffee, beach days, and summertime campfire brews with friends. ■

# Bringing Out the Power Tools:

Dayna Browning – Training Specialist  
Center for Technology & Training



Photo: Shutterstock

**C**onflict. Stress. Mental Health. Covid. Politics. Sounds like just another Monday, am I right? Sigh. It's time to bring out your stress relief and conflict management power tool—mindfulness.

## What is Mindfulness?

The word mindfulness has been buzzing around a lot lately. You might be wondering what it really is, why everyone is talking about it, and I hate to spoil the surprise, but you're probably quite familiar with mindfulness already—even if you haven't called it that before. *Mindfulness is simply the mental state of being fully aware of something, or being in-the-moment.*

Mindfulness is as easy as transporting your thoughts to your present moment: think about the way your toothbrush feels as you brush your teeth instead of worry about whether or not you're going to be late to work; slow down to take a deep breath (or four) before you respond to that annoying email; or take the time to truly savor a bite of food during your lunch break, noticing the flavor, texture and qualities of what you're eating.

In short, being mindful doesn't mean you're doing yoga or meditating for hours on end. It just means that you're paying attention and living in the moment.

## What are the Benefits of Mindfulness?

The benefits of mindfulness are well researched and shown to have a positive impact on physical and emotional

health (see the Resources sidebar for more). Want to do your own mini-research with me right now? Let's see what happens when we practice a little mindfulness.

If you're not already sitting, go ahead and sit down and plant your feet firmly on the ground. Feel your chair supporting you. Unclench your jaw, maybe stretch your neck back and forth before you settle into a comfortable but upright position. Feel your spine aligned, supporting your whole torso, neck and head.

Take a deep breath in (you should feel your belly moving out as you fill up with air) through your nose, mentally counting to 4 as you inhale; pause, holding your breath in; and exhale slowly through your mouth as you count to 4. Repeat 3 to 5 times.

Okay. Now do a quick check. How do you feel mentally and emotionally? Likely, your blood pressure has just improved, oxygen intake has increased, pulse has slowed down and regulated itself, and you have just calmed your parasympathetic nervous system (the fight or flight response) and may be able to concentrate and focus better. Amazing! With regular deep breathing practice, you will strengthen your cardiovascular muscles,

## Did You Know?

Stress is more than just a feeling. It can have a lasting impact on your quality of life. Studies show that stress can cause or contribute to headache, nausea, obesity, heart problems, depression, anxiety, irritability, substance abuse, relationship issues, sexual problems, sleep issues, and more. ■

# Mindfulness in the Workplace

improve blood pressure, reduce your risk of stroke, and more. Deep breathing is one of the easiest and quickest things we can do for immediate results.

## How Do I Do It 'Right'?

This is one of the questions I get the most from students in my mindfulness classes. There is no 'right,' not really.

Let me explain.

The core principles of mindfulness include non-judgement, curiosity, letting go, gratitude, and patience. Our minds are made to think! As you start to practice mindfulness, you'll notice so many thoughts—from judgements of yourself, to judgements of others, to worry and planning and all sorts of emotions. And, that's okay. It's totally normal for our minds to wander! As you notice these thoughts, try to bring a sense of curiosity, and remind yourself that it's okay to let go of your thoughts and feelings for a moment.

Some benefits of mindfulness are pretty immediate. You might have noticed that in our deep breathing exercise. As with anything, these benefits increase the more you practice—and it's just that—like with any exercise, you'll notice 'good' days and 'bad' days, exercises you really like for a while and

those that just don't do it for you. Bring a sense of curiosity and patience to your practice. Set aside your phone, email, and commitments, at least for a few minutes, and see if you can find a way to practice a little mindfulness each day.

## Moving Forward

Using mindfulness in any situation can reduce tension, help regulate our systems, and bring perspective to a stressful situation. When you think about it, these are pretty powerful tools to use in the workplace. Instead of bringing frustration with us throughout the day, we can learn to step back, climb out of our 'rushing river of thoughts' and not let stress control us.

Regular practice over time can bring even more benefits: improved physical health, better mental health, and more coping skills. There will be continual changes and setbacks along the way—keep at it and eventually the

small bits of practice over time can add up to significant results.

I encourage you to try a few new mindfulness skills, settle on some favorites, and remind yourself that even occasional practice can be a big help. ■

*Dayna Browning is the training specialist at the Center for Technology & Training. Browning is a certified Koru Mindfulness teacher and a Mental Health First Aid trainer, and recently presented on resolving conflicts and dealing with stress at the 2022 Michigan Highway Maintenance Conference.*



Photo: Shutterstock

## RESOURCES

Interested in learning more about mindfulness research? Check out these sources!

The Harvard Gazette does a fantastic job of overviewing many of the benefits of mindfulness in the article *When science meets mindfulness* (<https://news.harvard.edu/gazette/story/2018/04/harvard-researchers-study-how-mindfulness-may-change-the-brain-in-depressed-patients/>).

Specific research has also been done on the impact of mindfulness on:

### • Blood Pressure

The article *Harvard Study: Clearing Your Mind Affects Your Genes And Can Lower Your Blood Pressure* shared how Harvard scientists found that people who practiced mindfulness for 15 minutes a day had a "striking change in 172 genes" that were associated with a "meaningful decrease" in their blood pressure.

Learn more: <https://www.wbur.org/news/2018/04/06/harvard-study-relax-genes>

### • Cardiovascular Health

The *Brown University Mindfulness and Cardiovascular Health Lab* is conducting research on the impact of mindfulness on heart disease and stroke. They also provide access to publications, news, and resources on the cardiovascular benefits associated with mindfulness.

Learn more: <https://www.mindfulhearthealth.org/>

### • Sleep

The article *Mindfulness meditation helps fight insomnia, improves sleep* explores a recent study on the effects of mindfulness on insomnia, fatigue, and depression published in the *JAMA International Medicine*.

Mindfulness has a positive impact on sleep because it triggers a "relaxation response".

Learn more: <https://www.health.harvard.edu/blog/mindfulness-meditation-helps-fight-insomnia-improves-sleep-201502187726>

### • Stress

Mayo Clinic, in the article *Meditation: A simple, fast way to reduce stress*, suggests that mindfulness can help one gain "a new perspective on stressful situations" and build "skills to manage stress".

Learn more: <https://www.mayoclinic.org/tests-procedures/meditation/in-depth/meditation/art-20045858>

### • Weight

The article *How Mindfulness Helps You Lose Weight* explains how mindfulness practice applied to eating—or mindful eating—gives people the ability to control thoughts and feelings about food, making it easier to lose weight.

Learn more: <https://www.aarp.org/health/healthy-living/info-2019/mindfulness-weight-loss.html>

Also, popular weight-loss apps like Noom rely on mindful eating.

### • Mental Health

The *JAMA International Medicine* study *Meditation Programs for Psychological Stress and Well-being: A Systematic Review and Meta-analysis* reported that mindfulness demonstrated "moderate evidence" for improving anxiety, depression, and pain.

Learn more: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4142584/>

While mindfulness can certainly help improve many qualities of life, it does not replace professional medical advice, diagnosis or treatment.

# Three Mindfulness Exercises to Try

Dayna Browning – Training Specialist  
Center for Technology & Training

## 1 Leaves on a Stream

*This exercise is great for developing the ability to notice our thoughts and emotions, and step outside of them instead of being swept away by the moment. It is often used as a therapy method for coping with uncomfortable thoughts and feelings.*

It may be helpful to set a timer for this exercise. Start with 5 or 10 minutes, perhaps longer if you feel more time serves you better. Even just a few minutes can be helpful.

Sit in a comfortable position and close your eyes or gently rest your gaze on a fixed spot in the room. Bring your attention briefly to your breathing, allowing your breath to settle into a regular rhythm, not trying to change anything about it, but just noticing the pace and feeling of it.

Now, imagine yourself sitting beside a gently flowing stream of water (this could be a real place or imaginary). Visualize leaves

gently floating past on the stream beside you.

For the next few minutes, take each thought that enters your mind and place it on a leaf and let it float by. Do this with each thought—pleasurable, painful, or neutral.

If your thoughts momentarily stop, continue to watch the stream. Sooner or later, your thoughts may start up again and you can continue to place them on leaves.

Allow the stream to flow at its own pace. Don't try to speed it up and rush your thoughts along. You're allowing them to come and go at their own pace.

If your mind says "This is dumb" or "I'm not doing this right", put those thoughts on leaves too and let them pass.

If a difficult or painful thought comes up, acknowledge it, put it on a leaf, and allow your mind to observe it as it floats by.

You might find yourself lost in thought at some point, this is totally normal! As soon as you realize you're lost in thought, gently

bring your attention back to the stream and continue to place your thoughts on leaves.

When your timer dings, you may want to refocus your attention to your breath, give yourself a big stretch, and gently open your eyes. Be sure to feel a little gratitude for taking this time for yourself and all that your mind is capable of.

If you prefer, you can easily find this exercise or one similar to this on YouTube or on many of the apps listed below. Search "leaves on a stream" or "guided visualization" for more visualization practices.

## Think.About.It!

Our minds are like a rushing river of thoughts. With mindfulness, we're not trying to stop our thoughts, we're just trying to throw ourselves a ladder so we can sit on the riverbank and observe our thoughts, rather than getting swept away by them. ■

## 2 Body Scan

*The body scan tends to be a student favorite. I personally love it because I often discover places in my body where I'm holding tension (surprise, my lower back pain...probably tied to the tight hamstring I didn't notice until I took time to notice!). Students love it because it can help with relaxation, falling asleep, and self-awareness.*

Get into a comfortable position. It could be sitting or lying down on your back. Let your spine be tall and supported. Notice your breathing and let it settle into a comfortable rhythm.

Begin by bringing your awareness to the bottom of your feet. Notice the feeling of your feet resting against the floor. See if you can be curious about the sensations you notice. Notice how your socks feel or the feel of the air against your skin. See what else you notice as your attention is focused on your feet.

Now, as you continue to keep your focus on your feet, become aware of your breath moving in and out of your body. See if you can imagine your breath moving in and out of the bottom of your feet.

With each in-breath, allow your awareness to sharpen and, with each out-breath, allow tension and tightness to be released from your feet. Stay here for 5 full breaths.

Gently move your awareness up to your calves. Begin to imagine your breath moving in and out through your calves. Notice any sensations you may have here. You might notice tightness or tension. The feeling of air or your clothes against your skin. Maybe you don't notice anything at all. See if you can just be open and aware of whatever is there. With each inhale, sharpen your focus, with each exhale, release tension.

Continue to repeat this process—gently moving your awareness to different parts of your body, sharpening your focus with each in-breath, and releasing tension with each out-breath. Perhaps moving through your thighs, hips, lower back, shoulders, arms, hands, neck, face, and top of your head.

## 3 Five Fingers

*This grounding exercise helps regulate breathing, and can be done quickly and discreetly no matter where you are!*

Using the pointer finger from one hand, trace around your fingers on the opposing hand as you breathe in and out. Start your pointer finger at the base of your thumb and wrist, trace up to the tip of your thumb as you breathe in, exhale as you trace down your thumb toward your first finger. Continue around each finger until you reach the outside base of your pinky finger. For more, trace all the way back and repeat as many times as you like!



Method for the five fingers exercise

## Try This!

Here are some popular mindfulness apps to try:



Pictured, from left to right: Headspace, Calm, Buddhify, Insight Timer, Simple Habits, Ten Percent Happier

# Keep Calm...And Carry On...

## How to Handle Uncomfortable Customer Interactions and Provide a Good Level of Service

Bettina Sietz, UNH T2

Reprinted from New Hampshire's Local Technical Assistance Program, Spring 2021, v36, n2

We have all been there, facing the angry or disgruntled customer; and the months of the ongoing pandemic did not make for smoother interactions in many customer service settings.

Nerves are laying blank, and emotions are boiling over. Many of us have been on the receiving and/or the giving end. Neither situation feels good to be in. We are all human, we can all just take so much.

It's helpful to have a plan in place when dealing with a frustrated customer. With that in mind, you might be able to detach yourself from your own emotions and create a constructive customer service experience that doesn't burn a bridge but builds one.

We are in the business of building and construction, so let's look at your toolbox of customer service tools:

### Start by Listening—That's where your power is

Listen actively to the complaint. Try to hear the customer's concern without already formulating an answer of justification in



your head. Reflect the complaint, or if you don't fully understand it, ask for more detail.

"Tell me a bit more about this, so that I can understand better what you are dealing with."

Look at the following scenario:

Customer: "I am angry because you hit my mailbox post with one of your plow trucks." – If you are responding by stating: "I understand, BUT these things happen in snowstorms..." - you are risking that this conversation won't end well, and you might have a disgruntled customer who will spread the word about how he felt misunderstood by your organization to his friends and family members.

A better way to address this is to say: "I am sorry that this happened to you. If I understand correctly, you are saying that one of our plow trucks hit your mailbox post in a recent snowstorm. I will forward this issue to my supervisor and will get back to you. What's a

good number or email to reach you?"

### Give Them Time to Talk

Try not to interrupt or talk over the angry customer. Patience is a virtue in customer service settings.

People need time to express how they feel. Be empathetic and instill the feeling that you are taking their complaint serious.

Do not promise to fix the situation, you might not be able to do so. The key is to make your customer feel heard and understood.

Do not try to justify or contradict at this moment. The customer is venting and needs to be heard.

Follow up if you are promising to follow up. Do this reliably and in a timely manner. The more time passes, the angrier someone might get.

### Check Your Own Bias

We all come from different walks of life, different backgrounds and cultures. Try to put yourself in someone else's shoes. Try to keep your judgement at bay. You don't know the other person's story or (bad) experiences. Practice an open mindset.

### Remain Calm – Your second super-power!

Being on the receiving end of a complaint that might have nothing to do with you can get the calmest person worked up. But it's just that...The customer's (natural) anger response has nothing to do with YOU personally. This is the mantra you want to repeat for yourself in order to remain calm.

On the other hand, if the customer strikes out in a personal, rude or abusive tone, you don't need to tolerate that kind of behavior. Escalating this to your supervisor for additional support might be a good idea.

Or just calmly say "I am happy to continue this conversation with you once you calmed down enough to not speak with me in this tone of voice. There is no need for name calling or foul language, I am here to help you."

### A Thank You Goes a Long Way

It might be hard to do in certain situations but

thank them for bringing a specific problem to your attention. You might have been unaware of this, and in the long run the customer voicing his or her concern will help you to approach problems proactively.

Thank them for their patience that they are granting you for the time you'll need to resolve this.

### Be Sincere and Be Specific

When you are promising to circle back about an issue, please do it. Give them a timeline when they can expect to hear back from you. Highlighting the importance of the priority to resolve their issue might be a good tool to calm the angry customer.

If it's a user error or misunderstanding on their end, try to steer away from pointing this out to them. At some point you might have not communicated well enough how to use the system, how to apply for a permit or where to go for assistance. The customer's perception dictates the service experience.

### Communicate, communicate...

If the issue is complex, and you need to pull in support of your supervisor, IT, [and so forth], keep people updated on the steps you are taking and how you are planning to resolve the issue. It helps to "chunk down" a problem into bite-size solutions.

Customer service exists to help customers with their needs and/or any problems that might come up in public service. It's the most important part of maintaining a good reputation and relationship as a business or an organization. Think about all of the different outlets people can post negative reviews on. The last thing you want is to have negative reviews all over the internet or through word of mouth in your municipality. Training your employees on proper ways to resolve customer complaints or problems needs to be a priority while working in public service settings.

With a bit of practice we all have the power to "turn that frown upside down". ■

Reprinted with permission. Available: [https://t2.unh.edu/sites/default/files/media/v3\\_rb\\_spring\\_2021.pdf](https://t2.unh.edu/sites/default/files/media/v3_rb_spring_2021.pdf)

# Tick Check! How to Identify Ticks and Prevent Lyme Disease

Reprinted from Baystate Roads "m3 Quarterly", Summer 2020, vol. 34, no. 3, adaptation of Vermont Local Roads "Lyme Disease"

As we are in the midst of the outdoorsy season, it's important to be cautious, not nauseous about ticks. The only tick that can transmit Lyme Disease by a bite to humans and animals is the deer tick (also known as the black-legged tick).

Studies have shown that an infected tick normally cannot begin transmitting disease until it has been attached to its host for approximately 24-72 hours; the best line of defense is to examine yourself at least once a day and remove any ticks before they become engorged (swollen) with blood.

## What Is Lyme Disease?

Lyme disease is an infection transmitted by the bite of black-legged ticks, commonly known as deer ticks. Lyme disease, which can affect the skin, heart, nerves, and/or joints, is an infection that can be cured with antibiotic therapy.

Early treatment of Lyme disease involves antibiotics and almost always results in a full recovery. However, the chances of a complete recovery decrease if treatment is delayed.

## What are the Symptoms of Lyme Disease?

The three stages of Lyme disease are as follows:

### Symptoms—1st Stage:

Early Lyme disease usually causes one or more of the following symptoms that occur days to weeks after infection:

- Fatigue

- Chills and fever
- Muscle and joint pain
- Headache
- Swollen lymph nodes
- Erythema migrans

Erythema migrans is the skin rash associated with Lyme disease, which usually appears at or near the site of the tick bite. It may appear anywhere from three days to one month after the infected tick's bite, but it usually appears in about seven to 14 days.

The center of the rash may clear as it grows, giving it the appearance of a bull's eye. The rash may be warm, but it is usually not painful, and is different from a rash that appears as an allergic reaction to a tick or insect bite. Such reactions to a bite usually appear as redness within hours to one day after a bite, do not grow, and disappear within a day or two.

### Symptoms—2nd Stage:

The second stage is known as early disseminated Lyme disease, which means that the infection is beginning to spread and is affecting certain body functions. This stage occurs weeks to months after the bite of an infected tick. Problems can include:

- Numbness and pain in arms or legs
- Paralysis of facial muscles (usually on one side of the face)
- Meningitis-fever, stiff neck, and severe headaches
- Abnormal heartbeat (rare)

### Symptoms—3rd Stage:

The third stage, late disseminated Lyme disease, can occur weeks, months, or even years after infection in untreated patients. Patients with late Lyme disease may get:

- Chronic Lyme arthritis—brief bouts of pain and swelling usually occurring in one or more of the large joints, especially the knees

**"Technically, tick season never ends"**

– Saravanan Thangamani, professor at the SUNY Upstate Medical University Department of Microbiology and Immunology and Director of the SUNY Center for Environmental Health and Medicine

Thangamani says he's seen a "43% increase in the number of ticks submitted for testing [and] ticks in areas that never reported ticks before".<sup>1</sup>

- Nervous system problems, including memory loss and difficulty concentrating
- Chronic pain in muscles and/or unrest sleep

## Who Is at Risk of Getting Lyme Disease?

Black-legged ticks live in wooded, brushy and grassy places, including lawns and gardens. A person is more likely to get the disease during the Spring and Summer because a lot of time is spent outside, often with large amounts of skin exposed.

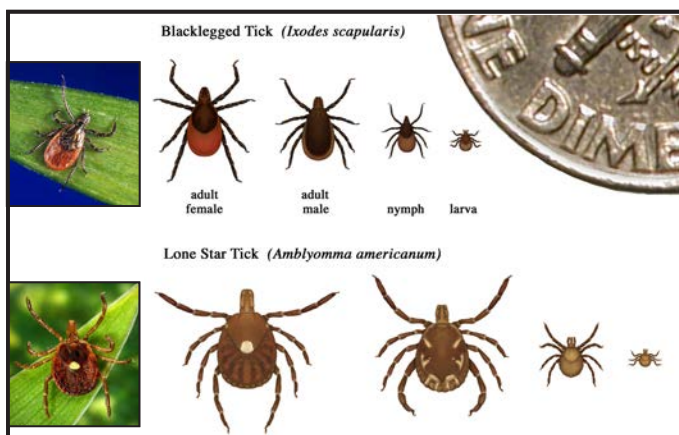
## Preventing Lyme Disease

While outdoors, a few simple precautions can reduce your chance of being bitten:

- Wear long pants and long-sleeved shirts to minimize skin exposure to ticks.
- Tuck your pants into your socks to form a barrier to tick attachment.
- Wear light-colored clothing to make ticks on your clothing easier to see.
- Check for ticks, looking particularly for what may look like nothing more than a new freckle or speck of dirt.

## Tick Tips

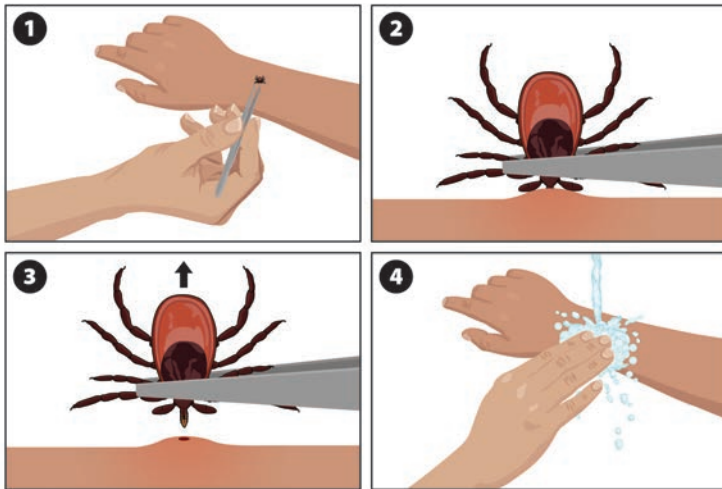
1. Upon returning home, clothes can be spun in the dryer for 20 minutes to kill any unseen ticks.
2. Deer ticks cannot jump or fly, and do not drop from above onto a potential host. We get ticks by direct contact.
3. Use tweezers to remove ticks.
4. Use tick and insect repellents containing DEET or Permethrin to help protect against Lyme disease. DEET-containing preparations should be used sparingly, not applied to face or hands, and should not exceed 10% concentrations for children over 3 years of age and 30% for adults. DEET should not be used on infants or children under age three without first consulting your health care provider. Follow the label instructions carefully.



Most common ticks in the eastern United States (From: cdc.gov)

The Bridge is published quarterly by the Center for Technology & Training (CTT) through Michigan's Local Technical Assistance Program at Michigan Technological University. Subscriptions are free of charge. To request a subscription, contact the CTT.

Information received from Vermont Local Roads and VTran through NLTAPA "Tailgate Talks" article "Lyme Disease."



How to remove a tick. To prevent Lyme disease, the goal is to remove the tick immediately rather than waiting for the tick to back out (From: cdc.gov)

## RESOURCES

1. Jacoby, Sarah. Tick Season 2022: What Experts Want You To Know. Yahoo! Finance, 5 July 2022. Available: <https://finance.yahoo.com/news/severe-years-tick-season-heres-183550587.html>
2. Centers for Disease Control and Prevention. Ticks. Accessed 14 July 2022. Available: <http://www.cdc.gov/ticks/index.html>

## Michigan's Local Technical Assistance Program

Center for Technology & Training  
Michigan Technological University  
309 Dillman Hall  
1400 Townsend Dr.  
Houghton, MI 49931-1295

Telephone ..... 906-487-2102  
Fax ..... 906-487-3409  
E-mail ..... CTT@mtu.edu  
Website ..... MichiganLTAP.org

© Copyright 2022 Michigan Technological University. To obtain permission to reprint any articles or graphics from The Bridge, please contact the CTT.

The Bridge is printed with soy-based ink on recycled, acid-free paper (50% recycled, 10% post-consumer waste). 4,000 copies mailed this edition.

## Michigan LTAP Staff

### Administration

Tim Colling, PhD, PE ..... Director  
Christine Codere ..... Sr. Support Specialist  
Allison Berryman, MBA ..... Sr. Project Manager, Training & Operations  
Tammy Hodson ..... Business/Training Support Specialist  
Cynthia Elder ..... Events Specialist  
Dayna Browning, MEd ..... Training Specialist

### Writing

Victoria S Kaplewski, MS ..... Editor, Technical Writer  
Hannah Bershing ..... Technical Writing Intern  
Anna Lindgren ..... Technical Writing Intern  
Allison Szlachta ..... Technical Writing Intern

### Engineering

Chris Gilbertson, PhD, PE ..... Associate Director  
Pete Torola, PE ..... Research Engineer  
Zack Fredin, MS, PE ..... Research Engineer  
Ingrid Sandberg, MS, PE ..... Research Engineer

## About LTAP

The Local Technical Assistance Program (LTAP) is a nationwide effort funded by the Federal Highway Administration and individual state departments of transportation. The goal of the LTAP effort is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.

## Steering Committee

The LTAP Steering Committee makes recommendations on, and evaluations of, the activities of Michigan's LTAP.

### Federal Highway Administration

Kurt E. Zachary, PE 517-702-1832  
Local Program Engineer, FHWA

### Michigan Department of Transportation

Bruce Kadzban, PE 517-335-2229  
Local Agency Programs, MDOT

### County Road Association of Michigan

Larry W. Brown, PE 616-813-5538 lbrown@alleganroads.org  
Allegan County Road Commission

## Sponsored by:



U.S. Department of Transportation  
Federal Highway Administration



Michigan Technological University  
Civil, Environmental, and  
Geospatial Engineering

# Motor Grader Training



The Center for Technology & Training offers Motor Grader Training for local road-owning agency employees.

Training opportunities by request.  
Learn more at [ctt.mtu.edu/training-request](http://ctt.mtu.edu/training-request)  
or contact [ctt@mtu.edu](mailto:ctt@mtu.edu).



Michigan's  
Local Technical  
Assistance Program

The Center for Technology & Training (CTT) is a part of the Department of Civil, Environmental, and Geospatial Engineering at Michigan Technological University in Houghton, Michigan. The mission of the CTT is to develop technology and software, coordinate training and conduct research to support the agencies that manage public infrastructure. In support of this mission, the CTT houses Michigan's Local Technical Assistance Program, which is part of a national effort sponsored by the Federal Highway Administration to help local road agencies manage their roads and bridges. For more information, visit [ctt.mtu.edu](http://ctt.mtu.edu).

# The Bridge

Bridging the gap between research & practice since 1986

Vol. 34, No. 3 – Summer 2022

- ▶ Making Road Work Safer
- ▶ Mike TenBrock: Building Bridges and Relationships
- ▶ Bringing Out the Power Tools: Mindfulness in the Workplace
- ▶ Keep Calm...And Carry On...How to Handle Uncomfortable Customer Interaction and Provide a Good Level of Service
- ▶ Tick Check! How to Identify Ticks and Prevent Lyme Disease



## Michigan's Local Technical Assistance Program

Michigan Technological University  
309 Dillman Hall  
1400 Townsend Drive  
Houghton, MI 49931-1295  
906-487-2102

Non-Profit Organization  
U.S. POSTAGE PAID  
Permit No. 11  
Houghton, Michigan  
49931

## Upcoming Events

REGISTER & MORE INFORMATION AT [ctt.mtu.edu/training](http://ctt.mtu.edu/training)

### 2022 Bridge Load Rating Webinar & Workshop Series

*The Basics: From Plans to Load Rating – August 30*

*Theory & Policy – September 15*

*Virtual Workshop – September 21 & 22*

*Advanced Topics (Part 1) – October 6*

*Advanced Topics (Part 2) – October 25*

### 2022 Roadsoft Trainings

*Intro to Roadsoft: Just the Basics Hands-on Training – September 20 – Livonia*

*Roadsoft Pavement Management Hands-on Training – September 20 – Livonia*

### 2022 Transportation Asset Management Conference & 20-year Celebration

*September 28 – Traverse City*

### 2022 Michigan Winter Operations Conference

*October 18-19 – Bellaire*

### 2023 Materials Acceptance Process Virtual Seminar

*2022: October 26; December 7*

*2023: January 11; January 25; February 15; March 15; April 19*

## More training opportunities!

Visit [ctt.mtu.edu/webinars-and-workshops](http://ctt.mtu.edu/webinars-and-workshops) to learn about other events offered by the Michigan LTAP/Center for Technology & Training

# Engineering tech assist

## We're here to help you!

- Tim Colling, PhD, PE – traffic safety & asset management
- Chris Gilbertson, PhD, PE – bridges/structures
- Pete Torola, PE – paved & unpaved road design, construction, maintenance
- Zack Fredin, PE – bridges/structures
- Ingrid Sandberg, PE – geotechnics

Learn more at [ctt.mtu.edu](http://ctt.mtu.edu)  
or contact [ctt@mtu.edu](mailto:ctt@mtu.edu)

