

# STRAIGHT LINES

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Winter 2021







# NEW HIRES

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WELCOME TO THE TEAM

**Undreeron Hall:** Undreeron is a Construction Engineer in our Saginaw Construction Group. He is attending Wayne State University's Construction Management Program.

**Joshua Hoffman:** Joshua was recently hired as a Construction Services Technician in our Dundee Water Resources Group. He earned his associate's degree in Business Management from Monroe County Community College and is attending the University of Toledo for Mechanical Engineering Technology.

**Austin Kerby:** Austin is a Construction Engineer in our Saginaw Construction Group. He graduated with his Bachelor of Civil Engineering from Michigan Technological University.

**David LaCross:** David recently joined our St. Johns Survey Group as a Project Surveyor. He earned his bachelor's degree in Surveying Engineering from Ferris State University.

**Jacob Los:** Jacob recently joined our St. Johns Survey Group as a Crew Chief. He graduated from Ferris State University with a bachelor's degree in Surveying Engineering.

**Michael McGill:** Michael was recently hired as a Technical Advisor in our Saginaw Municipal Group. He has previous experience as a Maintenance Supervisor working for the City of Saginaw's Water Treatment Plant.

**Kevin Purman:** Kevin was recently hired as a Survey Technician in our Saginaw Survey Group. He graduated with an associate's degree in Mechanical Engineering Technology from Delta College and has previous experience as a Service Designer working for Consumers Energy.

**Matthew Starkweather:** Matthew recently joined our St. Johns Water Resources Group as a Designer. He graduated with his associate's degree in Industrial Design from Lansing Community College. He has more than 20 years of experience as a CAD Designer working in multiple industries.

**Cynthia "Cindy" Todd:** Cindy recently joined our Planning Group as the Director of Planning. She graduated with her bachelor's degree in Landscape Architecture from the University of Illinois and her master's degree in Urban and Regional Planning from the University of Michigan. She has 29 years of experience in project management, design, planning, and development for both public and private sectors.

**Stephanie Wizner:** Stephanie was recently hired as the Accounting Manager in our Saginaw Corporate Accounting Group. She graduated from Central Michigan University with a bachelor's degree in Business Administration with a focus in Accounting and earned her Masters of Business Administration from the University of Michigan. She has held accounting and finance leadership roles in organizations across numerous industries including public accounting, private manufacturing, and non-profit healthcare.



A pre-construction log jam at the Lone Road Bridge in Saginaw County along the Swan Creek Intercounty Drain.



# UNTANGLING THE JAM: HOW REMOVING LOGS FROM THE SWAN CREEK INTERCOUNTY DRAIN IMPROVED ITS FUNCTION

Originally established in 1917, the Swan Creek Intercounty Drain (Drain) is an 18.5-mile-long open-channel drain servicing 140 square miles that includes more than 8,000 parcels of land throughout Saginaw, Midland, and Gratiot Counties. It serves as the outlet for 10 intercounty drains and 115 county drains in areas of land that are a mix of residential, agricultural, commercial, and industrial.

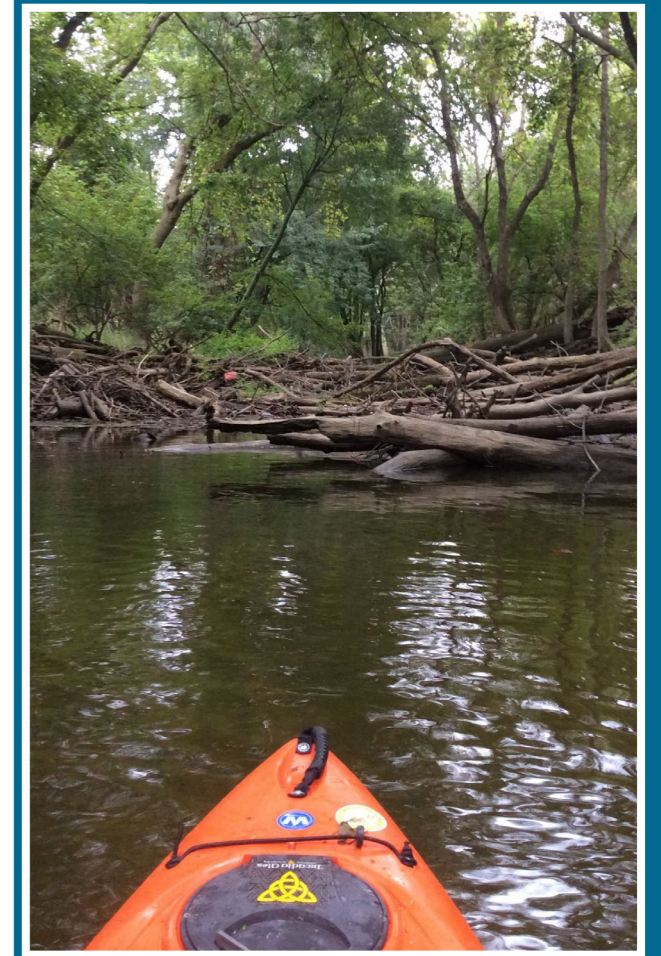
The waters of this long, winding drain outlet into the Shiawassee River including the Shiawassee River State Game Area and Shiawassee River National Wildlife Refuge, the Saginaw River, and eventually, the Saginaw Bay. It travels through multiple municipalities and has direct impact on the water quality of the Great Lakes Bay Region.

In 2013 a complaint was brought forward to the Saginaw County Public Works Commissioner about log jams in the Drain. The emerald ash borer beetle had infested the forested areas along the Drain's banks and killed thousands of ash trees. These dead trees had then fallen into the Drain and the Jo Intercounty Drain, which was an extension of the Swan Creek Intercounty Drain, causing log jams and blocking the Drain and its right-of-way.



*Emerald ash borer beetle.*

"In some areas, the log jams were the size of school buses and endangered surrounding infrastructure such as culverts and bridges," Spicer Group Project Manager Dave Vallier said. "The blockages were also promoting erosion and sedimentation throughout the Drain."



Due to accessibility issues to the drain right-of-way, a visual survey of the 14-mile project was performed by kayak.

With the expectation that the log jams would continue and only get worse, Spicer Group was hired by the Swan Creek Intercounty Drainage Board (SCIDB) to develop a preliminary maintenance plan of action. At the direction of the SCIDB, Spicer Group's team reviewed historic documents, did a preliminary assessment, reviewed access to the drain, and field reviewed the condition of the Swan Creek and Jo Intercounty Drains.

Vallier said the team identified areas of significant debris and log jams at more than 50 locations along both drains, sediment bars that had built up at more than 20 locations, and erosion along portions of the drains at multiple locations.

"The log jams that were observed were massive. Decades-old trees crossed the channel at multiple points, blocking flow," Vallier said. "The sediment bars were big enough for inspectors to walk out onto, and the banks were severely eroded and dangerous."



Trees were removed along the Swan Creek Drain to create a 20-foot-wide maintenance access lane.



In 2017, after a petition was filed by Thomas Township with the Saginaw County Public Works Commissioner, the SCIDB found it necessary to consolidate the Swan Creek Intercounty Drain and Jo Intercounty Drain and complete a large-scale comprehensive improvement project along the entire length of the Drain.

During the preliminary engineering phase of the project, the SCIDB conducted the process under Section 197 of the Michigan Drain Code to revise all the drainage boundaries for each drain – all 125 of them – within the watershed.

Spicer Group and the SCIDB used LiDAR technology to perform this task quicker, safer, and more efficiently than traditional surveying methods. Using LiDAR data layered digitally on top of existing drainage boundaries, engineers were able to view where the boundary lines were and adjust where necessary. These were then field checked for accuracy.

A document of all the easements was assembled to allow the drainage board to record the necessary easements. Through this complex process, the Swan Creek and Jo Drains were consolidated. After consolidation, the Swan Creek remained an inter-county drain. The Jo Drain is now an 11.5-mile-long intra-county drain that is only in Midland County.

“During the project, representatives met with landowners throughout the district to discuss the project details and acquire permanent or temporary ingress / egress easements to access the Drain right-of-way for construction,” Vallier said. “Access to the Drain right-of-way was very limited due to high drain banks, length of guardrails at all road crossings, and the residential and commercial development that has taken place since the Swan Creek Drain was established in 1917.”

Construction on the project began in January of 2019.

Along the length of the Swan Creek Intercounty Drain, dead trees were removed from its right-of-way to create a minimum 20-foot-wide maintenance access lane. All dead ash trees, standing or fallen were topped, cut, and left for landowners who wanted the wood. The remaining was chipped or burned and buried. Chipped debris was then spread along the maintenance lane.

Removing these enormous logs reduced the likelihood of bridge failure and prevents further damage. It also provides flood protection, reduces the likelihood of major erosion, and allows for easier future access and maintenance.

Another portion of the improvement project included removing sediment bars and restoring the severely eroded banks. Rip rap and erosion control blankets were installed to stabilize eroded banks and to prevent further erosion. This improved the quality of the stream and the ease of flow for numerous other county drains that outlet into the Swan Creek Intercounty Drain.

The removal of the dead ash trees and obstructions has allowed the new meandering low-flow channel to re-establish and since the completion of the project there is evidence of the forming of a natural two-stage channel in sections of the Drain.

Additionally, the contractor’s crews focused on leaving many live, healthy trees along the maintenance path to maintain the natural aesthetic beauty of the watershed.

There were more than 8,000 parcels of land assessed by the SCIDB for this project. Because of the size of the district and the number of parcels to be assessed, it made the one-time improvement project extremely cost effective and efficient to complete the work throughout the length of the Drain versus doing a maintenance project on smaller portions for the next 20 years.

“The SCIDB developed an innovative project that can be used as a model for other county drains on how to research, facilitate, design, fund, and implement

larger construction projects needed to clear drains devastated by dead ash trees,” Vallier said.

This model provides examples on how to develop drainage district maps effectively and efficiently using a combination of historical and new LiDAR technology data, then fairly assess those land parcels within the drainage district to fund a cost-effective construction project rather than stretch a drain improvement project out for decades under the maintenance allowance.

Post-construction view of the Swan Creek Intercounty Drain, with a maintenance lane created and riprap installed.



Spicer Group was hired by the SCIDB to assist with updating the drainage district boundaries and tributaries within the watershed, verifying historic easements along the Drain, working with landowners to secure ingress and egress easements for construction access, perform hydraulic modeling and flood mapping, design channel restoration along with log jam and sediment removal, inspect drain crossings and bridges for structural integrity, and to develop recommendations for a strategy for assessing the project fairly across the entire watershed.



The new, clear maintenance lane will allow for easier access for future projects along the Drain.



Maintenance lane a year after construction. Healthy live trees were preserved within the drain right-of-way to maintain the watershed’s natural aesthetics.



# JEFFREY WOOD, P.S.— LONG-TIME SPICER GROUP LEADER RETIRES AFTER 27 YEARS



After dedicating the past 27 years of service to Spicer Group, long-time company leader, Jeff Wood, P.S., has retired and is looking forward to spending some of his free time surveying new waters. And he was recently presented with quite the retirement surprise when he found out he's going to be a first-time grandfather.

Whether Wood admits it or not, he can be credited for having a major role in growing Spicer Group's Survey Services Group into what it is today. However, his road to becoming a surveyor and ultimately coming to Spicer Group wasn't anywhere close to being as straight as some of the property lines he's staked back in the day.

"I graduated from Battle Creek Central in 1984 and pursued an electronics technology degree from Kellogg Junior College," Wood said. "I took that technology degree and got a job waiting tables at Elias Brothers Restaurant in 1986."

Not being one to work inside, Wood quit relying on tips and took a summer job as a rodman with Davis Land Surveying in Battle Creek. Although the restaurant business wasn't for Wood, had he not worked at Elias Brothers, he never would have met Diana—his wife of 30 years.

"Davis was looking for help and I figured I'd give it a try. I spent the entire summer doing most of the grunt work while doing surveys including walking through swamps and cutting brush," Wood said.

It was this first survey job that taught Wood a respect for accountability.

"We had a job where we had to stake a long property line for a landowner. The landowner then planted over 200 small pine trees along that line," Wood said. "Unfortunately we later found out that our line was 20 feet off."

He said the landowner was somewhat understanding, but Wood's boss decided the best thing to do was to make things right.

"We re-surveyed the line to where it was supposed to be and dug up every one of those pine trees and replanted them 20 feet over to where they were supposed to be to begin with," Wood said. "I learned a lot from that mistake and still remember that to this day."







“Beginning in 2000, we started to do a lot more work for the Michigan Department of Transportation including design surveys and construction staking,” Wood said. “GPS technology became quite popular at that time, but that led to less contractor staking work.”

After being promoted to crew chief at Davis, he decided to go back to college and pursue a surveying degree. He graduated with a surveying degree from Ferris State University in 1991 and took a new job with Gove Associates in Sturgis, MI. Electronic distance meters were just coming to market at that time, but Wood spent most of his time using a 100-foot tape and plumb bob to survey square-mile sections and completing boundary surveys.

“I worked for Gove for a year then went to Carr Associates. My friend Roger Mahoney, P.S., who worked at Spicer Group, then known as Spicer Engineering, contacted me and said they may have a position for me,” Wood said.

He interviewed with Ron Prevost, Tim Beebe, and Dale Deibel and was offered a position on Spicer’s survey team.

“It was a pretty big decision. Diana was pregnant and we had to pick up everything and move to the Saginaw area to make it work,” Wood said. “We decided to do it and moved into a house in St. Charles.”

His new career at Spicer took him on a straighter line to success, and he worked his way up to eventually leading the survey department and becoming a principal of the company in 2000. In the mid-1990s, Spicer had four survey crews, and they were a major support group for municipal infrastructure projects.



Spicer Group’s Survey Group has grown significantly since this photo was taken in 2005.

Wood was elected to Spicer’s Board of Directors in 2005 and soon found out how tough leading a company can be. As with most businesses in Michigan, 2008 proved to be a real test on owners dealing with a tough economy. Wood said the hardest part was adjusting the company in a manner that had the least amount of impact to staffs’ lives while trying to keep the company running smoothly.

“Then we purchased mobile LiDAR technology. We were one of the first companies in the country to purchase and own the Leica Pegasus Mobile LiDAR unit, which opened up a whole new world of opportunities,” Wood said. “Nothing in my career has leapfrogged our surveying capabilities like mobile LiDAR. This was a million-dollar investment just to get the technology, then we had to learn the technology and train staff. But it was definitely worth the effort.”

Wood said that the company’s support in incorporating new technology such as mobile LiDAR and single beam and multi-beam bathymetric survey equipment has helped the survey department grow and diversify.

In 2017, Wood was named Chief Operating Officer and also began overseeing Spicer Group’s Human Resources Department which allowed him to see and experience a whole new side of the company.

“I spent 23 years managing Spicer’s survey department and worked primarily with survey staff and our clients,” Wood said. “But working on the human resources side of things allowed me to spend more time with people from many different backgrounds and professions.”

“People, in general, have great minds and intentions and Spicer has always been a place that gives staff a chance to take on new roles and grow,” Wood said. “Watching people blossom and learn is something very unique and satisfying, and I really enjoyed interacting more with staff across the company.”

Wood was starting to prepare for retirement when the COVID-19 pandemic came sweeping through and affected companies across the U.S. in various ways.

“It was a pretty stressful time with all of the executive orders being handed out, policies changing, and figuring out how to work from home,” Wood said.

**“The company is very strong, we have a great group of employees. I’m really going to miss the staff, the clients, and projects, but it’s time to open a new chapter.”**

**People, in general, have great minds and intentions and Spicer has always been a place that gives staff a chance to take on new roles and grow.**

“Our board met countless times and worked hard together to adjust to the pandemic, something that nobody can prepare you for.”



Wood said that after 27 years, it was time to spend more effort accomplishing other personal life goals.

“The company is very strong, we have a great group of employees. I’m really going to miss the staff, the clients, and projects, but it’s time to open a new chapter.” Wood said. “Spicer Group is an amazing place and even though we have grown significantly over the last decade, we are still a tight-knit group just like we were when I started, and that’s what makes us unique.”

Thank you, Jeff, for your dedicated efforts and strong leadership skills. Enjoy your new chapter in life, sail some new waters, and have fun with Diana spending time with your future grandson.





# TITTABAWASSEE

The newly finished Tittabawassee Township pathway near Garfield Road at sunset. Photo by Andy Brady of Dig Deep Race Events.



## TOWNSHIP PATH

Gravel along the pathway before pavement during construction.



After a few years of planning, the ribbon was officially cut last year on the new Tittabawassee Township Pathway, a 2.69-mile-long multi-use path that is part of both the Great Lakes Bay Regional Trail and the Iron Belle Trail systems.

Allison Riffel, Community Development Director for Tittabawassee Township, said the idea for a pathway in the Township began more than four years ago.

“In 2017, when Tittabawassee Township completed its Master Plan and Recreation Plan, a pathway was one of the top amenities identified as a good investment by community residents,” Riffel said. “We began the grant application process after that with the help of Spicer Group and were successfully awarded a grant to fund this new path extension.”

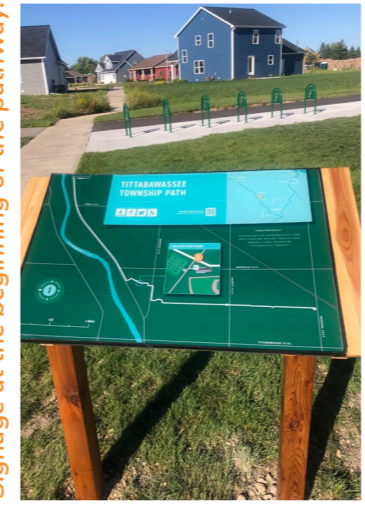
The grant for \$300,000 came from the Michigan Natural Resources Trust Fund. The Township also received a grant from the Iron Belle Trail Fund for \$50,000, and these funds assisted the community in making this planned pathway a reality.

“Having the other two organizations willing to grant us funding was a key driver in our ability to successfully complete this project,” Riffel said. “We also could not have completed this pathway or secured the funding that we did without the support of the Great Lakes Bay Regional Trail Alliance.”

With a previous pathway along M-47 already in place within the Township – the Freeland Multi-Use Path – this extension begins where that path has ended, at the pavilion on the property behind the Freeland Sports Zone, located at 5690 Midland Road.

The path then travels eastward to Garfield Road, extends southward down the east side of Garfield Road until it reaches Consumers Energy’s property and turns east towards Hackett Road on previously non-accessible land. Along the Consumers Energy property, the trail crosses a county drain, which attracts birds and waterfowl.

Signage at the beginning of the pathway.



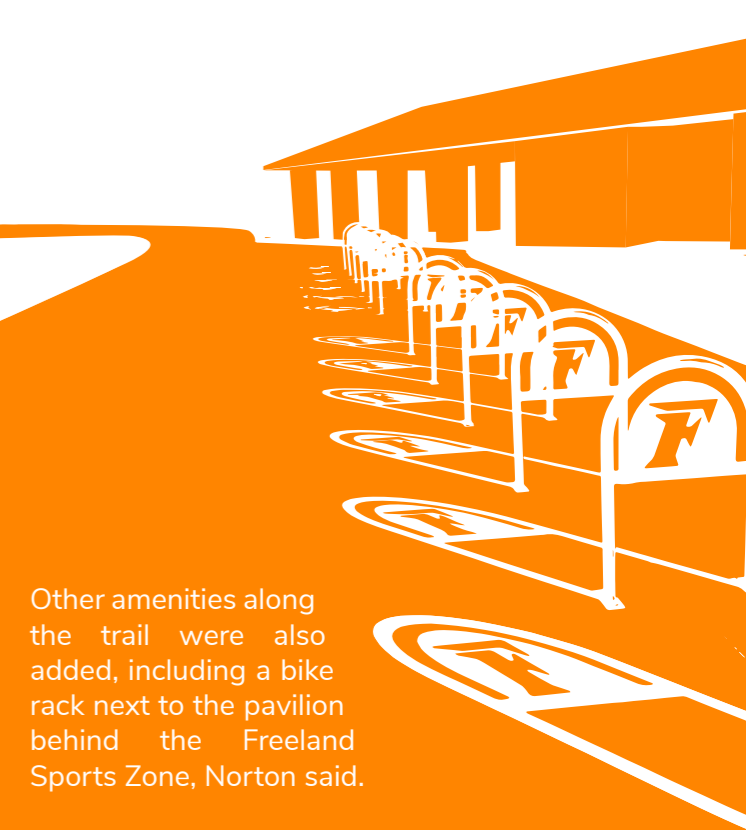
“The trail is a 10-foot-wide asphalt pathway everywhere except the portion of Garfield Road, where it narrows to 6-foot-wide to keep it within the road right of way. It was designed this way to keep pedestrians safe,” Mark Norton, P.E., the Project Manager with Spicer Group said. “We also installed signage and safety striping between the pathway and roadway for safety and better visibility.”

Spicer Group also worked in cooperation with the Saginaw County Public Works Department to construct a portion of the pathway in the Hackett Drain right of way.

This section of pathway ends at Hospital Road, which is where a planned link to the Kochville Township pathway is currently scheduled for construction this year. This will connect the Tittabawassee Township path to the Great Lakes Bay Regional Trail system, which is a planned system of nearly 100 miles of non-motorized pathway that joins Saginaw, Bay, and Midland Counties, offering users access to some of the region’s outdoor recreational opportunities.

This portion of the trail is also a part of the Iron Belle Trail which, when finished, will extend more than 2,000 miles through 48 different Michigan counties to connect the far western tip of the Upper Peninsula to Belle Isle in Detroit. Construction on the Tittabawassee Township path began in May of 2020 and was finished by September of that same year, even amid state restrictions regarding the COVID-19 pandemic. An outdoor ribbon-cutting event was held by the Great Lakes Bay Regional Trail Alliance in September.

Officials cutting the ribbon on the Tittabawassee Township Pathway.



Other amenities along the trail were also added, including a bike rack next to the pavilion behind the Freeland Sports Zone, Norton said.

“This path extension has been well received by both residents and non-residents and has already been used for community events. We are happy and excited to see the many organizations and people that are utilizing the path and we look forward to being connected to Kochville Township in 2021. This needed connection will allow more people from outside of the area to access recreation, shopping, and leisure opportunities located in Tittabawassee Township.” Riffel said.

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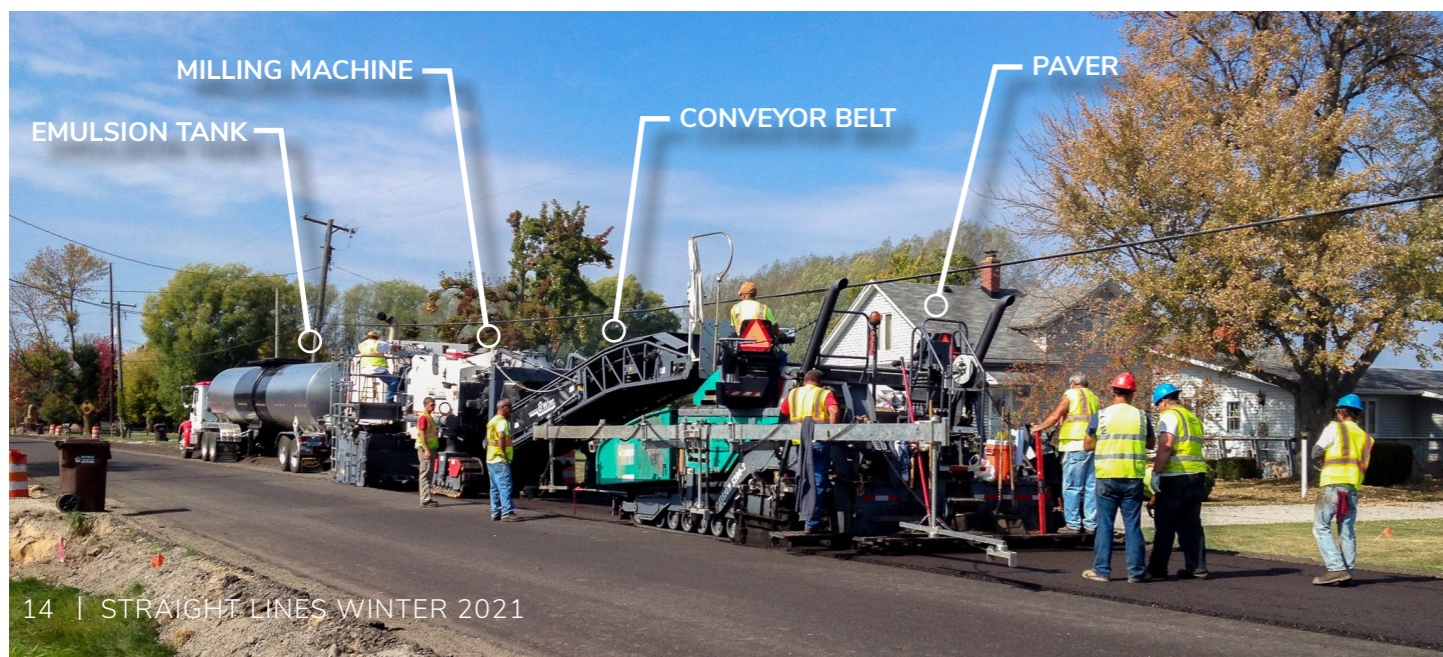


## REHABILITATION

**WILLIAMS TOWNSHIP** — Motorists are now enjoying a safer and smoother ride between US-10 and the MBS International Airport, thanks to 1.77 miles of recently completed upgrades along Garfield Road.

The Bay County Road Commission facilitated the project and chose to use cold-in-place recycling (CIPR) as part of the improvement construction process.

Cold-in-place recycling involves crushing the existing asphalt on an existing roadway, mixing it with an asphalt emulsion, then paving it back in place. Conventional asphalt construction normally requires the roadway surface to be milled off and then trucked away off-site. New material is then produced and trucked in before being laid back down as pavement. CIPR allows the contractor to remove the existing roadway material then re-apply it all in one linear fashion.



“Most aged asphalt roadways will eventually suffer from cracking but still have a good base foundation,” Spicer Group Project Manager Mike Niederquell, P.E., said. *“The CIPR process focuses entirely on removing the upper layers of the worn roadway, grinding it all up, then putting it back in place using a recycling train. The CIPR recycling train is more cost-effective and has a much lower carbon footprint than that of conventional HMA asphalt surfaces. Trucking costs are minimized and less energy is used as the recycled mix does not require being brought to the hotter temperature as required at the plant.”*

The recycling train normally consists of a specialized pavement-pulverizing machine with integral emulsion injection, mixing chamber, and lay down paving screed. It is also attached to an emulsion tanker that is supplying the emulsion to the mixing chamber in the pulverizing chamber. The material is pulverized, mixed with asphalt emulsion and laid back in place with a paving screed then compacted in place similar to a traditional HMA pavement. This regenerated layer becomes a solid base for the remaining paved layer(s) needed to complete the roadway. The benefit of using the stabilized base course is the structural number is more than double that of a traditional crushed pavement base. This results in needing less HMA leveling and wearing course thickness.

“For the Garfield Road project, the design called for the first three inches of existing asphalt to be milled off and hauled away,” Niederquell said. “We then milled another four inches for the CIPR which was put back in place and finally capped with two 1.5-inch courses of new hot mix asphalt.”

This section of Garfield Road is an important connector route for travelers looking to catch a flight out of MBS International Airport and is an important link for the Great Lakes Bay Region.

“We carefully put a plan together that minimized travel disruptions due to construction for anyone using Garfield Road especially those who had planned flights at the airport,” Niederquell said. “We set up temporary signing along US-10 that alerted drivers ahead of time and provided them with two different detour routes using Mackinaw Road and Midland Road—both adding on an extra mile or so of travel, but kept them out of the work zone.”



Major upgrades to the roadway included pushing 1,400 feet of ditch that paralleled Garfield Road further away to reduce the steepness of the slope and increase safety. This required acquiring an easement and installing 250 feet of 42-inch storm sewer.

“We also upgraded the barrier rails on the bridge over the Bradford Drain,” Niederquell said. “The original concrete barrier was crumbling and didn’t meet today’s safety standards.”



The existing concrete barrier was cut off and new guardrail posts were retrofitted to the base of the barrier foundations which provided support for the new guardrail. Modern guardrail approach terminals were installed in advance of the bridge meeting today’s standards as well.

This project is part of a combined series of 3.5 miles of roadway improvement projects implemented by the BCRC along Garfield Road stretching from north of Auburn south to the Bay/Saginaw County line (north of MBS International Airport).



**Spicer Group, Inc.**  
230 S. Washington Ave.  
Saginaw, MI 48607-1286  
989.754.4717

St. Johns, MI  
989.224.2355

Dundee, MI  
734.823.3308

East Lansing, MI  
517.325.9977

Byron Center, MI  
616.458.8580

Detroit, MI  
734.529.7120

Manistee, MI  
231.794.5620

Atlanta, GA  
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