



Some local road-owning agencies in Michigan are sharing how they implement cutting edge technologies and techniques into their practices. Pictured on the right is Wexford County Road Commission's innovative use of tools afixed to their motor grader: a sod mulcher on the front and roller packer on the rear.



Photo: Courtesy of Wexford CRC

Innovation: Being on the Cutting Edge with Technologies & Techniques

Grace TenBrock, Engineering Intern
Center for Technology & Training

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With less money and more traffic, it's imperative to find newer and better ways of doing things, says Lance Malburg, engineer at Dickinson County Road Commission (CRC). He faces the challenge of "trying to fix our roads and bridges any way we can with the limited dollars we have". In response to that challenge, Malburg and Dickinson CRC have been trying innovative technologies to fix roads and bridges in a cost effective way.

Malburg has a track-record of using many innovative paving materials including warm-mix asphalt on a hot in-place recycled base, fiber-modified mill and fill, and rubberized asphalt. He is currently bidding out work for a post-construction shear stud installation on an existing bridge that will be one of the first in the nation of its kind: the project would involve using epoxy grout and steel rods to add shear studs to a bridge nearly 75 years after the bridge was originally constructed.

He is not alone. Karl Hanson, engineer-manager at Wexford CRC, has also turned to innovative techniques after it became apparent the "conventional way of doing business wasn't going to be successful". He shared, "You can't maintain the full network with the dollars available to do things the traditional way." For Hanson, "stretching those dollars" meant needing to find "different ways to do projects in ways that would leave an acceptable product". Those "ways" would also need to "last a long time, cover a lot of miles, and preserve or improve as much network as [we] could".

In his time at Wexford CRC, Hanson has pioneered the use of fog seals over fresh chip seals and experimentally over bare pavement, has used

chip seals as an underlay, and has tested the use of specialized equipment like sod mulchers and grader-mounted rollers for maintaining Wexford County's shoulders and gravel roads.

Finding Innovative Ideas

While these engineers have been continuously implementing innovation within their jurisdictions, they give credit to others for many of their ideas. "It's not like we are breaking new ground, we just tap into other people's good ideas from other areas and bring them here," said Hanson. "I look at existing technologies and techniques that other people are doing."

Similarly, Malburg shared, "A lot of it is 'what do I read?', 'what are other people doing?' I'm not really that innovative; I copy everything from everywhere." While many would likely consider Malburg "innovative", he says he simply "stays alert to what's going on around us". He makes a point of keeping up with what neighboring states are doing, often questioning "do we have a situation for which their innovation would be a possible fix?"

"If something works somewhere else, why not try it here?" Malburg rhetorically asked.

Innovative practices are, in Hanson's view, "cutting-edge" and "different from developing new." When implementing cutting-edge technologies, Hanson explained, "You are on the forefront of it, but you're not creating the idea." For him, implementing innovative practices is about taking existing technologies and adjusting them to fit one's own circumstances.

While new and innovative ideas can be

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Letter from the Editor

Sisu. It is a word that is thrown around a lot in Michigan's Keweenaw Peninsula, where a sizeable population has descended from Finnish immigrants. For years, I have heard the term and assumed a roughly-correct meaning for the word. But, today, I looked up what it means.

Now What? Update on CTT Events

*Here's what's happening to
...County Engineers' Workshop.
...Michigan Bridge Week.
...Highway Maintenance Conference.
...the workshop I was planning to attend.*

The Center for Technology & Training (CTT)—home of the Michigan Local Technical Assistance Program—is committed to providing attendees with a high-quality educational experience in a healthy, safe learning environment.

The CTT will be offering its regularly-scheduled on-site events in an on-site format during the remainder of 2021 and thereafter. However, the CTT is exploring hybrid options to make attendance at some of our on-site events more accessible to those who are unable travel. So, we hope you won't miss CEW, Bridge Week, Winter Operations Conference, or other CTT events! Follow our events on ctt.mtu.edu/training.

At any time, the CTT reserves the right to replace the on-site session with an equivalent online event on or around the same date(s). The CTT will make every effort to provide sufficient notice of event changes to attendees. All attendees at on-site events must adhere to guidelines of the venue as well as any additional guidelines put forth by the CTT prior to the event. ■

make them safe for road users. We highlight in these pages how some agencies prepare for that battle.

We also take a moment to introduce you to Marc Trotter, director of engineering at Clinton County Road Commission, in this issue. He has been working to improve transportation and utility infrastructure in the Lansing area since his career began. Along the way, he has experienced the value of his professional and personal connections.

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, by visiting our conference pages and completing the Present tab form, or by visiting <http://michiganltap.org/TheBridge> and completing the Topic Suggestions form.

And, to all local road-owning agencies in Michigan facing degrading roads and bridges, tight budgets, few or no job applicants, and a barrage of snow and ice: continue moving forward with the determination, perseverance, and rationality in the face of these adversities. Sisu!

Victoria

Finlandia University, just across the Portage Canal from where the Michigan Local Technical Assistance Program is housed at Michigan Technological University, defines “sisu” as “strength of will, determination, perseverance, and acting rationally in the face of adversity” while carrying a “mystical, almost magical” quality (see <https://www.finlandia.edu/about/our-finnish-heritage/>).

After learning this, I believe Michigan's local road-owning agencies could truly be an example of “sisu”.

Our ageing transportation infrastructure means more roads and bridges are gravitating toward fair or poor condition and keeping them in fair or good condition is becoming more and more costly. The local road-owning agencies tasked with managing and maintaining these roads and bridges often don't have adequate budgets to address issues that arise using traditional tools and techniques. Sisu! Many agencies are turning to innovative tools and techniques to maintain or improve the condition of their roads and bridges with limited budgets. In the pages of this issue of *The Bridge*, we share how some agencies find and implement innovations on their road/bridge networks.

Local road-owning agencies have been facing another challenge this year. The reduction in job seekers means that many positions at local road-owning agencies and in other sectors are going unfilled. Sisu! Some local road-owning agencies have been finding ways to attract potential employees and retain the employees they have. In these pages, we present some strategies for marketing your agency and how some agencies have been making themselves attractive to prospective and current employees.

Finally, we see “sisu” in local road-owning agencies as they battle —year after year—to clear roads of snow and ice that comes with winter storms in order to



**2022
Michigan
Bridge
Week**

March 15 - 17
Ypsilanti, Michigan

Mark Your Calendar!
ctt.mtu.edu/BridgeConference

Center for
Technology & Training

Michigan's
Local Technical
Assistance Program

The poster features a photograph of a concrete bridge over a stream with green foliage in the foreground. A stylized graphic of a bridge structure is overlaid on the right side of the poster.



Three Keys to Talent Acquisition & Retention

Victoria S Kaplewski – Technical Writer
Center for Technology & Training

It was a “hot” year: Not only were the temperatures sizzling this summer, but houses were flying off the market like a hot potato out of one’s hand, and employers were scrambling like eggs in a frying pan trying to find employees to fill their open positions.

The latest labor statistics from August and September 2021 reveal 7.7 million people are unemployed and seeking work while there are 10.4 million job openings.^{1,2} At the same time, the trend in new jobs continues upward, increasing job openings. It’s a hot labor market, this time in favor of job seekers.

Consequently, countless businesses are now seeking new employees and, at times, even begging for applicants for their open positions. Road commissions and other local road-owning agencies have not been immune to that.

“People just aren’t applying for jobs like they used to,” said Tamela Delvecchio, human resources manager/office manager for Lapeer County Road Commission (CRC). “We used to get 200 applicants when we put up one truck operator’s position,” she continued. “We’re in the process of hiring a truck operator now, and we still got plenty of applications, but it’s nowhere near what it once was.”

At the same time, local road-owning agencies are facing an increasing challenge of retaining employees in critical positions like equipment operator and mechanic.

“Every now and then, there’s employees that will get enticed away with a 35-dollar-an-hour job offer,” Delvecchio shared. “With wages, we just can’t keep up.”

Delvecchio is not alone in what she’s

experiencing at Lapeer CRC. Both Linnea Rader, finance and human resources director at Van Buren CRC, and Jay Saksewski, superintendent at Grand Traverse CRC, have struggled to find and retain talent at the road commission in the face of higher dollar-per-hour positions elsewhere.

Making the issue of dwindling numbers of applicants worse, less than five years ago almost half of job seekers felt pressured to accept their first job offer. That number has dropped to only a third, now.³ At the same time, approximately 88 percent of job seekers want a position in a stable company that’s performing well, 67 percent would quit a current job for a job with better retirement benefits, and 60 percent place a value on career advancement opportunities.^{4,5}

To address job seekers’ desires, local road-owning agencies can use strategies for attracting and retaining talent put forth by hiring experts. These strategies include developing and using messaging to attract talent, providing opportunities for skill development and enhancement, creating community, and advancing causes that employees care about.

Messaging to Attract Talent

Local road-owning agencies are generally stable, well-performing agencies. A 1909 state law enabled counties to establish their own road commission. So, many Michigan county road commissions date back to the early 1900s. City and village road departments are entities of and operated by the city or village government.

Needs of local road-owning agencies

range from engineering design and construction of roads and bridges to hands-on maintenance. As such, local road-owning agencies must fill engineering, planning, mechanic, equipment operator, and technician roles. Filling these diverse roles requires various messaging strategies.

With regard to engineering talent, the number of students graduating with bachelor’s degrees in civil engineering changed very little between 2008 and 2017, maintaining an average of 11,621 each year.⁶ And, in spite of exceeding mechanical, industrial, and electrical engineering in new job creation⁷, civil engineering continues to rank behind mechanical and electrical engineering in the number of degrees awarded between 2016 and 2017.⁶

According to Rader, Van Buren CRC has targeted specific universities to attract engineering students to intern at the road commission but has had “very little luck” with that. “We have had more luck with word of mouth,” she noted, adding that the agency is now exploring other ways to attract engineering students to their internship program.

In 2019, the National Academies of Engineering (NAE) published a research report on how messaging can be optimized to attract students to pursue roles in engineering.⁸ They found four types of messaging increased attraction to engineering: 1) engineers make a world of difference, 2) engineers are creative problem-solvers, 3) engineers help shape the future, and 4) engineering is essential to our health, happiness, and safety.⁸ From these four messages, the NAE developed a

► continued on next page

► promotional statement:

“No profession unleashes the spirit of innovation like engineering. From research to real-world applications, engineers constantly discover how to improve our lives by creating bold new solutions that connect science to life in unexpected, forward-thinking ways. Few professions turn so many ideas into so many realities. Few have such a direct and positive effect on people’s everyday lives. We are counting on engineers and their imaginations to help us meet the needs of the 21st century.”⁸

From these four messaging areas, the NAE developed and tested messaging themes:⁸

- ideas in action
 - life takes engineering
 - a limitless imagination
 - free to explore
 - shape the future
 - an enterprising spirit.
- And, they developed spin-off taglines:⁸
- turning ideas into reality
 - because dreams need doing
 - designed to work wonders
 - life takes engineering
 - the power to do
 - bolder by design
 - behind the next big thing
 - engineers connect science to the real world.

While the NAE’s messaging research considered engineering in general, local road-owning agencies can adapt the NAE promotional statement, themes, and taglines to their outreach materials, like their websites, social media, and printed promotional material.

“Recruitment is a strong focus right now,” Saksewski said. Grand Traverse CRC, where he works, has internship opportunities for engineering students. “We are looking to add career days with high schools and to bring students in for summer work.”

Recruitment and messaging should also be specifically targeted toward women, suggest San Jose University researchers Jodi Godfrey and Robert Bertini.⁹ While, according to Census Bureau statistics, the number of Americans over 25 years of age with a bachelor’s degree or higher increased from 26.9% to 36% between 2010 and 2019, women—who make up approximately half of today’s workforce—outpaced men significantly in attaining bachelor’s degrees or higher.^{10,11}

Yet, despite those increases in women in the workforce and in women’s academic

achievements, women in transportation engineering professions increased from 12% to 15% between 2000 and 2017.⁹ Godfrey and Bertini therefore point out that women are a source of talent, as evidenced by their academic achievements, but are not being tapped for transportation engineering professions.⁹

To attract women into transportation engineering professions, messaging should reveal how local transportation agency work helps others (i.e., fulfills communal career goals) in addition to being a place to advance in one’s career (i.e., fulfills agentic career goals), according to Godfrey and Bertini.^{9,12} Further, mentorship by other women in the field can attract young women to careers in transportation engineering while adaptation of the workplace environment (e.g., one that allows for flexible schedules and telework) can further retention of employees who would otherwise be lost due to evolving family responsibilities.⁹

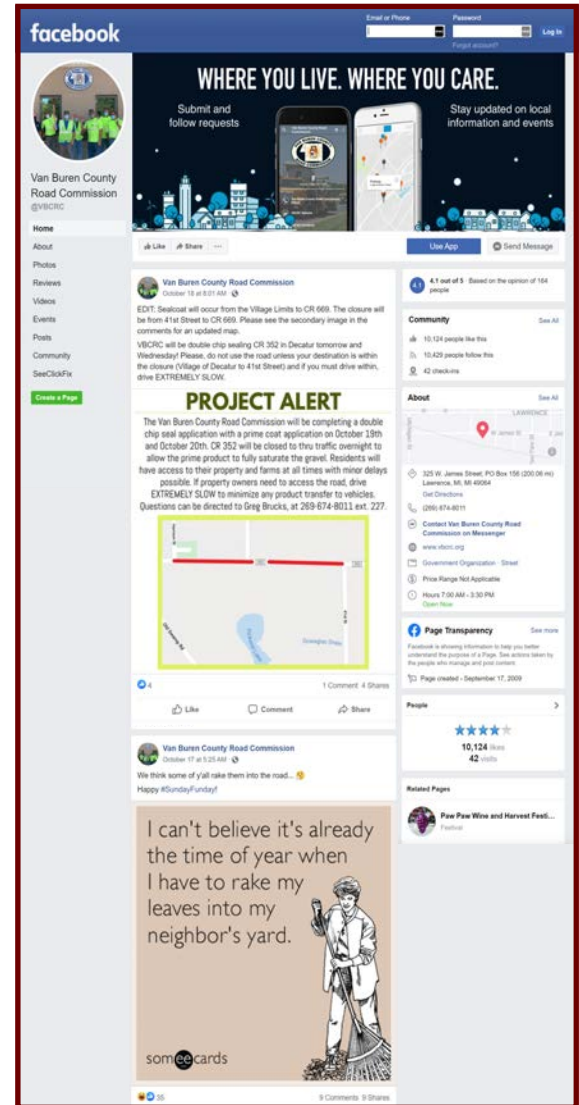
While messaging about engineering can serve to attract engineering talent to roles at local road-owning agencies, a broader messaging strategy can be used to attract talent to all roles. Typically, local road-owning agencies are able to offer excellent benefits packages and continuing education or skills advancement opportunities, two attributes that almost 70 percent of job seekers look for in a potential workplace.⁴

Lapeer, Van Buren, and Grand Traverse CRCs have re-figured their messaging when it comes to explaining the value of their combined wage and benefits package.

For all three road commissions, attracting employees especially into mechanic and equipment operator roles has been an increasing challenge when faced with the lure of higher dollar-per-hour roles elsewhere. “That’s my biggest struggle in keeping employees here is what the private sector is paying them,” said Zeb Schons, superintendent of Lapeer County CRC, of the situation at the agency.

Rader concurred, saying, “Right now, a lot of people are focused extremely on the dollar and not the true package, and that has been our number one struggle.”

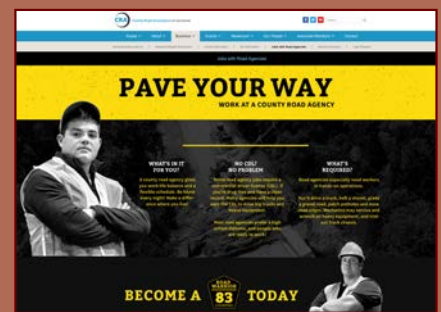
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Van Buren CRC’s Facebook page with project updates integrated with fun and engaging special interest content

Did-You-Know?

The County Road Association (CRA) of Michigan is promoting jobs at Michigan’s local road-owning agencies with their online job board featuring postings from agencies around the state of Michigan and their “Become a Road Warrior” job booth at conference vendor/exhibitor shows. Learn more at <https://micountyroads.org/business/jobs-with-road-agencies/>.



The Winter Preparation Timeline

Thomas Page – Technical Writing Intern
Center for Technology & Training

Winter maintenance is an essential part of any local road-owning agency's job. After all, it is easily what the agency will spend at least half of its time doing each year. "Preparation is really a year-round event," opined Jerry Byrne, deputy managing director of operations at Kent County Road Commission (CRC).

Remove Equipment & Maintain It

For local road-owning agencies, the preparation for the next winter starts as soon as the last one ends. In the spring, the first thing to do is to remove the winter equipment—snow plows, belly blades, side wings, sanders, and brine tanks—from the trucks. This is the best time to clean and maintain that equipment. "As the season winds down, we'll take some of the equipment that we use for winter off of our trucks and we'll go through it before we put it away to get it prepped for the next season," said Mike McTiver, engineer-manager of the Luce CRC. This involves fixing and replacing worn parts, repairing blades that are bent out of shape, and rebuilding material spreaders if necessary.

One technique that the Grand Traverse (GT) CRC uses to track and manage the status of their equipment is a tagging system. Dan Watkins, the fleet and facilities manager

at the GTCRC, said "We do a system where we mark the equipment: we choose a different colored ribbon every year and, once we know that it's been 100 percent inspected, we tie on a ribbon so we know the year [that it's been last maintained]." This helps the road commission know what equipment they use and how often they use it.

Order Supplies

Also in the spring, supply orders for the upcoming winter are sent in to ensure delivery on time for the next season. Many local road-owning agencies participate in the MiDeal program, a program of the Michigan Department of Technology, Management, and Budget (DTMB) through which the state negotiates contracts with vendors for different goods and services. One of the most popular MiDeal programs among local road-owning agencies is a statewide salt bid, and the deadline for salt orders is in April.

When ordering salt, it is advisable to order slightly more salt than what is expected to be used, which helps maintain a surplus to

avoid running out in harsher-than-expected winters. McTiver suggested, "Usually, we try not to see the back wall of our salt shed because that means we cut it a little too close, and we also try to leave a quarter of the shed full just in case the delivery comes late or we get an early snow."

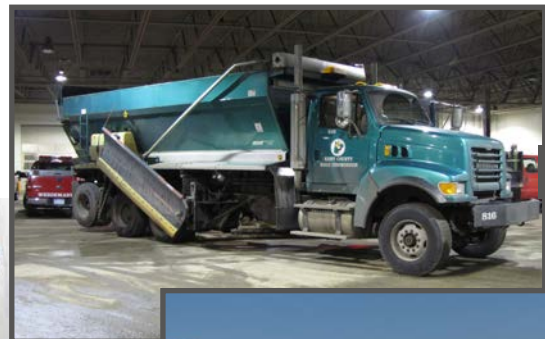
For steel plow blades, Watkins suggests placing orders early to avoid being caught off guard especially now due to supply chain disruptions caused by the COVID-19 pandemic. "Most of the time we'll see those blades arrive in mid summer but, with backorders for COVID it's almost fall before those blades actually show up," Watkins said. "We need to make sure we have enough blades to make it through the next winter."

Vehicle Maintenance

Vehicle maintenance is most often done in the summer because, in the winter, all vehicles are typically needed on a daily basis so there are fewer opportunities to bring vehicles into the shop for routine maintenance. John Rogers,

► continued on page 8

Winter road maintenance tasks include (clockwise from top) ordering and stockpiling salt, putting winter maintenance equipment back on trucks, and anti-icing roads before storms hit (photos courtesy of CTT Archive, Kent CRC, and Farmington Hills Department of Public Works).



Photos: CTT Archive

When Connections Become Your Advocates: Marc Trotter

Hannah Bershing, Technical Writing Intern
Center for Technology & Training



Marc Trotter, managing director of
Clinton County Road Commission

Marc Trotter, the director of engineering at Clinton County Road Commission (CCRC), values diverse work experiences and professional connections, using them to improve Michigan's roads and bridges.

"There's always going to be roads and bridges," reflected Trotter. "Every community has a civil engineering aspect." As such, Trotter pursued and earned a Bachelor of Science in Civil Engineering from Michigan Technological University. While still in school, Trotter held an internship at Fishbeck, Thompson, Carr, & Huber, now known as Fishbeck. After graduation, he was immediately offered a position as a staff design engineer with Fishbeck.

In the role of staff design engineer at a consulting firm, Trotter had the opportunity to work in the field and gain experience with a variety of projects, ranging from large MDOT freeway projects to smaller municipal road and utility projects. "I got a lot of hands-on design experience there," he shared. One of the firm's projects was providing mechanical/electrical/structural support to Michigan State University (MSU) for their on-campus power plant. Trotter served as a consultant, helping to design and maintain the steam utility system.

After 10 years of working with Fishbeck, Trotter wanted to gain experience working in the public sector of civil engineering.

He accepted a position as an engineer at Ingham County Road Department. Trotter had the opportunity to expand his professional connections with others in the road commission community and to learn about public agency work. His day-to-day duties included road design, CAD work, and collaboration with the Michigan Department of Transportation Local Agency Program (LAP). In Trotter's estimation, these experiences ended up being a "great background" for what he's doing now.

Five years after accepting the position at Ingham, a professional connection of Trotter's—a previous manager from Fishbeck who had transferred to MSU—reached out to Trotter and suggested that he apply for a design engineer position at MSU. Deciding to gain more experience in the public sector and to expand his professional connections, Trotter joined the MSU construction department team. He shared, "It's very different from a road commission...a university is basically its own community in and of itself: MSU operates a standalone utility system and maintains road systems that were designed and built on campus".

By continually seeking diverse work experiences, Trotter found himself seeing to completion two projects he began as a consultant with Fishbeck. "I began on the design end of the North Campus infrastructure project while working at [Fishbeck]," he shared, "and finished the project as an MSU employee." Similarly, while at Fishbeck, Trotter designed a flood barrier plan to protect buildings as part of the campus flood response project. He continued, "I got to implement it during an actual flood emergency a few years later when I was an employee at MSU: I was part of the emergency response team that led crews in installing the barriers."

As with previous positions, working as a design engineer for MSU gave Trotter valuable

experience working from the perspective of owner's representative. It also kept Trotter in the Lansing area where he was able to both expand his professional contacts and see "a lot of familiar faces" while collaborating with other local agencies, utility companies, consultants, and contractors.

Again, Trotter's professional connections became an advocate for him: a previous coworker from Ingham CRD encouraged him to apply for a position as director of engineering at Clinton County Road Commission. Trotter decided to accept the new opportunity, viewing it as a way to expand his knowledge and skills.

"Local work is what I like," shared Trotter, who has been committed to forming and maintaining relationships with local road-owning agencies and civic communities. From Fishbeck to Ingham CRD to MSU and now to CCRC, Trotter's professional life has stayed rooted in the greater Lansing area where he grew up, deepening his sense of commitment to the connections he's formed.

Trotter began his new position with CCRC in March of 2020, roughly two weeks before the government-mandated COVID-19 pandemic shutdown. These first few weeks ended up being a scramble for him, not only to understand the dynamic of the CRC, but also to help push forward three of the largest urban projects the road commission had worked on to date that were in the construction and/or design phases.

Immediately, Trotter had to see to completion the construction of the Dewitt & Clark roundabout, which was the first roundabout in Clinton County. The \$2-million project included non-motorized pathways as well as one mile of resurfacing. He also aided in the Dewitt Safe Routes to School project, which included construction of one and a half miles



Two of Trotter's projects at Fishbeck/Michigan State University: left, development and deployment of the campus flood response project and, right, campus utility system project (photos: courtesy of Michigan State University)

of new sidewalks and non-motorized pathways, resurfacing of two miles of roadway, and repairs on three bridges. And, he took on and is continuing to advance the Coleman Road extension project, a \$7.6-million project to construct one mile of new urban road; the project is now in its final phase.

“I got dropped into the middle of a mess as our design consultant got behind on project schedules and put the county at risk of losing millions of dollars in federal-aid funding,” Trotter shared. “So, it was quite a struggle to get projects quickly out the door in the middle of the pandemic shutdown”. Trotter shares that he had to learn the team dynamics, understand the background of each project, connect with consultants, and ensure that everything ran smoothly within a very short time-frame.

To compound Trotter’s already-hectic beginning at Clinton, Trotter is one of two engineers at the road commission. “We are what I’d call a smaller mid-size road commission,” he said about CCRC. “We don’t have the staff numbers that other similar agencies have.”

Trotter and CCRC Engineering Technician Jake Perkins are responsible for the design and construction of all county roads and bridges, including federal-aid and local township projects, as well as permitting for private developments, right-of-way work, and seasonal weight restrictions.

“We’re a very lean organization for our size,” noted Trotter. CCRC’s lean structure also requires that Trotter and Perkins share responsibilities within the different departments.

For example, Trotter, Perkins, and CCRC Equipment Supervisor Jeff Brown share on-call maintenance responsibilities during the summer months to give a break to the maintenance supervisors who were on-call throughout the winter. Trotter, Perkins, and Brown rotate weekends during the summer, being on call 24 hours a day from Thursday evening through Monday morning. Whenever road issues arise, central dispatch contacts CCRC’s on-call maintenance line, and Trotter, Perkins, or Brown responds to the call by visiting the site and determining the workforce and equipment needed for addressing the issue.

Trotter chuckled, saying, “More calls happen when we have a major storm, and I always seem to draw the short straw for being on call the weekend when a storm comes through.” Nonetheless, being part of this on-call team allows Trotter to have a close relationship with local law enforcement and emergency responders.

Currently, Trotter’s project work at CCRC is putting the value of professional connections at the forefront: he is partnering with Greenbush Township and MDOT to reconfigure and repave an intersection between Colony Road and US-127. The project

has been awarded safety grant funding.

As well, he is participating in MDOT’s innovative Bridge Bundling Pilot Program. As part of the program, Trotter selected two Clinton County bridges that fit the program selection criteria and is now anticipating their reconstruction, which will be managed by MDOT’s workforce and design team, next year. “The benefit on our end is that our agency could accomplish two additional bridge projects in one year,” he said. “We don’t really have the capacity to manage two additional projects, even if they were fully contracted out,...so for MDOT to step in and manage the project for us is great.”

Trotter has also been instrumental in CCRC’s collaboration with Ingham CRD and Eaton CRC and the local municipalities to begin planning and divvying up funding for the next four-year cycle of federal aid. “Having the former contacts with people at the other agencies, it’s helpful to know them in this process,” he said.

While professional connections in the greater Lansing area have benefitted Trotter at work, his personal connections have influenced him outside of work. Over the past few years, Trotter and his brother have maintained connections with fellow airboaters. He and his brother share an airboat and can often be seen out on Saginaw Bay with fellow airboaters.

For Trotter, maintaining connections with his family is of central importance. He and his wife both have a love of outdoor pursuits that they are sharing with their children and that helps keep them connected with one another. In fact, Trotter’s wife manages an outdoor conservation organization, about which he admits, “Sometimes I actually envy my wife’s job, she gets to go hunting and fishing for her work.”

Trotter also readily sees the value of his personal and professional connections. He said, “Maintaining relationships with coworkers, other entities, and contractors, I think that’s key to an overall career and making processes work well.”

And, from his diverse work experiences, Trotter believes that his outcomes are improved by physically seeing his projects. “Living and working in the community, I drive through the projects that I’ve worked on everyday, my neighbors, friends and family do as well,” he reflected. “Having that close connection to the things that I’m working on is my favorite part.” ■



Two of the three projects Trotter assumed when he took over as director of engineering at Clinton County Road Commission; top left and right - Dewitt & Clark roundabout project; bottom left and right - Church Road bridge replacement (photos courtesy of Clinton County Road Commission)

Winter Preparation Timeline (continued from page 1)

►manager of Kalkaska CRC, oversees a small fleet of 20 winter maintenance vehicles. “We are not pulling all twenty into the shop at the same time,” said Rogers. “We don’t have a lot of backup, so we’re always prepping for the next season.” According to Rogers, agency maintenance crews typically go through every part of the vehicle looking for issues—large and small—that may cause issues or downtime during the upcoming winter. “When you go out in this type of weather, any loose electrical wire will be found,” noted Rogers.

Having a periodic truck replacement schedule can benefit truck maintenance operations. Older trucks with a lot of wear and usage are typically brought into the shop more often, increasingly costing more time and money. “We started to see that trucks that had more than 10,000 hours on them...were in the shop more often with breakdowns,” explained Watkins, who estimates that each GTCRC truck accumulates approximately 1000 hours each year. “So, if a truck was reaching that 10,000 hour mark, we want it off the main route.”

Summer Road Maintenance

Maintaining roads during the summer months also has big benefits to winter maintenance. Caring for the road’s surface with activities

such as repaving and filling potholes helps plows by providing a more even surface to clear in the winter. Also beneficial is maintaining the area around roads by clearing ditches, pushing back banks, and cutting overhanging trees. “It gives a place for the snow to be,” explained McTiver. “You can get natural melting of your snow by sunlight, by clearing and allowing roads to dry out.”

Cutting trees can help prevent wear on plow trucks, as well. “We’ll have the guys start cutting trees on their routes—every driver goes out and takes care of their own route,” explained Watkins about the summer tree cutting initiative at GTCRC. “Any branches, anything hanging over the road gets cut so that when we start getting snow, they’re not hitting them, scratching them, and beating up the side of the truck.”

Before cutting trees in or near the right of way, road-owning agencies should be properly trained on equipment needed for tree cutting and should be aware of safe tree cutting practices (see article “Tree Trimming in the Right of Way” in *The Bridge* 32.4).

Putting Equipment Back On

Once the fall begins and road and bridge construction starts winding down, local

road-owning agencies start to anticipate the onset of winter. This is when they put the winter equipment back on their trucks. “Our goal is by October 15th, we’ll have half of our fleet completely ready,” said Watkins. “Then, by November first, the rest of the fleet is 100 percent ready and we’re ready to go for winter operations.”

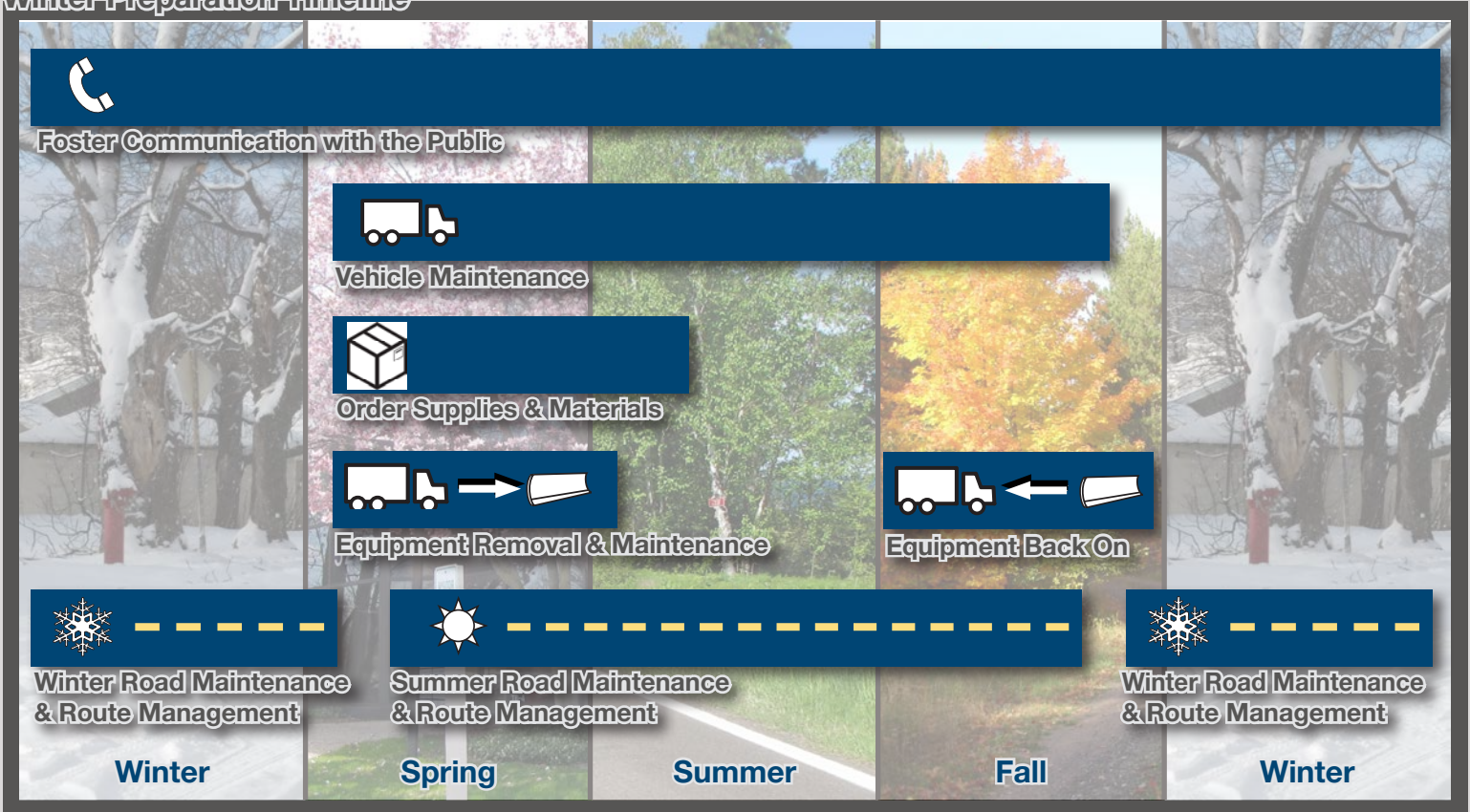
Plow Route Management

Onboarding new plow truck drivers within a local road-owning agency generally involves having new drivers team up with experienced drivers. Byrne says new employees start with basic training on agency functions and safety training, which covers tree removal and snow plowing, before pairing them up with experienced drivers. Once they feel comfortable, new drivers are allowed to plow on their own while their mentors continue to watch and coach them, says Byrne.

Similarly, McTiver shared, “We will put [new drivers] with an experienced driver and have them go around—basically we give them ‘training wheels’ for the first couple weeks just to get a feel for how the truck moves and how to move the snow.”

The route itself also requires consideration. One trend in winter snow removal has

Winter Preparation Timeline



been to shorten plow routes and clear them more often. “In the last few years, we have increased and shortened the routes to be able to clear them more frequently,” noted Jeff Root, the superintendent of the Kalkaska CRC. “So now, some of our main routes are getting cleared two to three times per shift.”

Some local road-owning agencies also coordinate with their neighboring agencies in snow removal efforts. “We meet monthly with all the cities that are within Kent County,” said Byrne “We make sure that we are preparing similar levels of service with those cities and our neighboring counties, and we’re talking to them monthly as we prepare for winter.” He continued, “What people don’t need is to cross the street and come across slippery conditions compared to wet pavement or vice versa.”

Winter Road Maintenance

Maintaining roads in the winter requires several local road-owning agencies to balance their time and resources spent on their own roads with roads that they are maintaining for the state under contract. “We have trucks that only stay on the state trunkline because we have a contract with the Michigan Department of Transportation to provide plowing service in Luce County for the state trunkline system,” explained McTiver.

Winter road maintenance also requires application of the right treatment for the current conditions. Adjusting salt, sand, and brine usage for the storm event helps to keep roads clear. “It changes with every storm [based on the] current conditions,” said Byrne. “We will use everything from pure salt to pure sand, to 50-50 mix or 60-40 mix....there’s no one mix for every snow event.”

Additionally, pre-applying liquid deicer before a storm can be a preventive measure that keeps roads clear. “We use liquid treatments on some bridge decks or areas of concern...to help keep that road in a better treatment condition before the storm occurs,” shared Steve Roon, the assistant director of local road construction and maintenance at the Kent County Road Commission. “So, we’re doing snow removal out in front of storms with liquid treatments through the storm, and afterward”

Agencies can learn more about custom brines, blends, and prewetted salt in “Custom Brines and Blends”, *The Bridge 33.2*, and in “Pre-wetted Salt: Making Sense of New Salting Solutions”, *The Bridge 30.3*, respectively.

Communicating with the Public

When winter storms hit, communication with the public is important for keeping drivers safe and prepared. Having those communication channels in place before a winter storm ensures that residents know where to look for road-condition and construction updates.

McTiver publishes an ad in the newspaper every September or October reminding residents leaving the area for the winter to take down their mailboxes and have their mail held or forwarded, and those staying in the area to check their mailboxes for sturdiness. “We don’t want anybody’s mailbox to get knocked over, that’s the ultimate goal,” he said. “We don’t really like replacing mailboxes, and it’s rather inconvenient for both the homeowner and the post office if the mailbox is not in very good condition... and even the most gentle nudge of a snowbank would knock it over.”

In the event of closures, McTiver calls the local radio stations. “It’s usually the best way to disseminate information in a hurry,” he explained, “if there is a road that we’re going to have a hard time getting to soon or if the public needs to avoid a certain area so we can get in there and clean it out.”

Kent CRC begins disseminating information with the public through their online channels. “We have a communication manager who calls and talks to [us] every morning, and she updates our website and our accounts on Twitter, Facebook, and Instagram every day or multiple times a day during a snow event,” shared Byrne. He says that the local media often reaches out about some of their posts to do television or radio interviews.

At Grand Traverse CRC, communication with the public also happens through social media. “We’re very big into our Facebook page,” said Watkins. “We’re always putting out daily notifications and road conditions.” They also collaborate with the 911 central dispatch who can post updates on road conditions or accidents to the GTCRC Facebook page.

“It seems like a lot of people like the Facebook updates,” Watkins continued. “People are always there leaving comments—you’ll see people saying ‘great job!’ and sometimes you’ll get negative comments, but it seems like the Facebook page is a big hit.”

“We’re very rarely going to tell people they can’t make it and they should stay home,” said Bryne. “It’s Michigan: you need to be prepared, have your car prepared, and have your mental well-being prepared...give yourself time, and you can make it.” ■

► adapted from other states, they can also be developed in laboratories, often in collaboration with universities or similar research institutions. For example, Matthew Chynoweth, chief bridge engineer and director of the Bureau of Bridges and Structures for the Michigan Department of Transportation (MDOT), has worked with Dr. Nabil Grace of Lawrence Technological University to develop an experimental program to test the emerging technology of carbon fiber reinforced polymer (CFRP) strands, something Dr. Grace has been researching for more than three decades. Chynoweth says the partnership brought together the strengths of laboratory testing to determine design characteristics with MDOT’s knowledge of the required design specifications and requirements, noting that it was a “really good partnership because there was the research piece and the practical piece”. This collaboration gave MDOT the information they needed to design bridges with CFRP technology, allowing the new technology to be implemented on Michigan’s roadways.

“If something works somewhere else, why not try it here?”

– Lance Malburg

Similar to MDOT’s partnership with Lawrence Tech, Dickinson CRC has frequently partnered with Michigan Technological University, most recently on their rubberized asphalt and cold asphalt projects. Malburg recalled, “I was touring the lab [at Michigan Tech] with some grad students and Professor Zhanping You, and he had this jar of what looked like gray oversized cornflakes and I was trying to figure out what they were.” The “oversized cornflakes” were chips of asphalt coated in ground tire rubber that could be pre-mixed with additives and shipped cold, saving money in terms of hauling and storage since heat is not required to maintain the binder oil in liquid state. The researchers were “not really sure if they had a usable product”.

Malburg discovered that this “cold asphalt” idea has also been demonstrated on a few small test projects in the western US. He approached Dr. You to partner on a project using the technology, saying, “Let’s get them in a road and prove they work”. The team is hopefully awaiting good results.

On the other hand, Malburg also enjoys sharing his knowledge with the university.

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► He observed, “If you’ve got students up there who are trying to learn how to be engineers, why not let them in on some construction and some design and some other things.” He continued, “It makes them better engineers when they get to their careers.”

Partnerships between local road-owning agencies and research institutions allow the researchers developing the technology in the lab to have a real-world application of their ideas while road-owning agencies can try innovative solutions at lower costs by being part of a larger research project.

The Drive to Innovate

It’s common for innovation to grow out of needs-driven experimentation, according to Chynoweth. “Certain states and certain agencies have to try things out of necessity, and they try it once and it’s successful and it becomes an innovation or a technology that can be shared with others,” he observed. “So a lot of innovation comes from projects that other agencies have done out of necessity.”

Necessity and idea-sharing has resulted in innovations being brought to Michigan from around the country. Implementing an innovation in Michigan is often its northernmost application in the country and presents the opportunity to test the innovation in Michigan’s unique wet-freeze climate.

Idea-sharing often starts through connections made through participation in organizations like the National Association of County Engineers (NACE) and the American Association of State Highway and Transportation Officials (AASHTO).

Malburg says that his involvement in NACE allows him to “talk with county engineers from all over the U.S.”. One of these engineers is Todd Kinney of Clinton County, Iowa, whom Malburg recently contacted to discuss cost-effective techniques used to preserve roads. Following his conversation with Kinney, Malburg recalled, “In Iowa they do a lot of cold-in-place recycling, so that got me thinking about cold-in-place”. Soon after the conversation, Dickinson CRC tried a cold-in-place technique on their road network.

Malburg is also inspired by road agencies throughout Michigan. In particular, he admires the innovative cold-in-place program created by the Jackson County Department of Transportation (JCDOT) and credits them with bringing the technology to Michigan.

Chynoweth shares a similar experience implementing carbon-fiber composites in concrete bridges at both the state and national level over the past decade. He primarily connects with engineers from other regions through AASHTO. Since he serves as the AASHTO Committee on Bridges and Structures chair, he is able to be involved in nation-wide discussions related to composite materials. Chynoweth also worked with the University of Houston to develop the AASHTO guide specifications for prestressing concrete bridge elements, sharing innovation across the country.

Innovation at a Cost

When considering a new technology or technique, Hanson recommends that engineers “get as much information as possible about the entire process” from one’s connections. He said, “I would go look at the work of the people who created the idea from a standpoint of how it was implemented, how long it lasted, how much the costs were.”

Likewise, Chynoweth shared, “I always encourage [local road-owning agencies] to look at what others are doing: if there’s something that you’re interested in, ask more questions, find out if there’s different ways to

fund it, find out if there’s grants out there.” He believes there’s “more than one way to do it other than just the same old way”.

Finding grants or other funding sources is important for many local road-owning agencies. However, if local road-owning agencies intend to use federal or state transportation funds for an innovative portion of a project, they should contact MDOT’s Local Agency Program (LAP) early in the design phase since some innovations may be ineligible or may jeopardize such funding.

High costs associated with maintaining or improving roads and bridges typically either drives innovation or comes with using a new technology. “Funding isn’t there like it used to be,” Malburg pointed out. “So, we need to be innovative in how we spend the money and try to do cheaper fixes, but cheaper fixes aren’t any good unless they last.”

Funding difficulties have led Malburg to find innovative solutions that aren’t as cost prohibitive as other options. For example, he used an innovative fiber-modified mill and fill to repair a major county road when a crush-and-shape treatment would not fit the budget.

Chynoweth has experienced the other side of costly innovation, the side in which the innovative technology was more expensive than the traditional technique. He shared, “In 2013, MDOT did our first lateral bridge slide where we put the new bridge on temporary substructures and used hydraulic jacks to slide it into place over a weekend.” This bridge slide was done on US-131 over 3 Mile Road just north



Left: Asphalt pellets, originally grey, are now colored to show the performance grade of the asphalt. Right top (two photos): Dickinson CRC hot in-place recycled asphalt paving project in 2016. Right bottom (two photos): Dickinson CRC fiber-reinforced asphalt paving project in 2020. (Photos courtesy of Dickinson CRC).



Innovative M-50 or I-96 bridge slide by the Michigan Department of Transportation



of Grand Rapids. According to Chynoweth, the repair window was small because US-131 is a main north-south route to Ferris State University. Instead of the traditional replacement timeline of three months, the bridge slide only impacts the roadway for about five days. While the cost associated with a bridge slide is higher than repairing or replacing the bridge with traditional techniques, he was able to justify the cost in this instance based on the savings in user delays.

Research has shown that user delays on low-volume rural roads can result in thousands of dollars per day in road user costs (RUC); those costs increase depending upon factors like average annual daily traffic, work zone speed, and length of lane closure.¹ Both Florida Department of Transportation (DOT) and Texas Transportation Institute have models for calculating RUC.¹ In 2021, Texas DOT published its annual RUC estimates of \$30.54 per passenger car hour and \$41.91 per commercial truck hour for use in calculating “project-specific liquidated damages on projects with a significant impact on the travelling public”.²

Problem Solving

Often innovative ideas arise to solve a problem, whether it’s a physical problem like corrosion or a limiting factor like high cost. Chynoweth says, to determine if an innovative solution should be explored, one should start by “asking is ‘Is there a problem to be solved?’”. Once a problem has been identified, the first step in innovation involves “solving the problem”, which should include asking “is there a better way to do this?”.

Chynoweth accepts that there may be hurdles, and that often setbacks are also drivers of innovation. “You may find that it’s easy to solve or there may not be an answer and that’s where the innovation comes.”

Piloting an Innovation

Once an innovative technology has been identified or developed to solve a problem on a road or bridge network, how do local road-owning agencies go about implementing the innovation in their jurisdiction?

Chynoweth recommends testing the new technology on a small project first. “If I want to do carbon fiber on a bridge, I’m not just going to pick 20 bridges and do it,” he offered as an example. “I’m going to do one at a time, I’m going to monitor it to see how it performs, and then do another one.”

Similarly, when setting up for projects, Hanson considers innovative solutions and looks for nearby test sites to demonstrate what he’s trying to achieve. He thinks staying involved with the project during this demonstration phase is particularly important, so he makes sure he’s “out there watching it, and then making adjustments in the field to make sure that it works and is going to be successful”. He asserted, “I think that is the key: not just taking an idea and then letting somebody else do it.”

Taking these smaller steps is “key” to piloting ideas, according to Chynoweth. Piloting ideas involves demonstrating the technology or technique on a smaller scale and giving innovators the opportunity to prove that the

new technology or technique works. Often an appropriately small-scale project can be found within a local agency’s jurisdiction.

“Sometimes local road-owning agencies can be the best testbeds for innovations because they have smaller bridges, that may be less risk than an interstate freeway bridge,” Chynoweth noted. This means that small projects on local road and bridge networks are often a great introduction of a new technology or technique.

In Hanson’s estimation, piloting ideas is about “adding innovation as a small flexible part of what you are doing and having the guts to do it”. He explains that ensuring a successful project is about being able to adapt to obstacles and adjust the project scope accordingly.

“The main thing,” said Chynoweth, “is just having the technical expertise to propose something and try it, ...having an experimental program, having a pilot, and trying it out and monitoring it.” But, he says equally as important is “having a champion that will help you”. This champion is “somebody that can clear a path, clear a barrier, get you to the next step”.

“Sometimes local road-owning agencies can be the best testbeds for innovations...”
 – Matt Chynoweth

Prioritizing Safety and Accepting Failure

Chances for success in piloting an innovation can be increased by selecting innovations that are already in use elsewhere. In other words, a proof of concept already exists for the technique and it was shown to be safe. Chynoweth emphasized, “When we look at trying a new construction technique

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or trying a new material in a design, we always tie it back to something that's already known, something that's already quantifiable, because at the end of the day my most important role in my job is ensuring public safety." He continued, "So, we don't rush things; that's why innovation can sometimes take a while because you don't want to rush into something new."

Nonetheless, failure is a possible outcome of innovation especially when using innovations that haven't been tested elsewhere. Failure is not necessarily something to be afraid of, as failure can provide learning opportunities for innovators. Chynoweth explained, "Failure is a large part of innovation; it may be frustrating but failure leads to trying something else or trying a different path." However, he emphatically stipulates that failure in innovation must be "within reason" as the "number one tenant is always public safety".

Unproven and potentially dangerous techniques should not be attempted. Hanson, for example, limits his innovative projects to techniques that "intuitively make sense" and tests innovations on a small scale to make sure it will work before implementing it on a larger scale.

"We're not going to build something and then say 'ok, fingers crossed it will be alright' and then if it fails 'well, that's failure, let's try again,'" said Chynoweth, reemphasizing that innovation can only be used when failure is within reason and poses no harm to the public. Still, Chynoweth encouraged innovators, saying, "If we're afraid to fail that means we are afraid to try, and if we create an environment where failure becomes scrutinized and criticized people are not going to innovate."

Steps to Implementing Innovative Technologies and Techniques

1. Find innovative ideas. Pay attention to what other state or local road-owning agencies, professional organizations or committees, universities, and research institutions are doing.
2. Solve the problem. Find an idea that will likely work and research it. This may involve talking with people who have implemented the idea or researching it experimentally. Find out if it has been used previously and what you can learn from its previous use(s). Before trying a new idea, analyze whether it makes sense.

Alternatively, discuss it with colleagues to see if it will likely work.

3. Get support and funding through your agency or outside funding sources, and have MDOT LAP review projects that will use federal/state transportation funds.
4. Pilot the idea. Try a small project with it to see how it performs and monitor the results.
5. Expand the application of the innovation. If the project was proven to be successful, try it on other projects! If the project was not successful, determine why it failed and try a different approach.
6. Share your successes. Malburg shares his approach, saying, "I usually get a hold of most of the road commissions or local cities and villages in the UP and even over in Wisconsin and say 'Hey, we're doing something a little different; if you want to come see it, you're welcome to do so.'"

Recommendations and Advice to Other Innovators

Malburg, Hanson, and Chynoweth recommend that local road-owning agencies in Michigan looking to implement cutting-edge techniques do research and make sure the new idea is likely to work in their circumstances. Furthermore, they have found success by researching the innovations that have proven successful elsewhere, asking questions about the details of the project, and visiting the actual pilot project site ideally during construction. Malburg, Hanson, and Chynoweth have also found being involved with a project from start to finish, being in the field as it is constructed, and having a champion to persevere past the inevitable hurdles are important parts to making a new innovation successful.

For these engineers and many others around the country, innovation is a solution used to overcome problems. "The path towards innovation is identifying a problem that needs to be solved", said Chynoweth. Malburg concurred, "The process to innovation is find the problem and solve it." ■

RESOURCES

1. Choi, Jaehyun. 2020. *Road User Costs for Highway Construction Projects Involving Lane Closure*. Sustainability, vol 12, n 8. Available: <https://www.mdpi.com/2071-1050/12/8/3084/htm> or <https://www.workzonesafety.org/publication/>.
2. Texas Department of Transportation. 2021. *Road User Costs*. Available: <https://www.txdot.gov/inside-txdot/division/construction/road-user-costs.html>

► Schons and Rader as well as Delvecchio and Saksewski explain that road commissions' lower-than-average wage is offset by offering a comprehensive benefits package that includes a pension. Private companies, on the other hand, offer higher dollar-per-hour wages but offer little or no benefits package. "I'll say to prospective employees, *if you're looking to come to the road commission, do not look to come here to get rich quick*," said Rader. "We are really trying to educate on what the value of those benefits are."

Saksewski added, "People see that it's great career potential at the road commission, where it's 24 or 25 dollars an hour and guaranteed raises each year and the benefits are awesome."

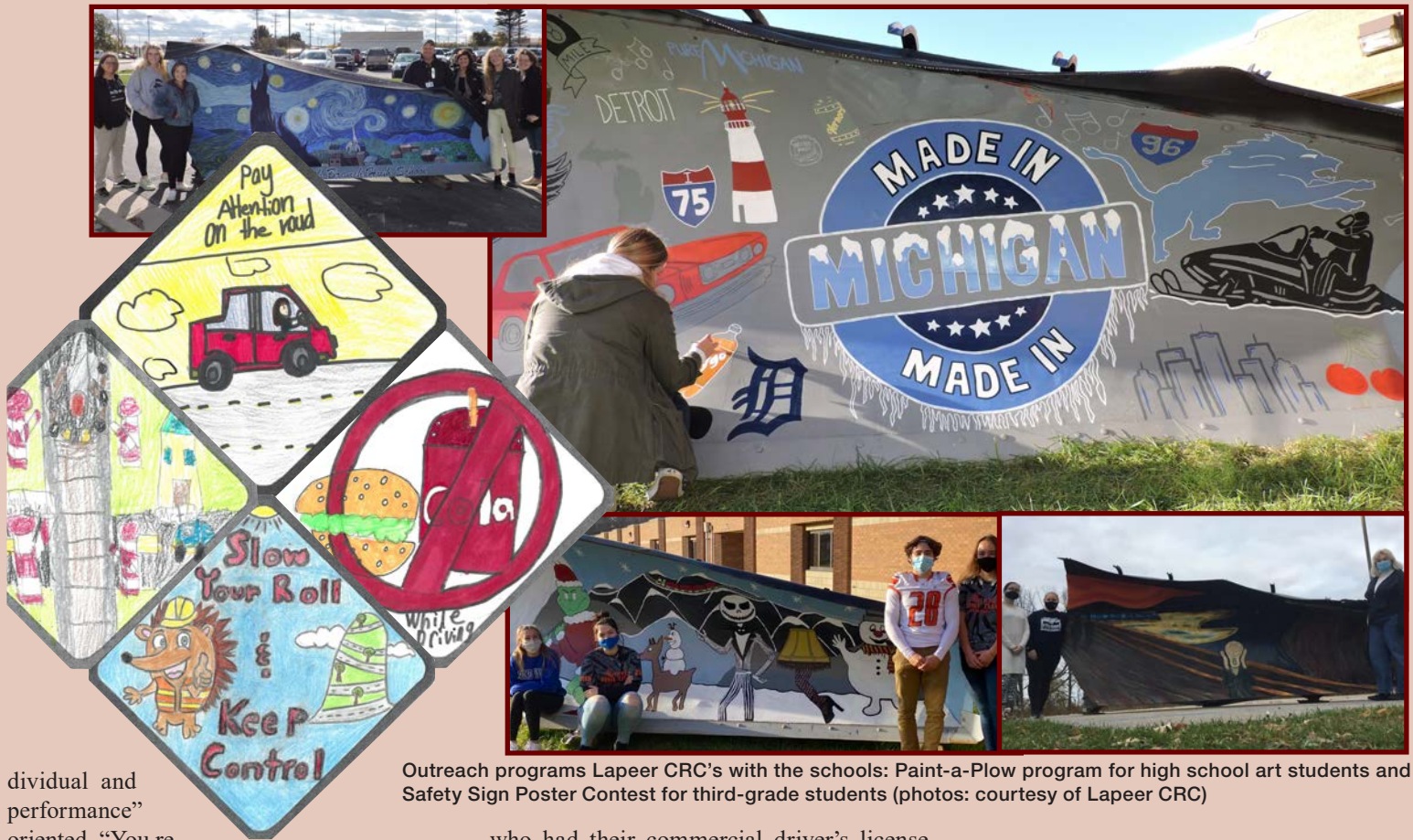
Advancing Skills

Many hires at a local road-owning agency assume diverse responsibilities and tasks. Within a single position, working at a local road-owning agency can offer a lot of variety. "The day-to-day workings on the road, they can be drastically different by the day," shared Rader. "I think the diversity of tasks in each job surprises people."

To raise awareness to the range of skills and abilities needed for each role, Rader has revamped the agency's messaging about its jobs by modifying job titles: "It used to be 'truck driver' or 'heavy equipment operator'; we got rid of those and now say 'road maintenance employee'." She hopes the modified job titles will help prospective employees realize their job will include a variety of tasks from driving trucks or operating equipment to manual labor.

At Lapeer CRC, the situation is the same. Schons commented, "A lot of people are surprised at the variety of work that we offer here—no two days are ever the same at a road commission." He continued, "I think a lot of people don't realize the number of different tasks we are responsible for here." Schons points out that the road commission attends to tasks ranging from maintaining over 18,000 traffic signs to cleaning up trees that fall into the roadway and to maintaining state highways in the area. "The very work we have here...—it's something people don't think about until they come to work at the road commission."

Saksewski says work at Grand Traverse CRC varies drastically by the season: "What we do in the wintertime is so drastically different from what we do in the summertime." He calls wintertime work "very in-



Outreach programs Lapeer CRC's with the schools: Paint-a-Plow program for high school art students and Safety Sign Poster Contest for third-grade students (photos: courtesy of Lapeer CRC)

dividual and performance” oriented. “You report to work, you hop in your plow truck, and you are by yourself,” he said. In summertime, work is much more collaborative: “We are in significantly larger crews, whether you are on tree duty or working in the road right of way.”

In line with requiring a broad range of specialized and general skills, local road-owning agencies invest in continuing education and skill development of their employees—a selling point they can use in their messaging to attract talent and during the interview process.

Local road-owning agencies pay for engineering staff to attend continuing education training events. Many of these events can be used toward maintaining a professional engineer license.

Similar opportunities are made available to mechanics, equipment operators, and technicians. Lapeer CRC, for example, revamped their onboarding process to provide necessary training for mechanics and equipment operators.

“We don’t have kids coming out of high school and going right into mechanics or getting their commercial driver’s license,” observed Schons. Consequently, the agency was having a “hard time” finding candidates

who had their commercial driver’s license (CDL), according to Delvecchio.

Schons said, “We’ve evolved by saying, hey, we’re going to hire you as a mechanic, give you 90 days to get your CDL, help train you to get your CDL, and, that has been a huge selling spot for some of our mechanics.”

In addition, Van Buren and Lapeer CRCs both offer apprenticeship programs primarily targeted toward recent high school graduates but also open to others interested in pursuing a profession in mechanics, equipment operating, and technician work. These programs provide temporary employment with the possibility of evolving into a full-time position. As part of the program, the apprentice gains experience and has the opportunity to work on getting a CDL. Rader explained, “If they successfully complete the program, there’s no guarantee of full-time employment but it’s a pretty solid ‘most likely’.”

Both agencies as well as Grand Traverse CRC offer summer internships for college students in their engineering departments.

Apprenticeship and internship programs provide mentorship, which may benefit these agencies—experts say that ongoing mentorship can go a long way in attracting talent to a workplace and even retaining that talent.^{4,9}

Creating Community Within & Engaging Community Outside

People want that sense of belonging to a community, so one way to retain employees is to create community at the workplace, experts suggest.^{5,9}

At Van Buren CRC, Communications and Project Specialist Alyssa McAndrew manages the agency’s Facebook page and engages employees by allowing them to direct the messaging.

McAndrew began what she calls a “humanization” of Van Buren CRC’s Facebook page by “starting with what their own employees would want to see”. The fact that many of Van Buren CRC’s staff are animal lovers comes through in the weekly Fluff Wednesday and animal picture posts, for example.

“At the end of the day, we’re here to serve our people, but we have to have a little fun at the same time,” continued McAndrew. “We get a lot of comments from residents, a lot of feedback on how much they like our page.”

And, at Grand Traverse CRC, employees can use their generous paid time off for any reason including public service. The agency, therefore, has supported its employees in

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their chosen avenues for service, which has included local fire departments, township boards, committees, non-profit organizations, and places of worship.

Supporting employees' initiatives and interests creates community within an agency and helps retain talent. But, engaging in the local community outside the agency gives an agency visibility in the local community and, through action, communicates that they are a desirable place to work.

For example, Saksewski makes sure Grand Traverse CRC's local community involvement gets some visibility to the road commission. So, Grand Traverse CRC visits local schools each year and participates in the local Cherry Festival.

"We want to be silent servers of our community because we are our community," explained Saksewski. "It's not so much that we are doing a community service: these are our neighbors, these are our friends, and these are our family that live in the area and benefit from us doing these services. Over the hundred-plus years' history of the road commission in various forms, I think it has always been a keystone in our day-to-day operations."

And, McAndrew draws Van Buren county residents into the road commission's social media circle by integrating content that the local community needs and wants—such as construction and maintenance project updates and historical perspectives on the road commission—with the fun content that emerges from agency employees' own interest.

However, Delvecchio points out that road commissions, for example, often "get a bad rap very easily" because the public presumes the road commission is "not doing anything" when roads are not plowed during or immediately after a snowfall, for instance. Both Lapeer and Van Buren CRCs' Facebook pages have been combating that perception.

"We're part of this community, and we're in it to improve it," said McAndrew, who has given Van Buren CRC's Facebook page "less of a government entity" feel and "more of a we're people too" vibe.

Lapeer CRC's Facebook page generates "a huge positive spin" for the agency, says Delvecchio. "We're able to reach people in the community and...let them know what we're doing every day—we can post pictures of our employees out there working...and show that we're doing the best we can to do our job," she said.

Branching beyond social media, Lapeer

CRC offers a paint-a-plow program (adapted from Washtenaw CRC's program) for high school students and a safety poster contest for grade school students. While Delvecchio says the purpose of the programs is to "highlight the art programs in the schools and...to showcase what the kids can do", Schons says he hopes the programs generate traffic and "some positive posts on Facebook" where the agency posts its job openings.

He explained, "These kids go home and tell mom and dad, *hey, I got to meet the road commission employees today, they brought a plow to school and we got to paint it, and they were really cool people to talk to*, maybe mom or dad's looking for a job and hears their tenth grader...sometimes it does have a positive outreach towards potential employees."

The paint-a-plow program lets high school art class students paint the blades of road commission plow trucks. These decorated plows are displayed in Christmas parades, at homecoming festivities, and at other local community events. The safety poster contest for third graders has students submit drawings on paper that communicate a chosen safety message or theme. The winning students receive a full-size custom-printed traffic sign depicting their designs. Schons says that parents have told him the signs have thrilled their youngsters.

For Grand Traverse CRC, Saksewski says the agency is now starting to see these community involvement initiatives as "exposure" that can be leveraged to attract potential employees to the road commission. "Everybody has a camera,...snap a quick picture—it doesn't take a whole lot," he said.

Worth Some Thought

Although Grand Traverse CRC hasn't felt too much pressure to revamp its hiring effort yet, Saksewski pointed out, "We're at that point where we are going to have a good amount of our employees in that 15 to 25 year experience range...with retirements coming up; that's planned, but we're definitely seeing a lot more people being lured away."

"Some road agencies' struggles at finding new employees are worse than ours," Schons shared about Lapeer CRC's situation. "I can see us having to adapt to that one day." He continued, "Any of the seminars that you go to right now, everybody is preaching the same thing - *Look, as an employer, you have to change, you can't expect the workforce to change, because they're not going to*. So, you do have to change. Find ways to draw new

employees and retain good employees."

Both Schons, Saksewski, and Rader underscore the advantage that local road-owning agencies can offer in terms of work-life balance for their employees.

Working closer to home, living and working in vacation destination areas, four-day work weeks in the summer are all possible when working at a local road-owning agency.

"I try to retain employees here by saying, *hey, if you go work for one of the big construction firms south of I-69 and your child has a volleyball game on a Friday that you're really going to want to go to, you are probably not going to make it to that game, Whereas, here, you work in the county you live in,*" shared Schons. "I'll say, *you know, if you need to take off Thursday afternoon to go see your child's softball game, have at it, go—that's where you need to be as a parent*; but, it works both ways right here at the Lapeer County Road Commission because in the winter time those employees know that that's when I need them here."

Similarly, when Rader tells candidates about the benefits of local road-owning agency work, she says: "Come work here to live comfortably and enjoy a really good work-life balance." ■

RESOURCES

1. Bureau of Labor Statistics. 2021. *The Employment Situation—September 2021*. News release, USDL-21-1799. U.S. Department of Labor, 8 Oct. Available: <https://www.bls.gov/news.release/pdf/empisit.pdf>
2. Bureau of Labor Statistics. 2021. *Job Openings and Labor Turnover Summary (August 2021)*. Economic news release, USDL-21-1830. U.S. Department of Labor, 12 Oct. Available: <https://www.bls.gov/news.release/jolts.nr0.htm>
3. Morath, Eric. 2021. *Millions are Unemployed. Why Can't Companies Find Workers?* The Wall Street Journal, 6 May. Available: <https://www.wsj.com/articles/millions-are-unemployed-why-cant-companies-find-workers-11620302440>
4. Preston, Ashley. 2018. *Keeping Drivers on the Payroll and on the Road: How to Attract and Retain Drivers in the Face of Driver Shortage*. Forward Thinking Systems, LLC., 6 Dec. Available: <https://www.ftsgps.com/resource-center/how-to-attract-and-retain-drivers-in-the-face-of-driver-shortage/>
5. Kanter, Rosabeth Moss. 2021. *Critical jobs are going unfilled. 5 things workers want from employers now*. CNN Business Perspectives, 28 July. Available: <https://www.cnn.com/2021/07/28/perspectives/labor-shortage-attract-talent/index.html>
6. American Society for Engineering Education. 2016. *Engineering by the Numbers: ASEE Retention and Time-to-Graduation Benchmarks for Undergraduate Engineering Schools, Departments and Programs*. ASEE, Washington, DC: Brian L. Yoder. Available: <https://ira.asee.org/wp-content/uploads/2017/07/2017-Engineering-by-the-Numbers-3.pdf>

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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.

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RESOURCES, cont'd

7. Torpey, Elka. 2018. "Engineers: Employment, pay, and outlook". In: *Career Outlook*. Bureau of Labor Statistics, U.S. Department of Labor, February. Available: <https://www.bls.gov/careeroutlook/2018/article/engineers.htm>
8. NAE report
9. Godfrey Jodi; Bertini, Robert L. 2019. *Attracting and Retaining Women in the Transportation Industry*. Report WP 19-01. San Jose University Mineta Transportation Institute, San Jose. Available: <https://transweb.sjsu.edu/sites/default/files/1893-Godfrey-Attract-Retain-Women-Transportation.pdf>.
10. U.S. Census Bureau. 2020. *U.S. Census Bureau Releases New Educational Attainment Data*. Release Number CB20-TPS.09. Census.gov, 30 March. Available: <https://www.census.gov/newsroom/press-releases/2020/educational-attainment.html>
11. U.S. Census Bureau. 2020. *Educational Attainment in the United States: 2020*. Census.gov, 21 April. Available: <https://www.census.gov/data/tables/2020/demo/educational-attainment/cps-detailed-tables.html>
12. Tellhed, Una; Backstrom, Martin; Bjorklund, Frederik. 2018. "The role of ability beliefs and agentic vs. communal goals in adolescents' first educational choice. What explains the degree of gender-balance?" *Journal of Vocational Behavior*, v. 104, p.1-13. February. Available: <https://www.sciencedirect.com/science/article/pii/S000187911730115X>



Motor Grader Training

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

Training opportunities by request.
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- Bridges/structures
Chris Gilbertson, PhD, PE & Zack Fredin, PE
- Road design/construction/maintenance
Pete Torola, PE

Learn more! ctt.mtu.edu OR ctt@mtu.edu




Michigan's
Local Technical
Assistance Program

The Center for Technology & Training (CTT) is a part of the Department of Civil & Environmental 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.

The Bridge

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- ▶ Three Keys to Talent Acquisition & Retention
- ▶ Innovation: Being on the Cutting Edge with Using Technologies and Techniques
- ▶ When Connections Become Your Advocates: Marc Trotter



Michigan's Local Technical Assistance Program

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Upcoming Events

REGISTER & MORE INFORMATION AT ctt.mtu.edu/training

* See page 2 for more information about on-site and online events

2021 Materials Acceptance Process Seminar (Virtual)

November 10; December 15; January 5; February 9; March 9; April 13

2022 Gravel Road Basics for Decision Makers

January 11 – webinar

2022 Advanced Thawcaster

February 1 – webinar

2022 Michigan County Engineers' Workshop

February 8-10 – Bellaire

2022 Asphalt Paving Inspection Workshop

February 16-17 – Virtual workshop; March 2 – Saginaw; March 3 – Okemos

Mark Your Calendar: 2022 Michigan Bridge Week

March 15-17 – Ypsilanti

Mark Your Calendar: 2022 Highway Maintenance Conference

WORKSHOP: April 26 | CONFERENCE: April 27 – Bellaire

Mark Your Calendar: 2022 Michigan Winter Operations Conference

October 18-19 – Bellaire

More training opportunities!

Visit ctt.mtu.edu/webinars-and-workshops to learn about webinars and workshops offered by the Michigan LTAP/Center for Technology & Training

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**REGISTER
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February 8-10
Shanty Creek Resort - Bellaire, Michigan



Conference hosted by:

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