



in JEN ee um: Latin. Natural disposition of talents. Root word for "engineer"

Ingenium

SPRING 2022

A PUBLICATION OF EMH&T ENGINEERS, SURVEYORS, PLANNERS, SCIENTISTS



**Touby Run:
Solving a Century Old Flooding Problem**

Timing for Environmental Regulations

Upper Scioto Sanitary Sewer

Traffic Signal Advancements

“Collaboration is a key part of the success of any organization.” Dinesh Paliwal



On March 23, 1913, a storm system stalled over Richland County, Ohio, bringing a 12-hour deluge of more than 10 inches of rain. In all, the rain continued for four days, devastating the City of Mansfield with massive flooding. More than 100 years—and a few more flooding incidents later, EMH&T is collaborating with the City to remove most properties from the Touby Run floodplain.

Collaborating with our clients is a hallmark of EMH&T. Our personal investment in any project starts before a project commences and lasts well after it is completed. We share a sense of ownership with our client partners.

When professionals from different disciplines come together to solve a problem, the results are noteworthy, characterized by innovative thinking, creative approaches, and successful outcomes. That is why collaboration among our in-house professionals is also a hallmark of working here at EMH&T. Our employees tell us that one of the greatest attributes of working at EMH&T is the ability to walk down the hall and talk to a subject expert. It is real-time assistance, which translates into real-time solutions for our clients.

The stories in the pages that follow, share our insights to solving issues for clients that have been our honor to assist. With each story, know that the key to success was rooted in collaboration with our clients, as well as with each other.

Sandy Doyle-Ahern
President

Ingenium

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Flood of 1913

Photo credit: Mansfield/Richland County Public Library

SOLVING A CENTURY OLD FLOODING PROBLEM

Mansfield's Touby Run

Touby Run, a waterway flowing through the urban core of Mansfield, Ohio, has posed a significant threat of flooding for generations.

More recently, the City experienced one such calamitous event in August 2007 when seven inches of rain fell over a 14-hour period. The sudden influx of stormwater collecting into Touby Run was simply too much for the channel to carry. The result was a devastating flood that impacted numerous homes and businesses in the area—many of which remain abandoned or relocated today.

"When I first met with the City Engineer, he had a bookcase in his office that held a report which caught my eye," recounts Miles Hebert, PE,

CFM, LEED Green Associate, Director of Water Resources. "It was a study from 1920 on how to solve the flooding along Touby Run. Here we are a century later doing just that."

The Evolution

Mansfield hired EMH&T to solve the flooding issues of Touby Run in 2013. The initial effort included completing preliminary engineering to determine the most feasible solution, and to evaluate potential funding sources for the implementation of the project.

Preliminary engineering took place from 2013 to 2018. In this phase, Miles and his team performed extensive hydrologic and hydraulic studies to understand the cause of flooding along Touby Run, and then determine the best method to



Flood of 1913

Photo credit: Mansfield/Richland County Public Library



Flood of 2007

Photo credit: Bob Bianchi, City of Mansfield



Rendering of the Touby Run Dam at North Lake Park.

“We will finally be able to remove these homes and businesses from the current floodplain, and revitalize the area.”

**Robert Bianchi, PE
City of Mansfield Engineer**

mitigate those causes. The urban nature of the land surrounding Touby Run presented challenges in identifying a simple solution for the flooding.

EMH&T utilized robust modeling of the watershed to determine where stormwater runoff could be captured and stored, therefore protecting the downstream reaches of Touby Run, where flooding and associated damages are most prevalent. The result was a recommendation to construct a dam and regional detention basin in North Lake Park to reduce the size of the downstream floodplain.

“It’s important we solve this century old issue of Touby Run,” said Robert Bianchi, PE, City of Mansfield Engineer. “We will finally be able to remove these homes and businesses from the current floodplain, and revitalize the area.”

The land on which the dam will be constructed, while owned by the City of Mansfield, poses several challenges related to the historical land-use of the park.

The remains of a former amusement park complex remain buried on the property, requiring the design of the dam to account for the identification and removal of this buried material.

The setting of the proposed dam poses other challenges related to the need to relocate an existing rails-to-trails bikeway path maintained by Richland County Park Board, and relocating and protecting existing public utilities.

A gravity sanitary sewer runs through the planned location of the earthen dam embankment, requiring measures to either relocate or protect the sewer in place.

Given the size of the proposed dam and the downstream risks, the design will be required to meet the highest dam safety standards set forth by the State of Ohio associated with a Class 1 dam. The team expects the design and permitting process to last at least two years.

“There are a great number of considerations with Touby Run, but once

all the pieces are in place we will not need to worry about flooding,” said Robert Bianchi. “EMH&T has partnered with the City of Mansfield from the beginning and they understand the critical impact this project will have on us.”

The Solution

The current design consists of an earthen embankment and concrete spillway. Because the dam and retention basin will need to maximize available land, the current design includes a labyrinth weir, similar to the spillway found at Indian Lake State Park.

“A labyrinth weir provides greater flow capacity in a smaller, more confined area,” explains Miles. “The labyrinth weir spillway will protect the dam embankment from overtopping during

even the most extreme flood events prescribed by the State of Ohio’s design standards.”

The ultimate goal for the Touby Run project is to remove as many buildings from the floodplain as possible, while also protecting roadways and bridges from flooding, allowing the redevelopment and revitalization of a portion of the City’s downtown area. The proposed design will finally provide a solution to the century old issue of flooding along Touby Run. The schedule calls for the engineering phase to last until 2024. ■

To learn more about EMH&T’s water resources engineering, contact Miles Hebert at mhebert@emht.com or 614.775.4205.

“The labyrinth weir spillway will protect the dam embankment from overtopping during even the most extreme flood events...”

**Miles Hebert, PE, CFM, LEED
Green Associate
EMH&T**

Labyrinth spillway at Indian Lake State Park.



TIMING IS EVERYTHING

Environmental regulations can have a significant impact on a project's schedule

Environmental regulations often require ecological field surveys that have obligatory seasonal limitations-and understanding these timing constraints is key to keeping a project on schedule.

An ecological survey is an investigation of a site for natural resources protected by state and federal regulations. The site or property investigated is often the location of proposed development, infrastructure improvements, or ecological restoration. The natural resources investigated are generally wetlands, streams, and natural areas that provide habitat for protected plant and animal species.

Various state and federal laws oversee the protection of ecological resources throughout the United States. Two federal agencies tasked with their protection include the US Army Corps of Engineers (USACE) and US Fish and Wildlife Services (USFWS). In Ohio, pertinent state regulatory agencies include the Ohio Department of Natural Resources (ODNR) and the Ohio Environmental Protection Agency (Ohio EPA).

"Part of the planning stage for a project is to help clients with what regulations apply to their project," explains Rob Milligan, EMH&T's Director of Environmental Services. "It is critical to a project's schedule to account for the environmental work, including ecological surveys." This process begins with an extensive ecological assessment of wetlands, streams, and wooded areas.

Christy Pirkle, MS, Senior Environmental Scientist adds, "Ecological survey is a broad term that encompasses assessing various aquatic and terrestrial resources.

Often, there is no way to build something without affecting some type of protected environmental resource. Our job is to identify what those protected resources are and, based on what our client wants to do, we advise them on what environmental regulations need to be followed, and what permits are needed. We then perform the environmental services needed to help our clients complete a successful and on-schedule project."

Some funding sources, like federal grants, also come attached with environmental obligations and restrictions. Rob, Christy, and the Environmental team at EMH&T help determine what regulations apply so that clients may receive funding.

"Acting as an extension of our clients' staff," Christy continues, "we help them understand and comply with the environmental regulations unique to their project."

Timing is everything.

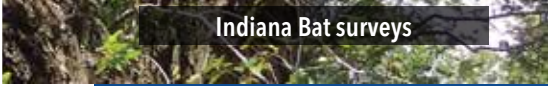
Timing considerations are important when it comes to performing ecological surveys. Some surveys may only be performed during certain times of the year. For vegetation, much of the timing consideration surrounds the growing season between April and October, while survey timing for bats is dictated by when they come out of hibernation in the summer. Even fish spawning has a season.

"All of these different timeframes can have an effect on a project's construction schedule," said Christy. "Determining how the survey times for various protected resources fits together within a project's schedule is like a puzzle, and can be challenging at times."



According to Christy, "one of the common issues our public and private clients have to deal with relates to protected bat species." The most recognized of these species is the Indiana bat, a federally endangered species, whose habitat covers the entire state. In the summer, these bats roost in loose tree bark or dead tree cavities. In the winter, bats hibernate in underground sites, called hibernacula. Coordination with state and federal agencies to obtain tree cutting approval is one of the common services EMH&T's environmental team provides.

Mussel surveys are also an ecological assessment that has a specific timing requirement. Ohio law (Ohio Revised Code Section 1533.324) protects all native freshwater mussels. If a project impacts a waterway, a client may need a mussel survey and relocation to receive state or federal funding.



"If a client cannot show proof of a completed mussel survey and relocation when the regulatory review process occurs, then they may be denied permission to conduct in-water work until the mussel survey is completed," said Christy. Because these surveys can only be done each year from May 1 to October 1, according to ODNR/USFWS protocol, and survey data is valid for a particular time period—understanding mussel survey requirements is important to a project's schedule.

EMH&T has three staff members certified by the State of Ohio to perform mussel reconnaissance assessments, full mussel surveys, and mussel relocations. The staff members are also certified SCUBA divers.

Rob is proud of the strong, long-term relationships that EMH&T has developed with regulatory agencies including the

USFWS, Ohio EPA, ODNR, Ohio History Connection/State Historic Preservation Office (SHPO), and USACE.

"One of the important key differentiators of our firm is our dedication to fostering these relationships and the trust this brings, paving the way for successful regulatory negotiations," said Rob. "We routinely meet face-to-face with agency personnel to review projects, discuss resolutions, and negotiate mitigation alternatives."

"When we work together, our experts can steer clients through a project, protect habitats and species, and get the project done." ■

Does your project need the expertise of an environmental consultant? Contact Christy Pirkle at cpirkle@emht.com or 614.775.4516 or, contact Rob Milligan at rmilligan@emht.com or 614.775.4515.

EMH&T holds the following ODOT Prequalification Categories Related to Environmental Services:

- **Environmental Documents: CE/EA/EIS/Section 4(f)**
- **Ecological Surveys**
- **Waterway Permits**
- **Wetland/Stream Mitigation**
- **Archaeological Investigations**
- **Historic/Architectural Investigations**
- **Regulated Materials Reviews**
- **Noise Analyses and Abatement Design**

LET'S PLAY BALL

The Dream Field at Windsor Park

Play Ball!

The Mirolo Dream Field in Windsor Park is positively affecting lives of many and bringing communities together.

The Dream Field is an all-accessible baseball field situated in Grove City, Ohio's Windsor Park; a park established as the hub of baseball and softball within the community. In addition to being nestled amongst the many other baseball fields, this field is special because it provides active recreation opportunities for all ability levels. The park also features an inclusive playground providing additional recreation for children with varying levels of physical and cognitive ability.

"While the Dream Field is located in Grove City, the intention was always to share the field with anyone, regardless of one's residency," said Kim Conrad, Grove City's Director of Parks and Recreation. "Ultimately, the Dream Field was constructed as a destination for all."

A Creative Approach to Solutions

"The idea behind the Dream Field was, regardless of cognitive, physical or mobility limitation, you could go to Windsor Park and play just like anyone else," said Jim Dziatkowicz, PLA, ASLA, Director of EMH&T's Planning and Landscape Architecture studio.

The team designed all the components of the Dream Field to function seamlessly with one another. There are accessible restrooms, a playground, shelter, and a baseball field, which are all fully accessible to players of all abilities and located in close proximity to each other. In addition to these amenities, there is a considerable amount of accessible parking near the recreation area, which grants ease of navigation upon arrival to Windsor Park.

For some, the mere effort of getting to the Dream Field can be something of an event itself. With this in mind, the City integrated other amenities, in addition to the baseball field, into the complex.



"The biggest solution we were able to provide, was to take a beloved park and give it a unique feature that ensures it provides recreation options for all to enjoy," Jim said.

Creating the New Standard

Jim and his team, led by Franco Manno, PLA, ASLA, LEED AP, got creative to provide the required solutions for the Dream Field.

The overall design required special attention when choosing the type of textures and colors to integrate into the facility for those individuals with perceptibility impairments. Designers

chose colors, for example, based on how they would interact with one another, so they chose colors of high contrast that could easily deciphered between certain areas of the baseball field and playground.

Every aspect of the Dream Field exhibits a more heightened sense of awareness for individuals with accessibility needs.

The surface of the Dream Field is a rubberized hexagonal-shaped tile fashioned to fit together like a puzzle. The surface ensures that any type of mobility device could utilize the grounds, whether that be a walker, crutches, manual or automatic wheelchair. The various openings of the facility are wider to accommodate for mobility devices, which allows greater ease for individuals to navigate and circulate the area.

"Ultimately, projects like this help to change the perception of what a disability means. The Dream Field provides for a more educated and empathetic community, helping to make it a better-rounded place," Jim said.

The Windsor Park Dream Field required EMH&T to take a creative, results oriented approach to design a multi-use facility that exemplifies inclusivity and accessibility.

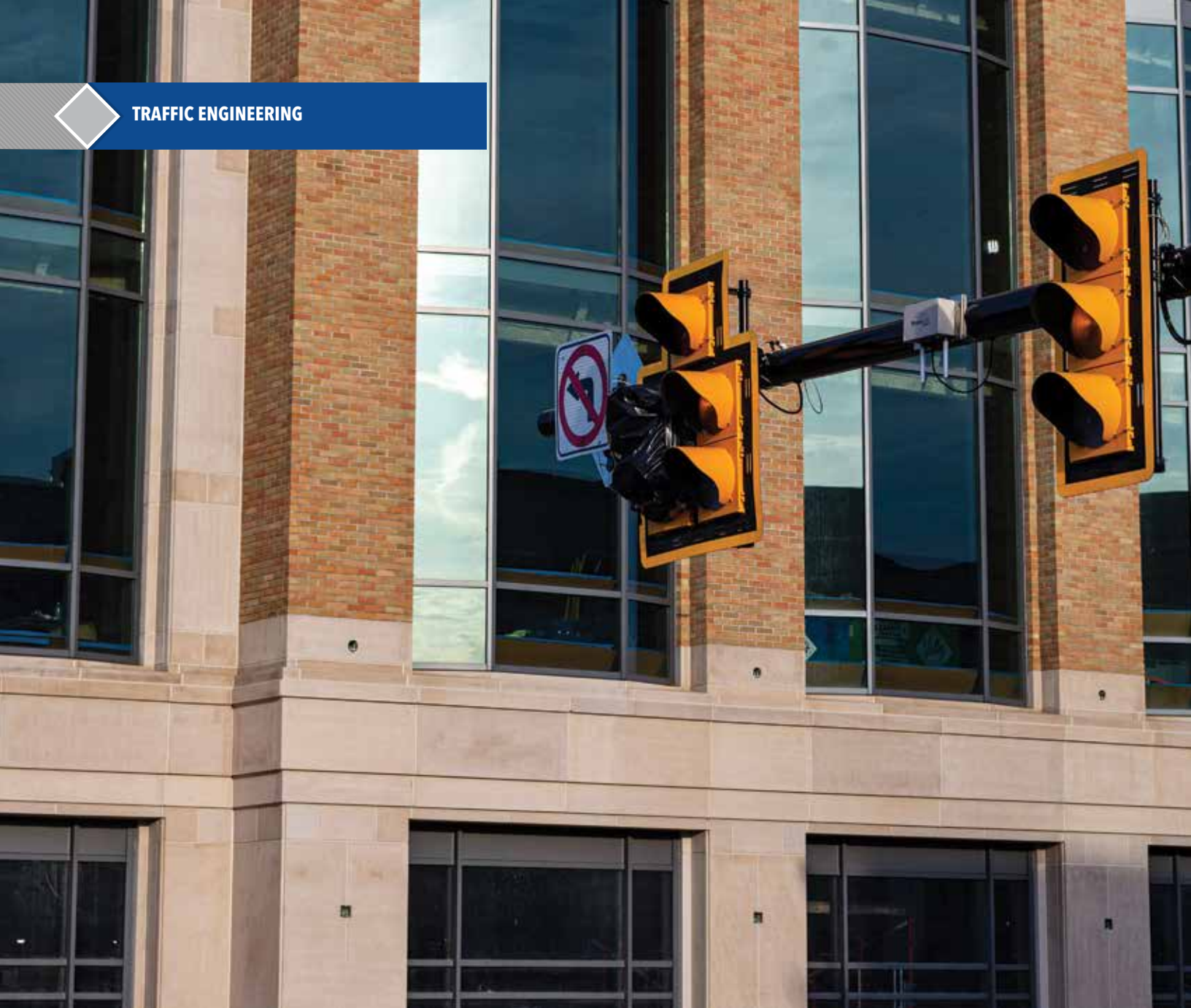
"Grove City recognized a community need for a recreation area that was designed to be accessed and enjoyed by those of all abilities," said Kim Conrad. "With the assistance of EMH&T, we were able to make that dream a reality." ■

To learn more about EMH&T's Planning and Landscape Architecture Studio, contact Jim Dziatkowicz at jdziatkowicz@emht.com or 614.775.4703.



"Grove City recognized a community need for a recreation area that was designed to be accessed and enjoyed by those of all abilities."

**Kim Conrad
Director of Parks and Recreation
Grove City, Ohio**



TRAFFIC SIGNAL TECHNOLOGY

Advancements Provide A Smarter, More Efficient Way Forward



Technological advancements occur in virtually every aspect of our lives at a more rapid rate than at any other time in modern human history. The advancements in traffic signals are no different.

Traffic Signal expert Jason Smallwood, PE, explains the technology behind traffic signals has progressed from inductive-loop wire detection, to video, to radar detection during his career spanning more than 20 years.

“The benefits with these advancements are improved reliability, better adaptation to changing conditions, and improved accuracy,” said Jason.

Early on, engineers designed inductive-loop detection, whereby wires cut into the pavement created a magnetic field, which would change when a metal vehicle came to rest above the wires. This would send a signal to the controller and initiate a signal change, and traffic would flow through the intersection. This

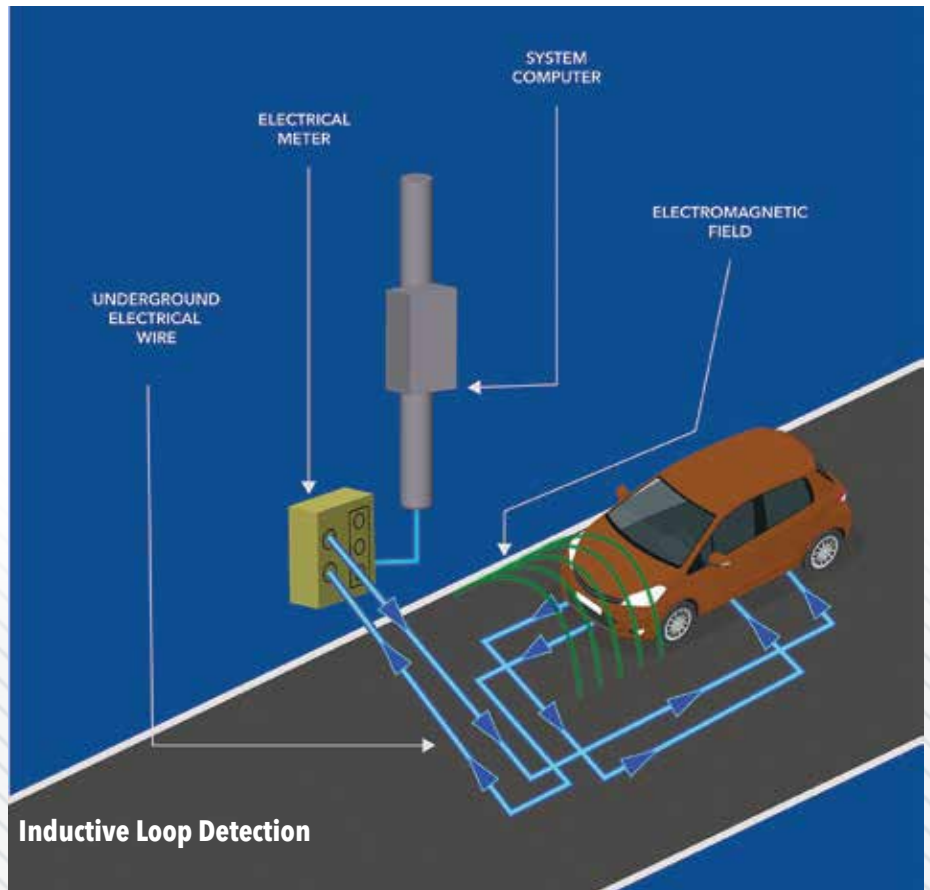
method, however, has proven less than ideal given the cost and upkeep, since wires needed replaced every few years at a cost around \$1,500 per set.

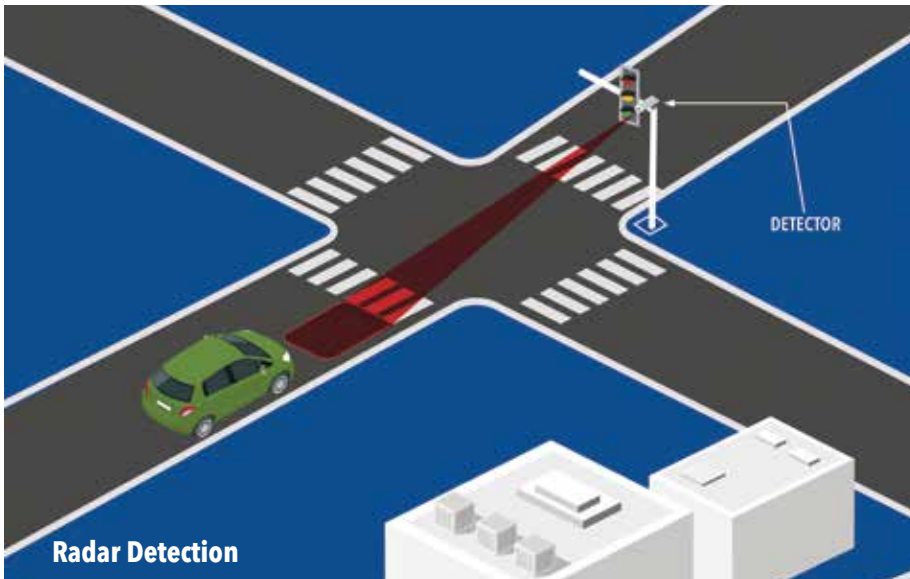
Inductive loop detection ultimately gave way to video detection. With this technique, cameras focus on specific zones at an intersection and could detect traffic waiting in these zones, which would initiate a traffic signal change. However, video detection is less effective in inclement weather, potentially affecting the accuracy of detection.

From Hardwired to Radar, Detection Improves

Municipalities began using radar detection as an alternative to inductive loop and camera detection, relying on non-visual wavelengths that are less impacted by inclement weather.

The implementation of radar detection also has the potential to reduce the number of dilemma zone occurrences.





Radar used at intersections detects an approaching vehicle up to 900 feet, and monitors the vehicle as it passes through the intersection to reduce the dilemma of choosing whether to stop, or proceed through a yellow light. Implementing the detection of a vehicle approaching the intersection allows the traffic signal to manage the traffic flow more efficiently. This can be an advantage, particularly with high-speed roads, when braking requires more time and space.

"The challenge of any detection method, though, is if there are a lot of vehicles on the road, say during rush hour, the efficacy of dilemma zone detection reduction diminishes," said Jason.

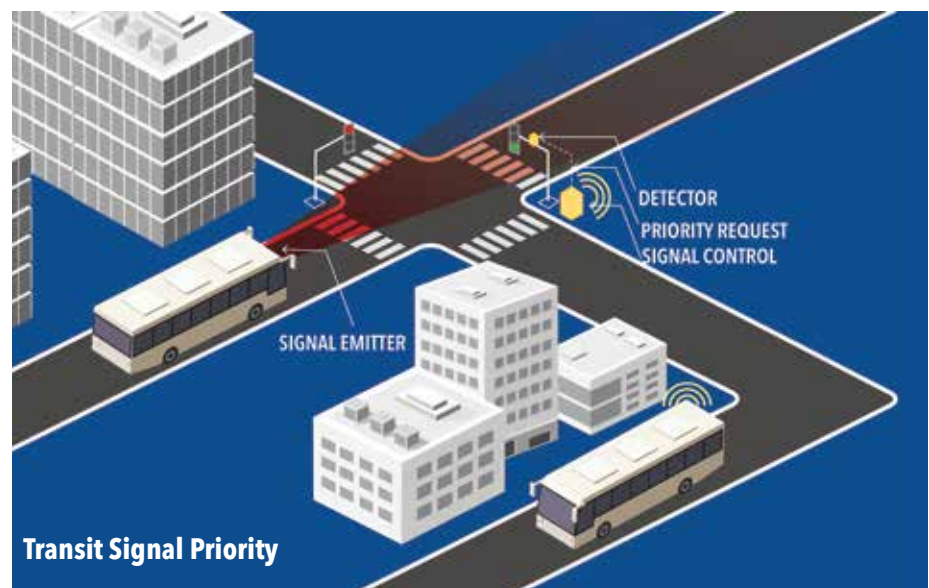
Not only has technology aided in the advancements in traffic detection and signals, but it has also progressed in how intersections communicate and interact with one another. The advancements in intersection interconnectedness allows for greater synchronization, not only across signals and intersections, but also across municipal boundaries.

"Traffic signal interconnect is often made possible by a wire that connects intersections within a corridor to develop progression from one intersection to the next," adds Jason. "The ultimate goal of communication between traffic signals is to reduce travel time, reduce the number of stops, and increase capacity."

The concept of interconnect was initially implemented as a closed loop system of

twisted pair copper wire connecting two or more signals within a corridor, and allowing signals to remain synchronized and coordinated with each other.

Over time, twisted copper wire has given way to fiber optic cable and wireless Ethernet-based radios. While the concept remains the same regardless of technology improvements, the use of fiber optic cable and wireless radios have increased the reliability of data transmission, eliminated signal degradation due to long distance communication, and increased the data transmission bandwidth. With these improvements, the use of a central control based system is more feasible and practical to implement and maintain.



A centralized system allows monitoring all traffic signals within a municipality from a single location, reducing staffing needs, increasing the accuracy of real time trouble alerts, and implementing timing changes. Under the right conditions, a centralized control system affords the opportunity for municipalities to communicate across jurisdictional boundaries.

Moving Forward Collectively with a Fiber Optic Backbone

"The City of Columbus and the Ohio Department of Transportation (ODOT) have done a good job at proactively installing fiber optic cable with enough capacity to accommodate emerging smart technologies," said Jason. "At some point in the future, these smart technologies may include autonomous vehicles."

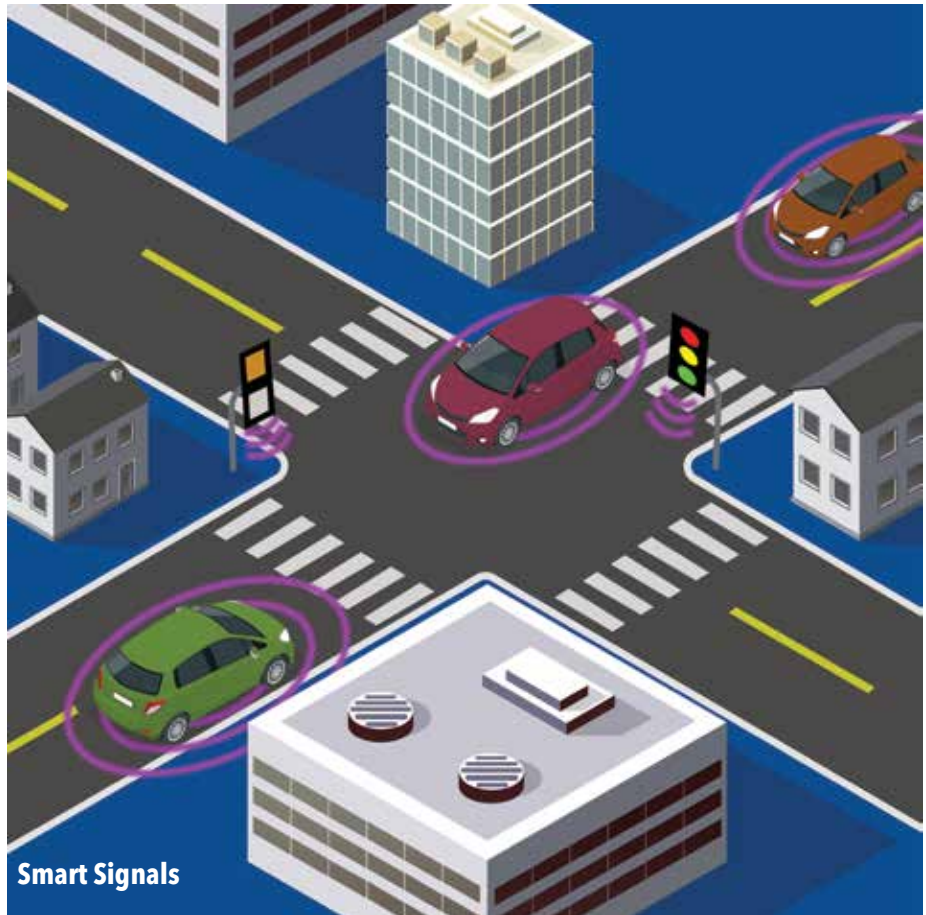
In some respects, though, this technology is already rolling out on a small scale. In Central Ohio, some Central Ohio Transit Authority (COTA) busses are equipped with the ability to communicate with signals to optimize bus transit times by way of rapid transit lanes. In a bus rapid transit environment, a line of communication is open between the bus and various traffic signals, to aid in progression that reduces delay and establishes reliable travel times.

For years, emergency medical service vehicles have used a similar technology. Emergency Vehicle Preemption

Systems allow emergency vehicles to interact with traffic signal controller software, allowing the vehicle to have a preferential signal, allowing it to pass through the intersection unimpeded. This particular technology has evolved from a line of sight communication system to alert the signal to change, to modern GPS-based technology. The GPS technology can track an emergency vehicle to the approaching intersection, and even synchronize the entire route for that vehicle.

Keeping pace with and adopting advancing technology is critical to the implementation of traffic signals and detection methods. EMH&T Traffic Engineers pride themselves on keeping up with the cutting edge of these emerging technologies in order to provide the highest level of service to their clients. In so doing, EMH&T is able to positively position municipalities with a more efficient traffic flow and an eye toward the future. ■

To learn more about how EMH&T can assist with your municipality's traffic signal system, contact Jason Smallwood at jsmallwood@emht.com or 614.775.4645.



Traffic Engineering Services:

Traffic Engineering

- Corridor Improvement Studies
- Roundabout Analysis and Design
- Thoroughfare Planning
- Traffic Calming
- Development Impact Assessment
- Access Management
- Bicycle and Pedestrian Facilities
- Traffic Signal Warrants
- Traffic Counts and Projections
- Traffic Studies and Analysis
- Roadway Lighting Design
- Preliminary Engineering

Maintenance of Traffic

- Maintenance of Traffic Alternative Analysis
- Constructability Review
- Planning and Design

- Traffic Control Design
- Signing and Pavement Marking
- Traffic Signal Design
- Video Vehicle Detection
- Coordinated Signal Systems
- Signal Pre-emption
- Street Lighting Design

ODOT Prequalification Categories

- Bicycle Facilities and Enhancement Design
- Non-Complex and Complex Roadway Design
- Interchange Justification/Modification Study
- Safety Study
- Right-of-way Plan Development
- Level 1.1 and 1.2 Bridge Design
- Level 1 Bridge Inspection
- Basic Traffic Signal Design

- Signal System Design
- Signal ITS Design and Operations
- Limited and Complex Lighting Design
- Environmental Document Preparation: EA/EIS, CE, Section 4(f)
- Ecological Surveys
- Stream and Wetland Mitigation
- Waterway Permits
- Regulated Materials Review
- Noise Analyses and Abatement Design
- Archaeological Investigations
- Historical/Architectural Investigations
- Construction Management Firm
- Construction Project Inspection

KEEPING PACE WITH GROWTH

Upper Scioto West Sanitary Sewer And Pump Station

When development is moving fast, public infrastructure has to keep pace.

In Hilliard, Ohio, continued growth and development along the Avery Road and Cosgray Road corridors required the collaborative expertise that EMH&T is able to provide in designing a new sanitary sewer and pump station. The Epcon community in development, Carr Farms, along with the construction of an Amazon facility, required public sanitary sewage service, which EMH&T was able to design on an extraordinarily tight schedule.

“EMH&T has been working on projects in this area for over a decade—our fingerprints are all over it—this is where our relationship with these communities and these developers allow us to streamline projects,” said Mike Keller, PE, Director of EMH&T’s Public Works Division.

And streamline EMH&T did. The initial plans for the project called for EMH&T to design a sanitary pump station and force main for the Carr Farms development and connect that to existing sewage service lines in the area with a timeline of 16 months. However, the announcement Amazon would be constructing a facility in the same area reduced the timeline by six months and the project was extended to include a sanitary sewer to accommodate for that addition.

Tight Timelines were Only One Part of the Challenge

EMH&T performed initial studies that revealed a number of obstructions in the area that would need considered. Karen Reinhart, PE, was the lead designer on the project and was able to complete design plans on an incredibly tight deadline of 10 months, which included

solutions for avoiding all of the existing lines. Karen’s team designed the sanitary force main to maneuver around a CSX Railroad line and two gas lines, including one high-pressure line.

The solution: bore under.

Installation of the sanitary force main must include three feet clearance from the high-pressure gas line. However, a hard locate of the petroleum line in the area found that it was actually three feet deeper than estimated, which pushed the bore into rock. To avoid a mix faced bore—boring along two different surface types, rock and soil—the engineering team, working with the construction team, designed an even deeper force main and switched the installation method to tunneling.

Going Deep

“Because the sanitary sewer had to go so deep, we had to plan for any potential de-watering issues,” said Marci Bland, PE, ENV SP, LEED Green Associate, Principal. To date, the team has not encountered that situation.

Typically, construction of gravity sewer lines is at a depth less than 24 feet. Once engineers determined the sanitary sewer line would need to go deeper to service upstream development, they employed different construction techniques and methods. EMH&T determined that the new line would need installed at a depth greater than 30 feet, which posed its own challenges.

“From a construction perspective, understanding we will be going greater than 30 feet deep, there are different techniques of how to get there,” said Mike, “and we planned with that in mind.”

EMH&T, as an engineering firm, is always preparing for constructability and the

manner in which the contractor will access the area. The plans for the Upper Scioto West Sanitary Sewer went beyond simply lines on paper. EMH&T took into consideration how the equipment would enter and exit the area when constructing the sanitary sewer line.

Forward Thinking Design and Planning

Once design solutions accounted for the unusual depth of the sanitary sewer line, the team turned its focus to piping. The Upper Scioto West Sanitary Sewer’s timeline happened to overlap



with global supply issues occurring in early 2021. EMH&T worked with the City of Hilliard to preorder the necessary supplies so that everything would be on hand when it was time to break ground for an anticipated end date of summer 2022. Preordering materials while still in the design phase, an uncommon practice to be sure, is indicative of the team's solutions-orientated foresight that kept the project on schedule.

The piping required for this project was unique insofar as it had to be of higher specifications due to the depth of the sanitary sewer line. The chosen

pipe—PVC PS115—is more durable and contains a thicker wall, greater flexibility, and greater strength to withstand the placement depth.

The pump station designed for this project also presented a challenge that required a creative design solution. The pump station needed placement in a centralized location of the Carr Farms subdivision to optimize functional performance. So that the facility seamlessly fit the neighborhood, EMH&T teamed with Acock Associates Architects, who were able to provide a design solution for the pump station

building to aesthetically match the subdivision by taking on a bit of a farmhouse appearance.

Because of the creative and collaborative solutions-oriented work, EMH&T was able to provide the City of Hilliard with 853 acres of developable land with the Upper Scioto West Sanitary Sewer and Pump Station. ■

To learn more about how EMH&T can assist with any public works need, contact Marci Bland, PE, at mbland@emht.com or 614.775.4237 and Mike Keller, PE, at mkeller@emht.com or 614.775.4207.





SETTING THE STANDARD

Assisting Communities Develop Design Guidelines

EMH&T has extensive experience creating standards, specifications, and requirements used to create a detailed engineering plan for a number of contract communities. Because of this broad project experience, EMH&T understands the need to carry forward important aspects of various standards and planning documents into other work.

Senior Traffic Engineer Jason Smallwood, PE, is a traffic standards expert who wrote the Traffic Signal Design Manual for the City of Columbus Department of Public Service. “EMH&T created all of the traffic signal standard drawings for Columbus at a time they didn’t have any.” This was significant because Jason and his team created over 100 pages of standard drawings that Columbus uses as the basis for all plan sets.

“It’s such an honor that our plan sheets,” said Smallwood, “are represented by the City of Columbus as the basis of what they want their plans to look like.”

EMH&T has had a role in creating and maintaining more than just standards for traffic and lighting, according to Smallwood. Other EMH&T Divisions have assisted with the City’s Roadway Design Manual, Downtown Streetscape Standards, and have established a number of policies, practices, and guidelines for green infrastructure, water distribution, water quality, stormwater protection, and construction materials. EMH&T helps maintain the Construction and Material Specifications manual for Columbus.

“We have dedicated groups that update the chapter on their area of expertise,” said Smallwood. “We’ve done that for two or three spec book revisions.”

Smallwood’s acute understanding of Ohio Department of Transportation (ODOT) standards

was helpful when creating the standard drawings for Columbus. “We started with ODOT standards,” Smallwood said, “then tailored everything for Columbus. It was important that the standards were very specific to the City’s desires.”

EMH&T has become a trusted partner with other communities for setting municipal standards. EMH&T’s experience as a contract engineer allow our engineers to adapt to the ever-changing and challenging design climate in Ohio, and develop standards to meet these demands—while also tailoring to the unique aspects of each client.

Recent examples of Smallwood’s work include the creation of the City of Grove City’s Street Lighting Design Manual, and mast arm signal standard drawings for the City of Marysville.

“I often tell our folks that, with traffic signals, every municipality has their own flavor or brand. Every community wants their signal to specifically reflect their ‘personality’, have a certain feature, or type of control.” The result of learning the different preferences across the diverse municipalities according to Smallwood, “is just as important as knowing the standards.”

Smallwood believes efficiency is having a plan and knowing where the finish line is, “knowing what their standards are and applying them,” he said, “produces a better product earlier in the design process.”

“Setting up a plan to adhere to the community’s standards eases their review effort and saves time. That makes for a successful project and a satisfied client.” ■

Jason Smallwood is available to help set the standard for all of your traffic engineering needs. Contact Jason at jsmallwood@emht.com or 614.775.4645.



Shorts



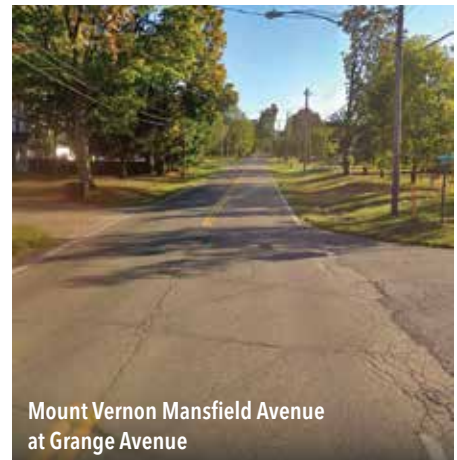
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Top Workplace USA

EMH&T is proud to announce recognition as a Top Workplace USA. We are one of the top workplaces in our industry in the nation. *Columbus CEO Magazine* also recognized EMH&T as a Top Workplace in Central Ohio, ranking first in our size category. Independent research firm Energage surveyed EMH&T employees regarding a number of workplace culture areas, and based on the response, elevated the firm to this recognition.

Clintonville Rain Gardens Update

Since 2013, EMH&T has been working with the City of Columbus on the Blueprint Columbus program. The focus of this work is to address the problem of rain water in the sanitary sewers by directing it to the storm sewers in combination with the use of green infrastructure to provide stormwater mitigation. To date, EMH&T has engineered rain gardens and other sustainable applications, such as sanitary lateral and mainline rehabilitation, roof water redirection, roadway/parking pervious pavement, and sump pump installations. According to the *Columbus Dispatch*, shortly after the construction of the first rain gardens in Clintonville, Ohio, the City of Columbus reported a reduction of water in basements by 64 percent, street flooding by 60 percent, and the upflow of water through manholes (because of overloaded sewers) by 72 percent. Today, EMH&T continues to work with Columbus throughout the City to mitigate stormwater in the sanitary sewers through sustainable solutions.



Mount Vernon Mansfield Avenue at Grange Avenue

Connecting with Mount Vernon through the newest Shared-Use Path

EMH&T recently won the 1.65-mile County Road 5 Shared Use Path project in Mount Vernon. From Belmont Avenue to Grange Avenue, EMH&T will provide preliminary engineering and Transportation Alternatives Program (TAP) funding application support for the City. EMH&T's work will ultimately result in alternative mobility options and enhanced safety for people walking and riding to Dan Emmett Elementary School and other destinations. The path will expand upon the existing bike route, providing local and regional benefits. EMH&T has a significant history working with the City of Mount Vernon, including the South Main Street Trail Connector, Downtown Connector Trail, and the Kokosing River Restoration.



Mount Vernon Downtown Connector Trail



Photo credit: JPMorgan Chase

From Asphalt Jungle to Energy Power House

The American Council of Engineering Companies (ACEC) of Ohio awarded EMH&T an Engineering Excellence Award for the JPMorgan Chase Parking Lot Solar Canopies Project. EMH&T was a part of the exceptional team assembled to design and construct the second largest commercial office solar installation in the world, surpassed only by Apple's corporate offices in Cupertino, California.

Giving Back

EMH&T has long valued its commitment to give back to the communities where we live and work. The firm offers employees paid time off so they can participate in a wide variety of charitable efforts. Working as individuals on personal passions, to division staff working together on a group project, philanthropic endeavors are held in high esteem at EMH&T. Here's a brief look at how some of our staff have been giving back.



Staff from both Transportation Partnerships and Transportation Planning and Design Divisions helped the Worthington Resource Pantry unload a monthly delivery from the Mid-Ohio Food Collective. Each month, Worthington's pantry receives deliveries equaling 1,000-5,000 pounds of food to stock the "store." Pictured above (L-R) Cal Boggs, Stacy Troutman, Brian McCutchen, Andy Kushmeider, Matt Rotar, and Grant Wasielewski.



People In The News

Joining the Team



V. Mitrione

Welcome to the Planning and Landscape Architecture team, Valerie Mitrione! Valerie has her BS in Landscape Architecture from The Ohio State University and brings with her over three decades of working experiences as a Landscape Architect. Her background includes a variety of complex project types such as mixed-use, corporate, higher education, civic, and healthcare design.



D. Dosen

Dana Dosen joined EMH&T as an Environmental Scientist in the Environmental Division. She is a graduate of The Ohio State University with a BS in Food, Agricultural, and Biological Engineering.



C. Montgomery



A. Kushmeider



K. Harmon



E. Siegrist

New PEs

Congratulations to these brand new Professional Engineers: (L-R) Carly Montgomery (Public Works), Andy Kushmeider (Transportation Partnerships), Kyle Harmon (Development I), and Eric Siegrist (Industrial and Logistics)!

Promoted to Principal

Join EMH&T in congratulating four professionals who have been promoted to Principal: Mike Brehm , PE (Transportation Partnerships), Abby Cueva, PE (Transportation Planning & Design), Brad Parsons (Information Technology), and Amy Nagy, PE (Development II).



M. Brehm



A. Cueva



B. Parsons



A. Nagy

Promoted to Associate

EMH&T is pleased to recognize seven new Associates as firm leaders for 2022. Associates have demonstrated that they actively foster the values of the company and promote the development of the business. Please join us in congratulating Ken Kerns, CESSWI (Construction Services), Jarrod Holtzapple, PE (Construction Services), Mark Spears, EI (Construction Services), James Herriott (Information Technology), Cory Wolfe, PE (Development II), Katie Bauman, PE (Development II), and John Cahill, PE (Urban Design).



K. Kerns



J. Holtzapple



M. Spears



J. Herriott



C. Wolfe



K. Bauman



J. Cahill

Contact Us

Contact EMH&T today to schedule a visit at your office. You can reach us at **614.775.4500** or by email at **info@emht.com**.

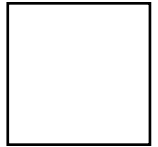
You are also welcome to contact any of the experts identified at the end of each article in this issue of *Ingenium*.

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- Environmental Sciences
- Infrastructure Renewal
- Railroad Services



May 11-13, 2022

Kalahari Resort and Conference Center
Sandusky, Ohio

Visit us at Booth 401.

Friday, May 13 | 11 a.m. to Noon

Scioto Peninsula, Columbus:
Urban Stormwater Planning and BMP
Implementation



Robert Ferguson, PE, MS
EMH&T, Columbus, OH

The presentation will provide a case study of the planning, design, and construction of stormwater management facilities in a dense urban neighborhood in downtown Columbus, Ohio. The implementation of Green BMPs was a primary focus for the project.