EMH&T

Engineers, Surveyors, Planners, Scientists

Delivering **Solutions.**

Proposal:

GIS Technical Consulting Services Related to Department of Technology (RFQ014195)

City of Columbus

December 16, 2019

emht.com

EMH&T
Engineers, Surveyors, Planners, Scientists

December 16, 2019

City of Columbus
Department of Technology
Attn: Director, Sam Orth III
1111 East Broad Street, Suite 300
Columbus, OH 43205

RE: CIty of Columbus, Department of Technology
GIS Technical Consulting Services (RFQ014195)

Dear Mr. Orth,

EMH&T is pleased to submit our qualifications to provide professional GIS services to assist with the continued development of the Department of Technology's (DoT) Geographic Information System (GIS) in support of your City's operations. Our firm is knowledgeable, trained, and experienced in the scope of services requested. We offer the DoT experience and resources to ensure the high quality, economic, and timely completion of your project.

Our team members understand the partners the City of Columbus Department of Technology (DoT) has internally, along with other departments across the organization. We understand the need to deliver and sustain state-of-the-art technology solutions to benefit the City's residents and business owners.

EMH&T understands the project needs of the City of Columbus because we have led other similar GIS projects, and have worked directly with the City of Columbus on past projects. While we are a Columbus-based firm, we are regional experts pertaining to our role in these specialized services.

The following are advantages of working with our team:

- We bring full capabilities to gather requirements, prepare deliverables to specification, and work with the DoT through an iterative development process to continue to develop the City's GIS on an "as-needed" basis.
- We understand your critical data, and will prepare the DoT for future innovation and integration.
- We can prioritize crucial infrastructure with the ability to strategically plan for future internal projects.
- We are knowledgeable, trained, and experienced experts in the services necessary as shown in our recent relevant experience.
- Our Project Manager Derek Mair has a detailed understanding of user requirements, technical skills in all areas of GIS, and superb organizational and project management capabilities. Derek will ensure that all the project pieces come together to meet the DoT's needs and expectations.

5500 New Albany Road, Columbus, OH 43054 • Phone 614.775.4500 • Fax 614.775.4800
Columbus • Charlotte

Summary of Solution.
Our solution for Columbus is our proposed teams strength. EMH&T leads the team with 3SG Plus, and JMT Technology Group assisting as subconsultants. With the strength and experience of the team, all bases are covered for the City with this "as-needed" professional services contract. We have a strong local presence, specifically with Columbus experience—along with an amazing portfolio of similar client engagement at the state, regional, and national levels. Each of the team member firms provides something valuable for the City, as you can see from the team member experience in the section 2 resumes, and section 3, relevant project experience.

This team member framework will allow us to collectively provide services that best serve Columbus—bringing to the table what we already know in terms of your existing platform and staff.

Legal Structure/Federal Tax ID/Principal Place of Business:
EMH&T is a Corporation that has been in business since 1926. A list of the officers and directors are as follows: President, Sandra C. Doyle-Ahern, MEn; Executive Vice-President: Douglas E. Romer, PE; Vice President: Jeff Strung, PLA, ASLA. EMH&T's federal tax identification number is 31-0685594 and all work will be performed at the firm's headquarters located at 5500 New Albany Road, Columbus, OH 43054.

Contributing Authors for Proposal:
- Derek Mair – EMH&T Project Manager, Director of GIS Services
- Gretchen Klamar – Communications Specialist

If you should have any questions regarding the contents of our submittal, feel free to contact your Project Manager, Derek Mair at (614) 775-4280 or via e-mail at dmair@emht.com.

Sincerely,

Sandra C. Doyle-Ahern, MEn
President

Derek Mair, MISM
Project Manager/Director of GIS Services

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EMH&T

Section 1:

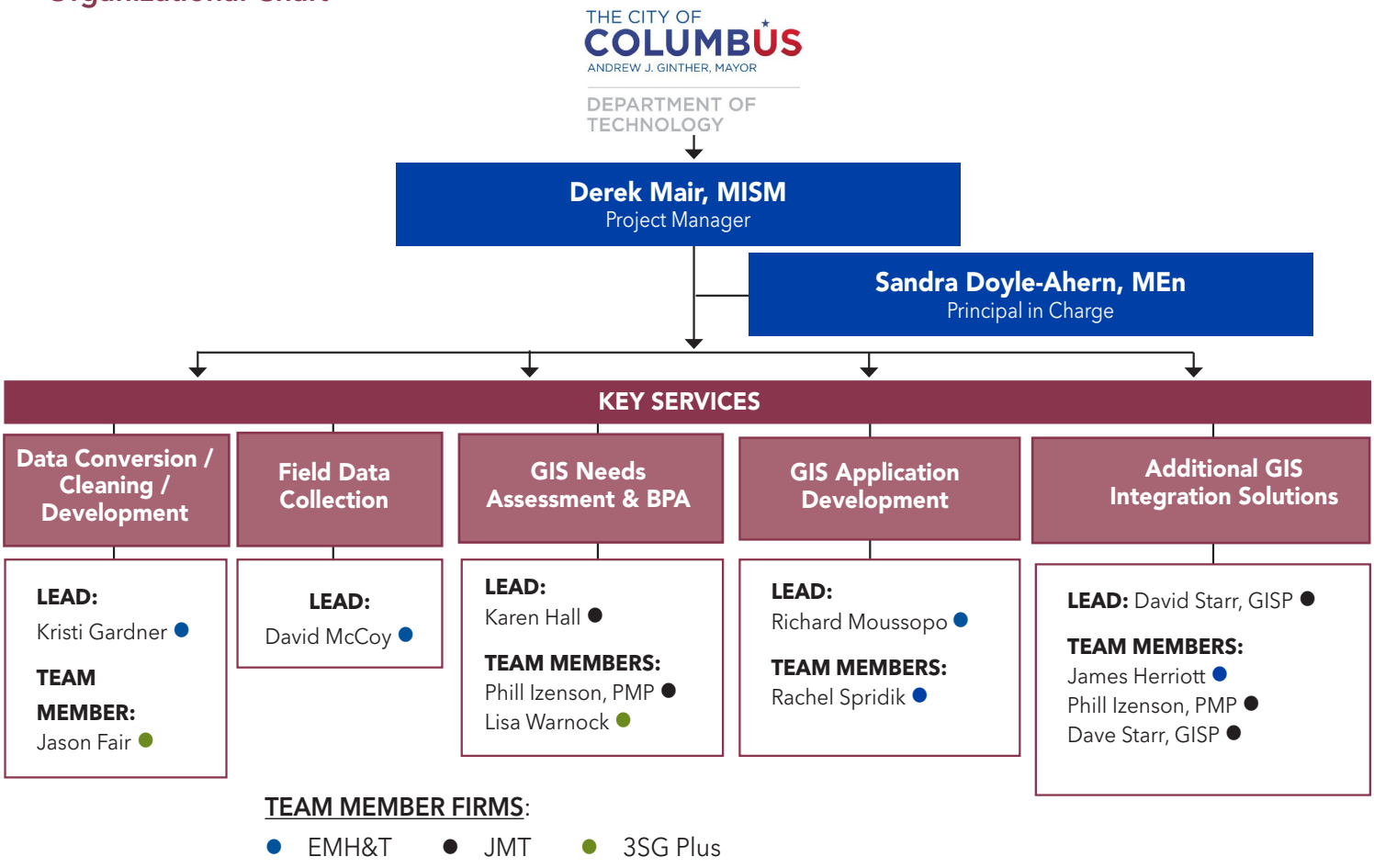
Firm Introduction

Project Team Members

Estimated percentage of work to be completed by each firm can be found below. Due to the nature of the services needed on an "as-needed" basis, the percentages below will vary depending on the work assignment.

Firm Name	Location/Phone	Contract Compliance No.	ODI Status	% of Contract
EMH&T	5500 New Albany Rd Columbus, OH 43054 (614) 775-4280	CC004214	N/A	50%
JMT Technology Group	2800 Corporate Exchange Dr, Ste 250, Columbus, OH 43231 (614) 714-0270	CC009015	N/A	30%
3SG Plus, LLC	8415 Pulsar Pl, Sute 300 Columbus, OH 43240 (614) 652-0019	CC019867	MBE	20%

Organizational Chart

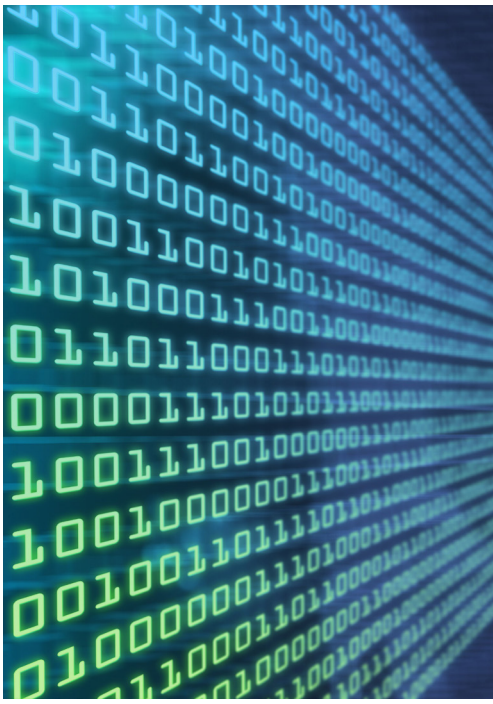


Lead Firm Information

Address:
5500 New Albany Rd
Columbus, OH 43054

Phone:
(614) 775-4280 – Project Manager Derek Mair, MISM

Background: EMH&T began as a local, one-man start-up in 1926 and has since grown exponentially, as offices and service disciplines were strategically added to meet clients' needs. Service offerings grew to include geographic information systems, planning and landscape architecture, transportation engineering, environmental and cultural resources, construction services, infrastructure evaluation, urban design and railroad engineering. EMH&T is licensed throughout the Midwest and Southeast, where hundreds of employees serve a wide variety of clients. The EMH&T legacy is proudly defined by the original intent of Gordon Evans nearly a century ago: dedication to the performance of quality services.



EMH&T's Geospatial Services Division began in 1994. We represent large and complex entities or small and straightforward, multi-jurisdictional or home-ruled municipalities. The GIS Division makes important information accessible and flexible. We help organizations see the big picture by mapping assets to achieve maximum spatial enablement, facilitating access to the valuable information through interactive mapping where and when it's needed. Our information management applications are strengthened by being spatially enabled. EMH&T has developed an approach that allows us to analyze and then integrate existing systems and create data stores as pieces within an organizational application solution. Our approach transforms information into knowledge—empowering full management of assets so you can become an efficient digital enterprise.

Currently, we have a staff of nearly 350 employees. We are unique in our ability to provide additional support as needed for any project, drawing on our comprehensive, multidisciplinary staff resources.

Our breakdown by discipline is:

- GIS Specialists/4
- Professional Engineers & EIs/108
- CADD Technicians & Designers/55
- Professional Surveyors & Sis/12
- Survey Field Personnel/37
- Environmental Scientists/11
- Construction Administrators and RPRs/17
- Landscape Architects & Planners/6
- Archaeologists/3
- Infrastructure Investigators/25
- Administrative/41

Our team members understand the partners the City of Columbus Department of Technology (DoT) has internally. It is vital to understand how the DoT and other departments across the organization work together, and the mission to deliver and sustain state-of-the-art technology solutions between the public and private sectors to benefit the City's residents and business owners.

When working on a development for a GIS project, EMH&T looks beyond the project scope and tries to understand the "why" for which the client has chosen to make this investment. We can engineer the "hows" but it is truly the "whys" where we improve communities and become strategically involved with the client's overall vision, ensuring our deliverable dovetails with the long-term plan of the project. EMH&T has assembled a truly unique team that will provide the DoT the technical experts to complete the "as needed" tasks to support the City's information technology.

ESRI ArcGIS Software

EMH&T has taken great pride in being in the forefront of new technology, management tools, and software/hardware that can improve the overall performance of the planning, design, engineering profession. As an authorized member of ESRI's Partner Network, EMH&T services include the continued application of advanced GIS functionality including:

Cartography–Goal is to allow you to successfully create maps that present geographic data in a clear, precise, and efficient manner. To do this, we create specialized tools to automate as many standard cartographic processes as possible.

Cloud GIS–Cloud GIS offerings can range from data storage solutions to end-user Web applications or other focused computing services.

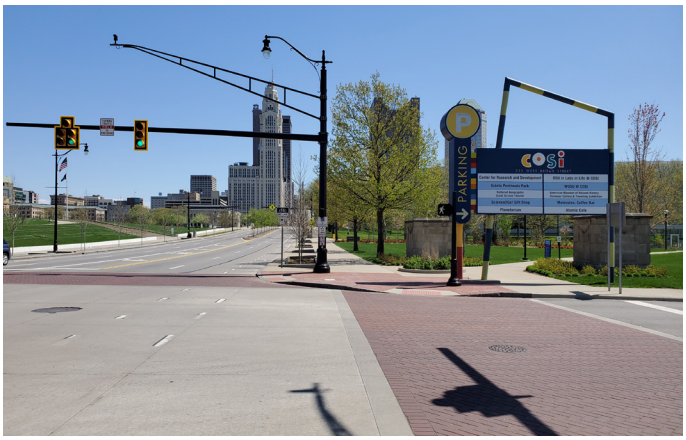
Enterprise GIS–An enterprise GIS provides broad access to geospatial data and applications throughout the organization.

GIS and CAD–The use ArcGIS services inside AutoCAD and other CAD software. Including building information modeling (BIM) and 3D GIS for complex data management and analysis

City of Columbus Experience:
As a Columbus-based firm, EMH&T has an unmatched connection to the City, providing a full array of services and engineering consultants. EMH&T has designed some of the most significant projects from GIS applications for utility billing, urban redevelopment and suburban roadway work, to simple sidewalk reconstruction and plan review. We have a proven track record of coordinating with multiple stakeholders and users of the various City of Columbus applications. Throughout a project's process, our value is the ability to work with the City up front to identify stakeholders (residents or business owners) or other internal City departments (from data users within the City of Columbus, private utilities, Council, funding agencies, or reviewing agencies), and manage the coordination efforts throughout the process.

EMH&T has supported the City of Columbus with significant GIS service over the years. Our understanding and comprehension of your needs and your environment is strengthened with the experience of our leadership involvement in the following initiatives for Columbus on previous GIS projects:

- **Stormwater Utility Management System (SUMS)**: EMH&T developed an ESRI ArcGIS solution that overcame the shortcomings of the older system, an AutoCAD solution for managing impervious areas as part of the stormwater utility. The new solution managed associated documents and tracking information, and also integrated with the City's CUBS billing system. The ArcGIS extension created by EMH&T is called the Stormwater Utility Management System (SUMS).
- **Division of Water Geographic Information System Data Conversion**: EMH&T developed a GIS inventory of the water distribution system for the City and converted and mapped the water tap records for the City.



EMH&T staff maintains strong relationships with critical departments and divisions of City of Columbus operations, and has a through familiarity with City standards and procedures.

- **Capacity Management Operations and Maintenance (CMOM) Sanitary Sewer Overflow Elimination Mapping**: As part of the CMOM program, EMH&T completed digital atlas creation for the entire sanitary and storm sewer collection systems and received the Honor Award from the American Council of Engineering Companies (ACEC) of Ohio.
- **VISION GIS Data Conversion**: EMH&T (as a sub-consultant) prepared detailed attribute information for the entire sanitary and stormwater collection system.
- **Construction Drawing Imaging and Management System (CDIMS)**: EMH&T scanned and indexed more than 140,000 engineering drawings for the sewer and water systems and all sewer permit records.
- **Collection System Capacity Study (CSCS)**: EMH&T prepared system-wide GIS data for the combined and sanitary systems in order to model what-if scenario analyses on a continuous simulation basis for the most critical sanitary/combined collection system components.

We are embedded with City of Columbus and know your programs, your staff, and goals. The following are other examples of our commitment to the City of Columbus' improvement of technology, infrastructure, and innovation:

- EMH&T has assisted with the City of Columbus Downtown Streetscape Standards, providing the Department of Public Service with a comprehensive set of standards that address improvements within the right-of-way including sidewalks, curbs, crosswalks, street lighting, landscaping, green infrastructure, medians, and parking lot screening.
- EMH&T was involved with the City of Columbus 2012 Construction Material Specifications, and the Brick Pavement Supplements Specifications.
- Our traffic engineers authored the Traffic Signal Design Manual in 2014, and was on the consultant team for the Traffic Signal Installation GES - Downtown Signals project in 2015.
- EMH&T water resources/stormwater experts provided key consultation working with the Columbus Department of Public Utilities to develop policies, guidelines and design specifications for the City's emerging green infrastructure program.
- Our Urban Design Division has staff on a committee for Columbus' upcoming design and publication of the Infrastructure Design Manual.
- EMH&T has also provided extensive public works engineering for water, sanitary and storm upgrades, separations, and rehabilitation throughout the City, from its urban core (downtown areas of the Scioto Mile, RiverSouth District and the Arena District) to extensive satellite community infrastructure in the farther reaches of the City limits and beyond.

EMH&T also partners for land development projects. EMH&T has facilitated millions of dollars in 3P projects, and shepherded countless permits through the City of Columbus system… all meeting the very specific high standards of the City.

Our team has a fundamental knowledge and appreciation for the long-term goals for the City and will bring this knowledge to the GIS Technical Consulting Services related to the DoT.

To expand the breadth and depth of our service offerings, we have included two outstanding firms in our teaming to offer comprehensive services for the City, shown on the following pages.

Subconsultant Information

JMT TECHNOLOGY GROUP

2800 Corporate Exchange Drive
Suite 250
Columbus, OH 43231

Phone: (614) 714-0270

Background: JMT Technology Group is a progressive geospatial and information technology services provider that assists a variety of industries to solve complex business challenges using web, desktop, and mobile technologies. They help clients to access and visualize their data, making it possible to ask and answer questions that would otherwise not be possible. Dedicated to using the most innovative and proven technologies available, JMT are a collaborative and dependable team of technology experts who strive to make a difference by providing high-quality work coupled with an unparalleled commitment of service to their customers.

JMT Technology Group is part of the larger Johnson, Mirmiran & Thompson, Inc. (JMT), a multi-disciplined consulting firm incorporated in 1971 employing over 1,600 professional and support staff in the United States. JMT is headquartered in Hunt Valley, Maryland, with 42 offices throughout the United States. In Ohio JMT has three offices in Columbus, Cleveland and Cincinnati, with the Columbus office leading this contract's effort.

The JMT Technology Group consists of over 80 staff members comprised of the following:

- Project Managers, with a combination of Project Management Professionals (PMP), Geographic Information System Professionals (GISP), Certified Scrum Master (CSM) and ECMs (Enterprise Content Management) professionals
- System Architects and Application Developers, with experience in multiple development frameworks (.NET, jQuery, Java, etc.), web development, GIS development, native mobile application development, and other technologies
- User Experience and Web Design Specialists, with expertise in user interface (UI) design and CMS systems
- Business and System Analysts, which includes expertise in stakeholder identification and analysis, group facilitation, stakeholder interviews, business process models, functional requirements documentation (FRD), and training
- GIS and Data Analytics Experts with expertise in desktop, mobile, and web GIS as well as Python Scripting, Google Maps API, and FME software
- GIS Specialists, with expertise in GIS emerging technologies
- Database Administrators, with experience in Microsoft SQL Server, Oracle, MySQL, ArcSDE, MongoDB, and PostgreSQL.

JMT brings a wealth of experience creating web sites, web applications, mobile applications, and intranet sites for a wide range of clients. Our team works seamlessly, involving the technical experts, user experience designers, and content creators from the initial planning stages of a project to identify the best potential solutions to meet the client's objectives. Our solutions use a data driven and content centered approach.

Our GIS and mapping expertise runs deep, with over 30 years of experience developing and administering spatial databases and creating cartographic solutions. JMT staff possesses vast knowledge in Esri SDE, Oracle Spatial and SQL Server spatial tools. **We have extensive experience collecting and developing enterprise geospatial databases for large cities, municipalities, state agencies, and small organizations providing current and reliable data that supports business operations and analysis**.

Our services include database design and implementation; database conversion and migration; GIS data development to include digitization and field collection; GIS application development; integration between GIS and other systems such as Maximo and CityWorks; spatial analysis; enterprise geodatabase management and administration; and GIS systems engineering.

JMT staff holds certifications that address the wide and ever-changing needs of the technology industry and are committed to continuous professional development to ensure their consulting services provide clients with knowledge and expertise required in such a fast-paced industry. Certifications include:

- Geographic Information Systems Professional (GISP)
- Certified Mapping Scientist (CMS)
- Project Management Professional (PMP)
- Certified Business Analysis Professional (CBAP)
- Microsoft® Certified Systems Engineer (MCSE)
- Microsoft Certified Professional (MCP)
- Microsoft Certified Technology Specialist (MCTS)
- Enterprise Content Management Specialist (ECMs)
- Business Process Management Specialist (BPMs)
- Information Organization and Access Specialist (IOAs)
- Certified OnBase® Installer
- Certified OnBase Workflow Engineer

JMT is a proud business partner with the following companies and organizations, allowing them to provide the best solutions and technologies availalbe to the City of Columbus:

esri Partner Network Silver

Microsoft | Partner Program

ORACLE Gold Partner

OnBase Authorised Solution Provider

JMT brings the City of Columbus GIS Technical Consulting Services Contract the following:

JMT Technology Group's approach to providing the services that serves as a platform for the City and offers an effective, efficient and proven approach that aligns with the City of Columbus's needs. JMT is committed and driven to support the City's DoT in their continued advancement in Geographic Information System (GIS) and Department of Technology's (DOT) programs.

They will bring a staff that has extensive knowledge and experience in GIS technologies that continuously advance their knowledge through training, conferences, workshops and other opportunities. **Their primary key to success is to provide and maintain regular communications between JMT, our teaming partners EMH&T and 3SG Plus, and the City. This allows JMT to anticipate and be prepared for projects and assign staff with the requisite skills to meet the scope, schedule, and budget constraints**. By staying engaged, JMT is better positioned and prepared to deliver services and resources that are of high quality, on time, and within budget.

JMT is on the forefront of technology, evaluating and re-evaluating GIS current technologies to ensure that they meet specific and future business needs and can work effectively within the information technology environment. They fundamentally do not believe in pushing a technology solution that is looking for a problem; instead JMT works to understand the challenges an organization faces and propose a solution that leverages data, technology, and personnel. Their extensive experience with state and local government agencies has allowed them to build internal expertise from which they draw for every project.

JMT hopes to be closely engaged with the City of Columbus in such a way that will provide efficient and effective implementations when the need arises. Ultimately, JMT believes working with the City will enable a partnership that achieves goals through continuous improvement, innovation, and ongoing collaboration.

8415 Pulsar Pl, Suite 300
Columbus, OH, 43240

Phone: (614) 839-0250

Background: 3SG Plus started with a vision to help companies "go-digital" and ease their problems storing, filing and retrieving paper documents, microfiche, and microfilm. In the past 10 years, we have expanded our services to include award-winning Enterprise Content Management (ECM) software. With the power of OnBase created by Hyland Software we can provide custom-designed solutions to address organizations many efficiency and productivity challenges.

3SG Plus, previously known as 3SG has been in business for the last 20 years providing document imaging and document/content management solutions. Over the last 10 years our partnership with Hyland's OnBase software has helped us provide innovative solutions to our customers in and around Ohio. Franklin County, City of Columbus, State of Ohio, City of Dayton, City of Toledo etc. are some of our existing customers that use OnBase across multiple departments. 3SG Plus has 30 full time staff spread across multiple locations. Our core OnBase team consists of certified engineers who have helped us create and implement solutions for our customers in the last 10 years.

3SG Plus is known as a leader in Enterprise Content Management (ECM) Services:

- data management, standardization and migration
- case management
- workflow process improvement
- business application integrations.

3SG Plus's senior management team possess over 60+ years of combined ECM experience serving both private and public sector clients. Our experience in deploying large scale ECM solutions, combined with comprehensive project management methodology, based on tenants of the Project Management Institute (PMI) revolves around customization and automation of business processes to facilitate increased operational efficiency and lower costs. This methodology allows us to meet project specific goals and has provided 100% success in 3SG's projects.

Offeror Approach to Projects

EMH&T is thoroughly knowledgeable in industry best practices necessary to conduct professional consulting and engineering for the development of the DoT's GIS. We are convinced that the best way to serve the needs of your staff and your citizens is to customize the industry best practices. Our history of government service gives us an insight into system development as both designer and user.

We understand that the enhancement of an **enterprise** system requires the useful management of the platform, data, and applications against the needs of the staff at the DoT and all the services the DoT manages from supporting utilities billing, 311, to managing and operating two data enters, and more. We will continue to support the City with a well-thought-out system that is streamlined for information access, increased prioritization planning, and reduced operational costs for your organization.

High quality communication materials promote data inventories and products, helping people understand relationships between data and the environment.

Data Conversion / Cleansing / Development: Our team is well versed in data conversion to support GIS development. We have a vast amount of experience in creating the layers necessary to run your GIS. We employ a variety of tools and processes. Both JMT TG and 3SG Plus are Hyland Partners and have extensive experience with that platform. In addition, 3SG Plus, being local, also has the ability to perform large-scale document scan conversion if the need arises for the City. This is a fantastic service offering from our team—unlikely to be matched by any other proposing team.

Field Data Collection: Our standard model for field data collection utilizes ESRI Collector, a tablet (with mobile data connection), and a Trimble R8 RTK GPS against enterprise geodatabase layers hosted through ArcGIS Portal. This accomplishes efficient, direct data collection / storage of high quality data (~cm accuracy) and allows our office staff to begin processing the data immediately. It really is a remarkable state-of-the-art to be working this way and we are always excited to bring these efficiencies to our clients. When more rich format data capture is required, we have routinely deployed Survey 1-2-3 forms. This is a great option for inspection / condition assessment type activities.

GIS Needs Assessment and Business Process Analysis (BPA): We know that understanding the "problem" well is key to defining and then developing appropriate solutions. We focus the right amount of attention on this up-front so that a full and complete conversation takes place and the essential details are fleshed out. We will thoroughly document the process and findings to allow the City to sign-off on the solution before we launch our efforts. We always make sure to consider all aspects of the solution including, among other categories, technology resources, data considerations, and application integration.

GIS Application Development: Our approach to completing the work will employ agile development methodology, which will involve the City in numerous periodic review sessions of completed batches of work to allow for necessary feedback and input. This allows the best compromise between moving forward with necessary details and flexible enough to change the target somewhat.

Additional GIS Integration Solutions: When applications are integrated and support one another through the normal course of business, the power of GIS as a map-based interface to almost any system is unleashed. Our team will consult with you carefully to find opportunities for this to take place and make sure to fully document the tie-ins that are employed so that future updates to either side of the integration do not break the links—however tight or loose the original integration is.

In addition to those categories outlined above, you can rest assured that the EMH&T team is fully prepared to support the City GIS.

Project Management Methodology/Project Coordination Tools

We will coordinate and communicate effectively and regularly with the DoT to facilitate open and effective communication, ensuring that relevant issues are considered on an on-going basis and that good decisions are made on the projects as they progresses. Derek, your Project Manager, will submit monthly project report updates covering items related to scope, schedule and budget, as well as a status summary of any project related issues that must be resolved to keep the projects continuing on track.

EMH&T recognizes that it is important to keep a project on schedule and that an agreed-upon to schedule needs to be met. EMH&T will conduct frequent communication and coordination with each of the applicable internal City organizations, agencies and utilities such that the DoT will already know the project's details before their examination of the final product will be performed.

Communication: Derek is committed to being available via phone, cell, fax, and e-mail. He will also provide a secondary contact person for your convenience. Of note, EMH&T employs an integrated desktop messaging system that allows e-mail, faxes and voicemail messages to be sent and received to and from our computer desktop, and accessible via phone.

Quality: Derek believes that professional consulting services pays for itself through saved future expenses. To that extent, he will lead our team to regularly employ the most innovative and effective methods to meet the City's goals.

Technical Innovation: Digital communities are local governments that are using technologies to plan and deploy advanced digital services; to improve residents' lives and transform the way government conducts business. We will work with the DoT to operate more efficiently through information sharing and utilizing information-computing resources. This will result in citizens being more satisfied with their government and the quality of life in their community.

Meeting Schedules & Deadlines: Derek utilizes MS Project to track schedules that are developed through critical path scheduling methodology. He will coordinate up front with you and prepare an aggressive but realistic schedule as projects are defined in order to assist the continued development of the DoT's GIS.

Plan: Establishing a framework is critical when preparing to provide services to assist a community GIS. This step involves prioritizing the needs of local government agencies, businesses, and citizens while taking into account the information collected during the communication process.

QA/QC Process

EMH&T follows a structured quality control procedure to ensure all GIS services comply with project-specific regulations and specifications, while also meeting EMH&T's established high standards. Our quality control process also provides significant cost containment practices including:

- Minimizing the number of individuals who work on a project by assigning the most skilled person for the particular work type
- Managing sub-consultants through one primary contact
- Monitoring budgets closely utilizing weekly accounting reports
- EMH&T strongly believes in "project ownership" – the same person sees a project from beginning to completion

This avoids duplication of work and empowers staff to take ownership of a project. Our previous experience with performing GIS services in numerous Ohio communities and with the City of Columbus allow us to accurately estimate project costs. We consistently meet budgets, and exceed project deadlines. EMH&T has shown our ability to expertly manage multiple projects and meet project deadlines under challenging conditions.

EMH&T

Section 2:
Qualified Project Staff

The following team members demonstrate significant experience in their field with municipal entity and substantial technical competency. The **EMH&T GIS Division team members have worked together on similar project in Columbus and throughout the region since 1999** from our headquarters in Columbus, Ohio.

EMH&T teamed with 3SG Plus and JMT Technology Group to provide the City of Columbus significant experience with municipal entities, including the City of Columbus, and specialized technical competencies. We will ensure your projects stay on time and within budget by engaging the right resources for each "as-needed" project that comes up with the City's Department of Technology (DoT). The result of a well-thought-out system is streamlined information access, increased prioritization planning, and reduced operational costs for your organization.

Lead Firm Resumes

PRINCIPAL IN CHARGE

Sandy Doyle-Ahern, MEn | President

As president of EMH&T, Sandy's role on this project demonstrates our commitment to the City of Columbus GIS Technical Consulting Services Project. She will ensure that the team has the necessary resources for an exemplary performance, and she will focus on how the City's needs are being met, and evaluating progress/performance of the team.

Education: *MEn, Environmental Science/Water Resources, Miami University; BA, Biology, University of Delaware* | **Available**: *2 hours/week*

PROJECT MANAGER & LEAD FOR GIS NEEDS ASSESSMENT & BPA

Derek Mair, MISM

Derek has 28 years of experience in his field and provides management of projects within the Geospatial Solutions Division at EMH&T. He is responsible for budget, schedule, resource allocation, and is the day-to-day contact for clients and the conduit to the GIS team. Derek initiates the strategy based on the scope of work for municipal clients, and outlines the specific steps and tasks needed to accomplish each project.

Education: *BS, Mathematical and Physical Sciences – Computer and Information Science, The Ohio State University; Masters of Information Systems Management, Keller Graduate School*

Technical skills/competencies with current City of Columbus DPU/DoT computing environment as it relates to GIS:

GIS Server Environment
- Esri ArcGIS Server for Windows 10.2.1, 10.3.1, and 10.6.1
- SQL Server 2014

GIS Desktop Environment
- Esri ArcGIS Desktop 10..6.1 (planning to migrate to 10.7.1)
- Various ArcGIS Desktop Extensions
- ArcGIS PRO

ArcGIS Online (external Portal) & Open Data Portal

GIS Development
- ArcGIS Web Application
- ArcGIS Web App Builder
- APIs Google maps & Esri
- ArcGIS Runtime SDKs
- ArcObjects SDKs for .NET Framework (ArcGIS Desktop & PRO)

Relevant Experience:

Derek is adept at streamlining efforts for data gathering techniques, task management, data integration, training, long-term maintenance and quality control for GIS-related products. He has expertise with the recommendation and implementation of technology integration including application integration and development. He determines best practices for the incorporation of technology tools and techniques, including use of GIS in public sector application areas.

Derek understands that information management applications are strengthened by being spatially enabled. He is adept at analysis and integration of existing systems and data stores as pieces within an organizational application solution. Derek works with clients to provide immediate and long-term, practical and economical solutions for GIS applications. His group provides hands-on training for new applications and suggestions of integrated GIS systems to provide clients with the resources to maintain their applications in-house. Derek is responsible for the data management and processing associated with infrastructure condition surveys. Derek links the field information received directly into geographic information system (GIS) data management platform which allow engineers to easily navigate a large volume of data and identify trends that may be indicative of deficiencies within a system. Derek then works with communities to provide compatible versions of the GIS platform to integrate the data within their system.

GIS Project Management Experience:

- City of Mansfield GIS Implementation and Support, Mansfield, OH
- City of Grove City GIS Integration and Support, Grove City, OH
- City of Reynoldsburg GIS Implementation and Support, Reynoldsburg, OH
- City of Columbus SUMS Development with Enhancement, Columbus, OH
- City of Piqua GIS Planning and Implementation, Piqua, OH
- City of Dover GIS Planning and Implementation, Dover, OH

TASK LEAD FOR FIELD DATA COLLECTION

David McCoy

David has been with EMH&T since 1998. David is responsible for project support and quality control on data conversion and GIS related projects. His duties include communicating and coordinating with clients, routine maintenance and updates, GPS field data collection, source material assessment and inventory, file administration and naming convention development, documenting project development, and training team members. David has experience working with engineering plans including classifying specific attributes, inventory control, as well and performing statistical analysis of the data. David has worked closely with municipal clients, applying his skills on routine GIS maintenance and update, GPS field data collection and automation, sewer permit scanning, drawing and document scanning, stormwater impervious area delineation, address and floodplain mapping, zoning and annexation ordinances, pavement management systems, plats, tax maps and deeds as well as utility and street design engineering plans.

Education: *AAS, GIS/GPS, Hocking College*

Technical skills/competencies with current City of Columbus DPU/DoT computing environment as it relates to GIS:

GIS Server Environment

GIS Desktop Environment
- Esri ArcGIS Desktop 10.6.1
- Various ArcGIS Desktop Extensions

ArcGIS Online (external Portal) & Open Data Portal

Miscellaneous Software
- AutoCAD Map 2018 and newer

David has **significant experience with numerous municipal projects** that require collecting and processing field data. "I enjoy working in a department that is demanding & challenging because **it makes my work feel important & rewarding**," said David.

TASK LEAD FOR DATA CONVERSION, CLEANSING, DEVELOPMENT

Kristi Gardner

Kristi has been with EMH&T since 1999. Kristi is responsible for creating, maintaining and analyzing geographic information system (GIS) databases. She is experienced in working with numerous themes of information, and creates and prepares maps and graphics for departmental and public presentations using GIS software and advanced elements of cartography. She is an expert in her field, leading documentation and training tasks on numerous projects, specifically GIS information with municipal operations. Her hands-on approach and ability to understand information systems from the users point of view, makes her very effective at recording the details of the system and training users to achieve a level of comfort with the implemented business solutions.

Education: *Introduction to ArcGIS, Columbus State Community College*

Technical skills/competencies with current City of Columbus DPU/DoT computing environment as it relates to GIS:

GIS Desktop Environment
- Esri ArcGIS Server Desktop 10.6.1
- Various ArcGIS Desktop Extensions

ArcGIS Online (external Portal) & Open Data Portal

Miscellaneous Software
- AutoCAD Map 3D 2014 and newer
- ArcFM

"From mapping streams, to underground utilities, to creating GIS-based solutions and analyses; **I enjoy bringing the physical world to life in the digital world**", said Kristi about her experience in the GIS field.

TASK LEAD FOR APPLICATION DEVELOPMENT

Richard Moussopo

Richard has more than six years' experience and is responsible for application development and automation support on data conversion and GIS related projects. His duties have included developing databases and applications to streamline GIS applications for public clients, private clients, higher education institutions and municipalities. Richard's GIS background and training have enhanced his ability to customize software solutions that take the best of functional requirements and merge those with elements of location and geography.

Education: *Geographic Information System Certificate, Columbus State Community College; BS, Forestry Engineering, Forestry and Wildlife University*

Technical skills/competencies with current City of Columbus DPU/DoT computing environment as it relates to GIS:

GIS Server Environment
- Esri ArcGIS Server for Windows 10.6.1
- ArcGIS GeoEvent Processor 10.3.1
- Oracle 11g Enterprise Geodatabase 10.3.1
- SQL Server 2014 Enterprise Geodatabase

GIS Desktop Environment
- Esri ArcGIS Desktop 10.6.1
- Various ArcGIS Desktop Extensions
- ArcGIS PRO

ArcGIS Online (external Portal) & Open Data Portal

GIS Development
- ArcGIS Web Application
- ArcGIS Web App Builder
- APIs Google maps & Esri
- ArcGIS Runtime SDKs
- ArcObjects SDKs for .NET Framework (ArcGIS Desktop & PRO)

Full Stack Development
- ASP.NET CORE
- MVC
- BLAZOR
- ANGULAR
- .NET API

"I savor programming because I love abstraction and **logical thinking and also to manage and eliminate complexity**. Programing allows me to build whatever I want. I love computers, I love everything about them.... Coding is like "art" for me. I love to make a difference in people's lives by providing them tools at their fingertips," said Richard about his role on GIS projects for EMH&T clients.

Rachel Spridik

Rachel specializes in application development. She works with programming projects that modify or enhance current program platforms and/or new applications to perform specific tasks in accordance with specified business needs. In her role, Rachel assists in the design, development, coding, and testing of technical solutions; documenting features, modules, and requirements for each project; monitoring key project metrics and performing quality control initiatives; reviewing and assisting in the implementation of necessary testing criteria; and assisting with the maintenance of existing software applications and providing ongoing updates, repairs and modifications.

Rachel is an excellent communicator and has hands-on software development experience; knowledge of .NET, Visual Studio, javascript, VB, C# & HTML; integration experience with SQL or other Database platforms; strong analytical and problem solving abilities with a good understanding of IT systems and processes.

Education: *BS, Computer Information Systems, California University of Pennsylvania*

Technical skills/competencies with current City of Columbus DPU/DoT computing environment as it relates to GIS.

GIS Server Environment
- Esri ArcGIS Server for Windows 10.6.1
- SQL Server 2014 Enterprise Geodatabase

GIS Desktop Environment
- Esri ArcGIS Desktop 10.6.1
- Various ArcGIS Desktop Extensions

GIS Development
- ArcGIS Web Application
- ArcGIS Web App Builder
- APIs Google maps & Esri
- ArcGIS Runtime SDKs
- ArcObjects SDKs for .NET Framework (ArcGIS Desktop & PRO)

Full Stack Development
- ASP.NET CORE
- MVC
- BLAZOR
- ANGULAR
- .NET API

" **I enjoy the teamwork and effective collaboration** that takes place throughout the entire development process. It is always fun to share your latest accomplishments or obstacles that one has encountered and the methods that were used to achieve your results. I think effective collaboration and communication has saved me a great deal of time when starting a new project–as I typically know how to approach the design of a product and how to incorporate user-friendly functionality into the design. "

SYSTEM ANALYST

James Herriott

James has 17 years of experience and will be responsible for technical research and design related to the technical infrastructure of: internet, intranet connections, firewalls, servers, and systems security. He will also address operating system and enterprise software version and license considerations long-term. He will ensure that client needs are met, while offering technical support and preparing system documentation and installation instructions for administrators.

Education: *BS, Computer Science; Valdosta State, 2001*

Technical skills/competencies with current City of Columbus DPU/DoT computing environment as it relates to GIS.

GIS Server Environment
- Esri ArcGIS Server for Windows 10.6.1
- SQL Server 2014 Enterprise Geodatabase

Database Management System
- SQL Server DB

Miscellaneous Software
- Pipetech CCTV Software
- AutoCAD Map 3D 2018

" Working with EMH&T clients like the City of Columbus allows me to **incorporate new technology with problem solving to create better automation** on daily tasks. "

Lead firm team member tasks and subtasks

Team Member	Derek Mair	David McCoy	Kristi Gardner	Richard Moussopo	Rachel Spridik	James Herriott
Projects						
City of Columbus SUMS Enhancement	■		●	▲		
City of Mansfield GIS Support	■	●	▲	▲		●
City of Grove City GIS Support	■	▲	●	▲	●	
City of Reynoldsburg GIS Support	■	▲		▲	●	▲
City of Piqua Utility GIS Development	■	▲	▲	▲		●
City of Dover GIS Development Implementation	■	▲	▲	▲		●
EMH&T Web Based Construction Services Documents Application (CSDocs)	●	▲		●	▲	■

■ Project Manager ▲ Task Leader ● Contributing Team Member

Subconsultant Resumes

JMT PROJECT MANAGEMENT

Phill Izenson, PMP

Phill brings more than 25 years of technical project management as well as agile application development experience to project management of IT projects. This allows him to gather requirements, document workflows, estimate project work effort, and work with the technical team very effectively. As a technology project manager, Phill coordinates the efforts of multiple team members to complete projects successfully within defined scope, budget, and schedule. He does this while providing good customer service with regular communication and timely project deliverables.

Education: *MBA, Management Information Systems; BS, Public Administration*
Certifications: *Project Management Professional (PMP)*

JMT GIS INTEGRATION

David Starr

David is a Senior GIS Analyst with 16 years of experience working in the Geographic Information Systems (GIS) career field. He brings well rounded experience in project management, surveying, construction management, military contract management, urban planning, design, drafting, and web development. His experience in GIS includes web application development, geospatial analysis, enterprise GIS systems, data management, advanced querying, CAD conversion. David has served in the Air Force for 19 years working as an Engineering Technician. His duties include GPS/conventional surveying, drafting, project management, and general engineering support.

Education: *BS, City and Regional Planning; AS, Construction Engineering Technology*
Certifications: *Certified Geographic Information Systems Professional (GISP)*

JMT Needs Assessment and BPA

Karen Hall

Karen has 18 years of experience in project management and business analysis across a range of public service software including: transportation, natural resources, public safety, court systems, land records management, unemployment services, and higher education. She is serving as a system analyst on a major system replacement project which involves integrating a variety of internal modules and interfacing with several external state systems. She is also serving as a business analyst on a project to replace significant manual effort involving many data validations and manipulations with a new system. In addition, she is a Certified ScrumMaster and thoroughly understands the Software Development Lifecycle for Agile and Waterfall software projects.

Education: *MS, Information Systems Management / Project Management; BS, Technical Management / Business Systems Analysis; AS, Graphic Communications Technology*

3SG Plus GIS Needs Assessment & Business Analysis (BPA)

Lisa Warnock

Lisa has more than seven years of experience streamlining business processes and providing technology solutions. She has had over four years of experience working for the creator of OnBase, Hyland. Lisa is an accomplished Enterprise Content Management (ECM) implementation consultant with responsibilities that include project management, driving discovery, documentation of requirements, solution design and deployment, facilitation of training and production support. Lisa creates training documentation and conducts training sessions for business users, kickoff and support customers User Acceptance Testing across multiple environments. She supports the solutions engineers as well as managing projects from pre-sale through support and maintenance. She is also familiar with OCR and data capture technologies. Her technical skills include: OnBase Workflow Designer, OnBase System Administrator with System Integration exposure with: Banner, DocuSign, PeopleSoft.

Education: *BA, International Relations, Kent State University*
Certifications: *OnBase Proficiency Level 2, OnBase System Administrator, OnBase Workflow Design*

3SG Plus Imaging Document Manager

Jason Fair

Jason has more than 20 years of experience that uses structured techniques to solve problems and enable efficient resolutions. He has demonstrated success at optimizing labor and materials to achieve goals and operational experience in managing-cross functional teams. Jason provides leadership and management of the Document Conversion Division of 3SG. Jason is responsible for the standardization, structure & organization of project goals through daily operations, planning, estimating and controlling of resources. He leads external & internal stakeholder meetings and manage asset protection of confidential and sensitive information and has successfully submitted dozens of conversion projects to clients on time and within budget.

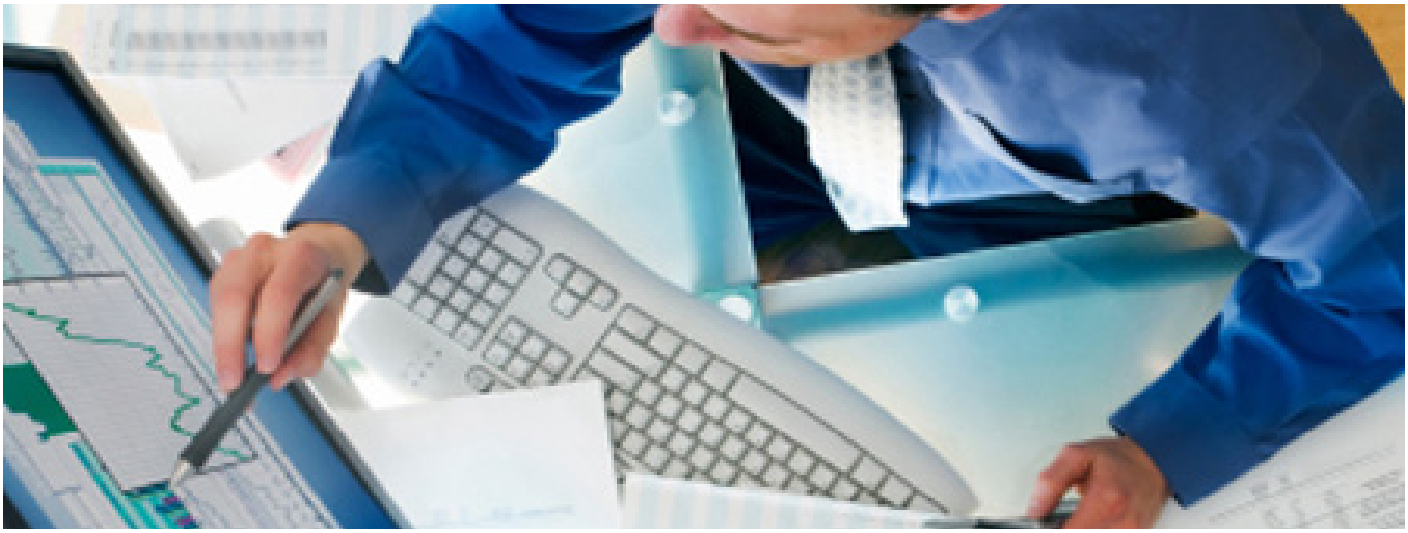
Education: *BS, Operations & Supply chain Management, Franklin University; AS, Supply Chain Management, Columbus State Community College*
Certifications: *OnBase Proficiency Level 2, OnBase System Administrator, OnBase Workflow Design*

EMH&T

Section 3:

Relevant Project Experience

The EMH&T team is thoroughly knowledgeable about the industry best practices necessary to perform professional consulting/engineering to assist support and enhance the City of Columbus GIS. We are convinced that the best way to serve the needs of your staff and your citizens is to customize those best practices. On the following pages we have provided recent projects performed by our team of similar nature requested in this RFP.



The EMH&T team is equipped to handle any task assigned. We have decades of experience providing services to organizations throughout the State of Ohio and nationally. More specifically, we have direct experience already working with various City of Columbus departments throughout the last 20+ years, and will provide first-rate and comprehensive assistance to the DoT GIS through technology and innovation.

We believe this experience, the quality of the staff providing these services, and the fact that our resources are networked under one virtual roof, is our team members EDGE.

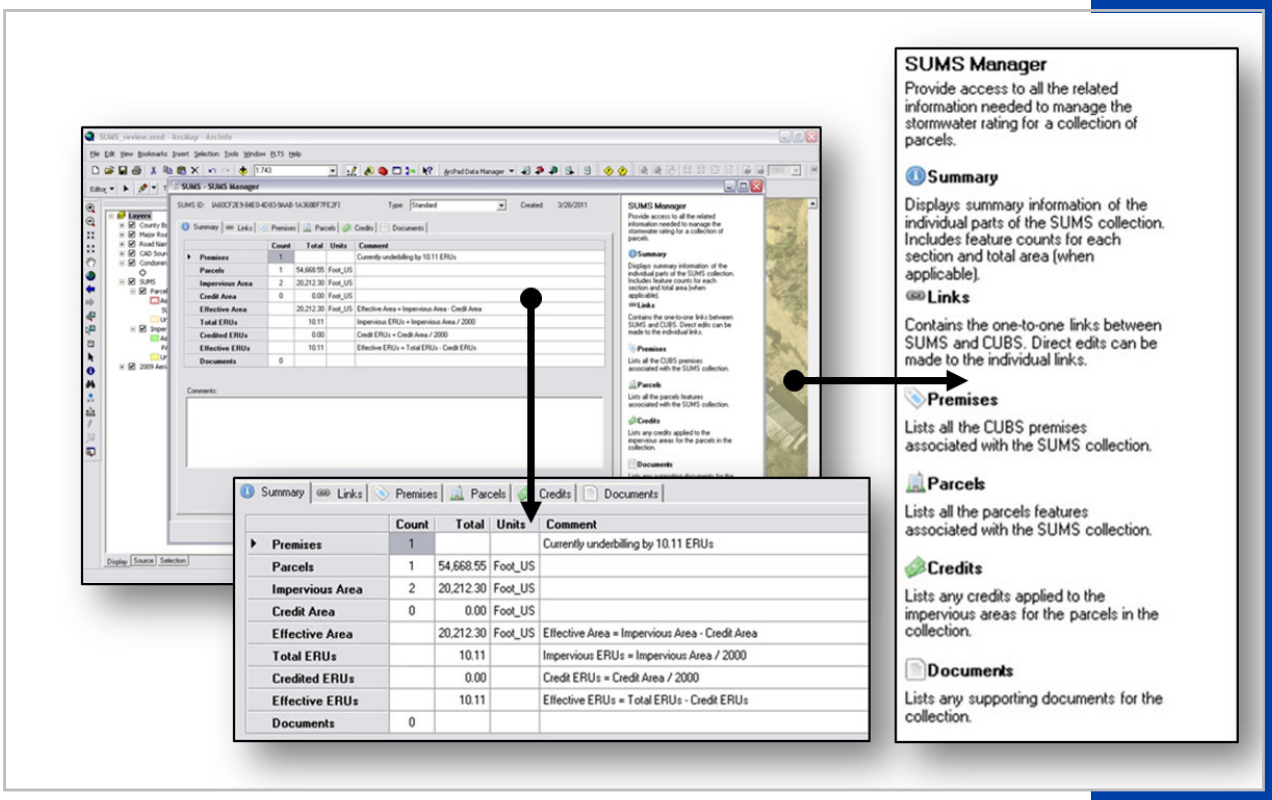
We also rely on our history of government service that gives us insight into system development as both designer and user. We recognize that many organizations' existing data sources were created by individual departments, creating silo (individual) systems and that each one has a culture that supports its development and use. EMH&T studies the cultures that support the current systems during the needs assessment, and incorporates solutions to consolidate these into the recommendations for your centralized system.

EMH&T has been an ESRI Business Partner since 2002. This connection with the industry-leading GIS platform allows us to be an early adopter for ourselves and our clients with an inside track on optimal GIS implementations.

Project Matrix/Scope Items

The following matrix identifies the teams' competencies and experience with similar engagements. These are more than a collection of projects. EMH&T partners with clients for the long term to help them reach initial goals and then to support and enhance the platform over time. Some are in support/enhancement phases while others are being initially developed. For support/enhancement we provide recent highlights for development a key element of project design.

Team Member Client Engagements	Data Conversion/ Cleansing/ Development	Field Data Collection	GIS Staff Augmentation	GIS Needs ASsessment & BPA	GIS Application Development	Additional GIS Integration Solutions
EMH&T						
City of Columbus SUMS Enhancement	✓			✓	✓	✓
City of Mansfield GIS Support	✓		✓	✓	✓	✓
City of Grove City GIS Support	✓	✓		✓	✓	
City of Reynoldsburg GIS Support	✓	✓		✓	✓	
City of Piqua Utility GIS Development and Implementation	✓	✓	✓	✓	✓	✓
City of Dover GIS Development Implementation	✓			✓	✓	✓
City of Westerville Web Based Construction Services Documents Application (CSDocs)	✓			✓	✓	✓
JMT						
Mid-Ohio Regional Planning Commission, Paving the Way System Redesign	✓			✓	✓	✓
ODOT Highway Information Management System	✓		✓	✓	✓	✓
ODNR Relationally Integrated Computer System (RICS) for the Division of Oil & Gas	✓	✓	✓	✓	✓	
Anne Arundel County, MD Open-End GIS Systems AE Services	✓	✓	✓	✓	✓	✓
3SG Plus						
City of Columbus Department of Public Utilities	✓	✓		✓	✓	✓
City of Columbus Building & Zoning	✓			✓	✓	✓
City of Columbus Department of Public Health	✓	✓			✓	✓
Franklin County Auditor/Franklin County Data Center	✓	✓			✓	✓
NiSource Corporation	✓			✓	✓	



City of Columbus SUMS Development with Enhancement Columbus, OH

The City of The City of Columbus developed a stormwater utility with impervious area as its basis for billing, and with an AutoCAD solution for managing the impervious areas that was instituted with the original development of the utility in the 1990s and early 2000s. EMH&T provided an upgrade for their application development to manage their stormwater utility information. EMH&T developed an ESRI ArcGIS solution that overcame the shortcomings of the older system, managed associated documents and tracking information, and also integrated with the City's billing system. The ArcGIS extension created by EMH&T is called the Stormwater Utility Management System (SUMS). SUMS has been developed using Visual Studio .NET and C#.

Currently, SUMS now makes the system user-customizable. It has also been integrated with the City's utility billing system for automatic updates based on changes to associated impervious areas. The SUMS is also available to handle related documents and the various stormwater credits the City provides to qualified businesses that successfully apply. EMH&T designed the extension, and provided full oversight of the migration steps needed to transition from the AutoCAD solution to the ArcGIS solution. The SUMS tool, available to any community that manages a stormwater utility, includes the following features:

- ESRI GIS-based solution. Provides a series of tools to aid in managing the data required to conduct the business of the utility.
- Integrates directly with billing system. List any credit applied to the impervious area for the parcels in the collection.
- Provides seamless editing. Assign impervious area to parcel, remove impervious area from parcel, assign parcel to SUMS group, remove parcel from SUMS group, etc.

- Allows application and management of credit. Manages individual credit information; lists the credits ID and SUMS group ID; describes the credit including the credit type, amount, and ERU; lists the dates of when the credit starts and when it expires.
- Manages related source documents. Lists any supporting documents for the collection.

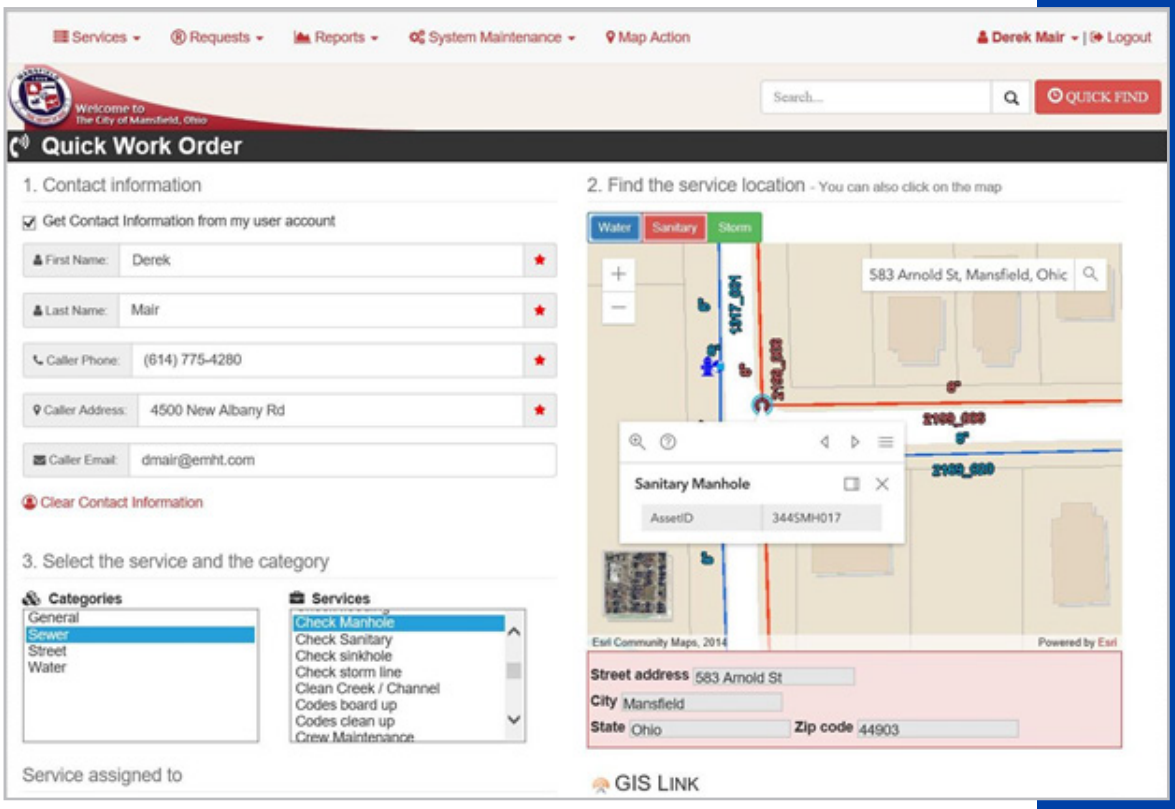
Columbus Recent Highlights Include:

This application has recently gone through a major upgrade in enhancement and functionality. The City has been using the existing tool for many years and has been able to note some key enhancements that would greatly benefit the City. This tools really helps the City manage the details of this Stormwater utility and integrates very well with CUBS. One recent improvement was to the document management side of things. Before the upgrade, documents were file-system based and the application simply managed a database of pointers to those locations. That is not optimal for many reasons – namely the potential for drive name changes or misplacement of files. Instead, EMH&T has developed functionality that lets them access their Falcon/DMS document management application using the Premise ID as the key. tsaADVET was able to provide a packaged URL specific to the SUMS application and EMH&T was able to tie that into the SUMS application for improved management of documents related to the Stormwater billing computation.

SUMS has been developed using Visual Studio .NET and C#.

Owner/Contact:
City of Columbus
Mike Edwards
(614) 645-6810, MGEdwards@columbus.gov

Date of Activities:
2012-Present



City of Mansfield GIS Implementation and Support, Mansfield, OH

EMH&T was originally involved in the City of Mansfield infrastructure GIS project as a sub-consultant responsible for the stormwater drainage system GIS layer development, enterprise GIS configuration using ArcGIS for Server, geodatabase design and replication configuration, and all GIS application development to include document management, web GIS viewer, and work order management. Having completed that in 2017, EMH&T's services have been contracted directly for the timeframe through 2022 for GIS application support and maintenance covering web GIS, work order management, and document management.

Owner/Contact:

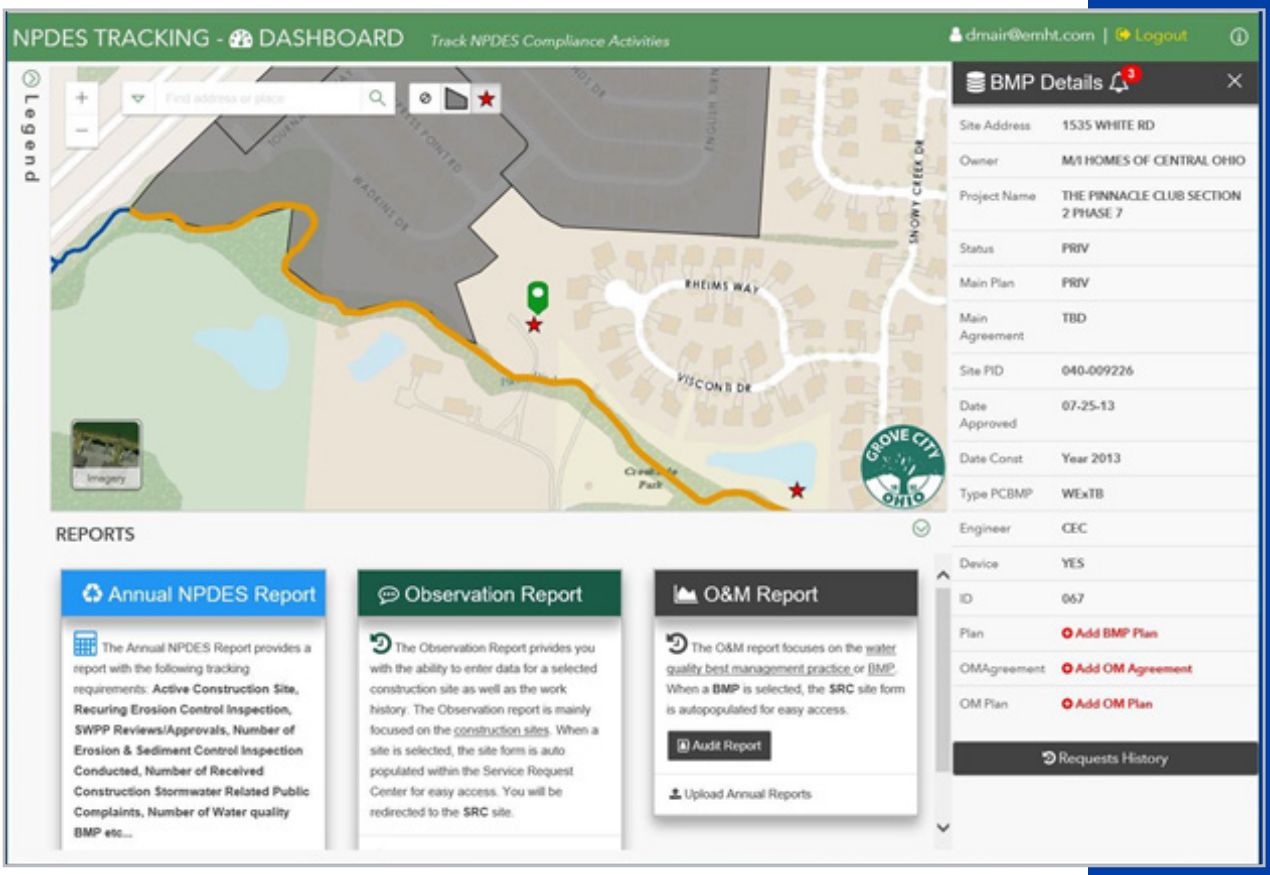
City of Mansfield
Robert Bianchi, PE
(419) 755-9702, rbianchi@ci.mansfield.oh.us

Date of Activities:

2017-Present

Mansfield Recent Highlights Include:

The City has struggled sharing the all-important hydrant information between the maintenance, engineering and fire departments. They spent a lot of time and attention tending to the hydrants, but the information that was needed, was not readily available as various tasks were carried out by numerous departments. EMH&T has recently provided the City more management control over their very important Hydrants layer. Through a developed extension from within their Web GIS, the City is able to log flow test results, record maintenance activities, and take hydrants in and out of service. This allows for an up-to-date inventory of the service status and performance of these key elements. Key reports have also been developed that let the City track hydrants that are out-of-service for additional follow-up action. This new module has been developed with appropriate security so that only authorized users have the access they need to alter these features and associated details. This was implemented using JavaScript, HTML, and CSS.



City of Grove City GIS Integration and Support, Grove City, OH

The City of Grove City is utilizing GIS and work order management applications at a mature level. EMH&T accomplished this through a phased development since 2002. The focus of the original system was the infrastructure systems, but the GIS has expanded well beyond that with many other layers of interest. The main difference for Grove City is that while we originally provided many of the on-going services for the first 10 years or so, the City has migrated that to City GIS staff, now organized under the Information Technology Department. EMH&T still provides updates and maintenance to the applications, however, on an annual basis.

Owner/Contact:

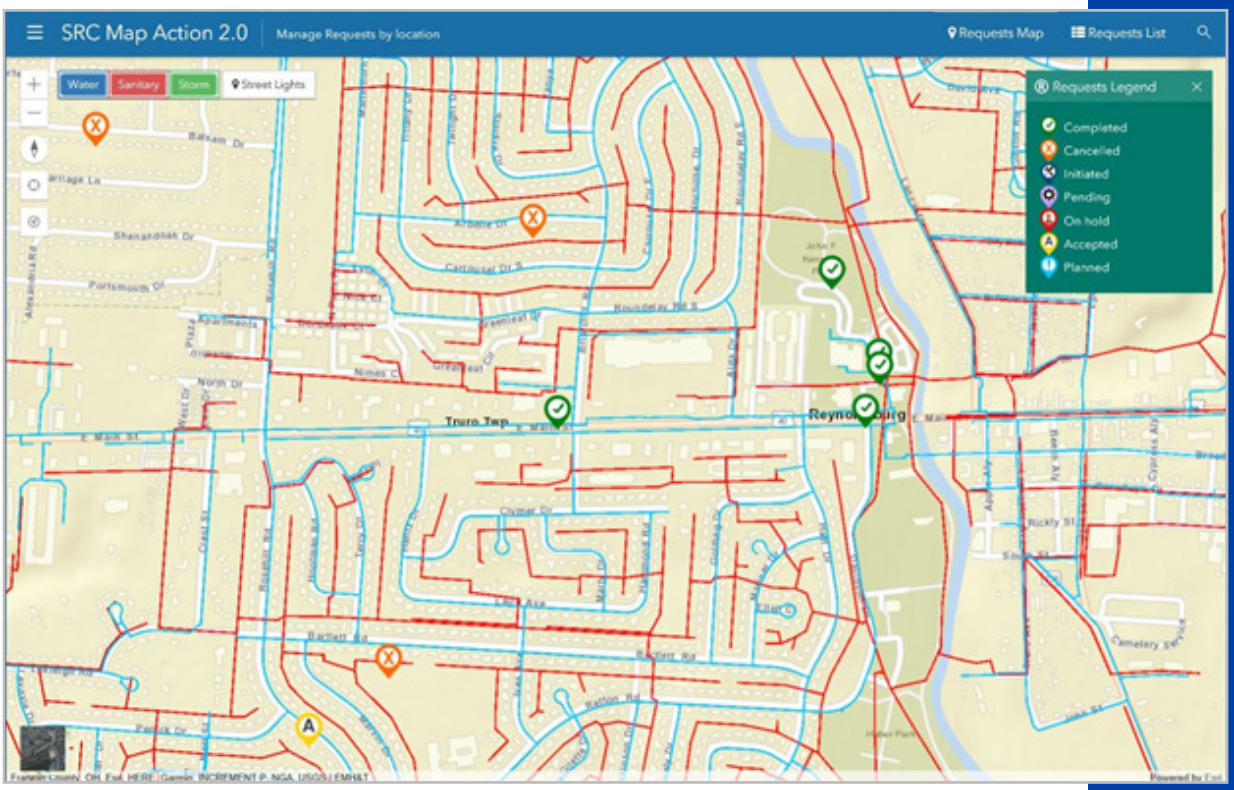
City of Grove City
Todd Hurley
(614) 277-1725, thurley@grovecityohio.gov

Date of Activities:

2002-Present

Grove City Recent Highlights Include:

The City's GIS users have really adopted the web GIS that EMH&T developed as an essential tool for daily operations. As they have used it extensively, they are able to identify some major enhancements to the tool. EMH&T and the City are currently defining an application architecture and management interface that will permit fine grain control over the layers and features that are presented to a user by account. This will help the web GIS become more suited to individuals based on their functional department and necessary access. This will be implemented using JavaScript, HTML, and CSS. SQL Server will be used to manage the database component.



City of Reynoldsburg GIS Implementation and Support Reynoldsburg, OH

Currently, the City of Reynoldsburg is utilizing GIS and work order management applications at a mature level. EMH&T accomplished this through a phased development since 1999. The focus of the original system was the infrastructure systems, but the GIS has expanded well beyond that with many other layers of interest. For Reynoldsburg, EMH&T provides for hosting of all data and applications using Amazon Web Services (AWS) – which we then administer on an annual basis. EMH&T is also contracted to provide updates and maintenances to the applications and data layers on an annual basis. EMH&T recently configured the City with Collector for ArcGIS and related feature classes for self-service data collection of streetlights and related elements.

Owner/Contact:

City of Reynoldsburg
Keith Kundtz
(614) 322-5800, tkkundtz@ci.reynoldsburg.oh.us

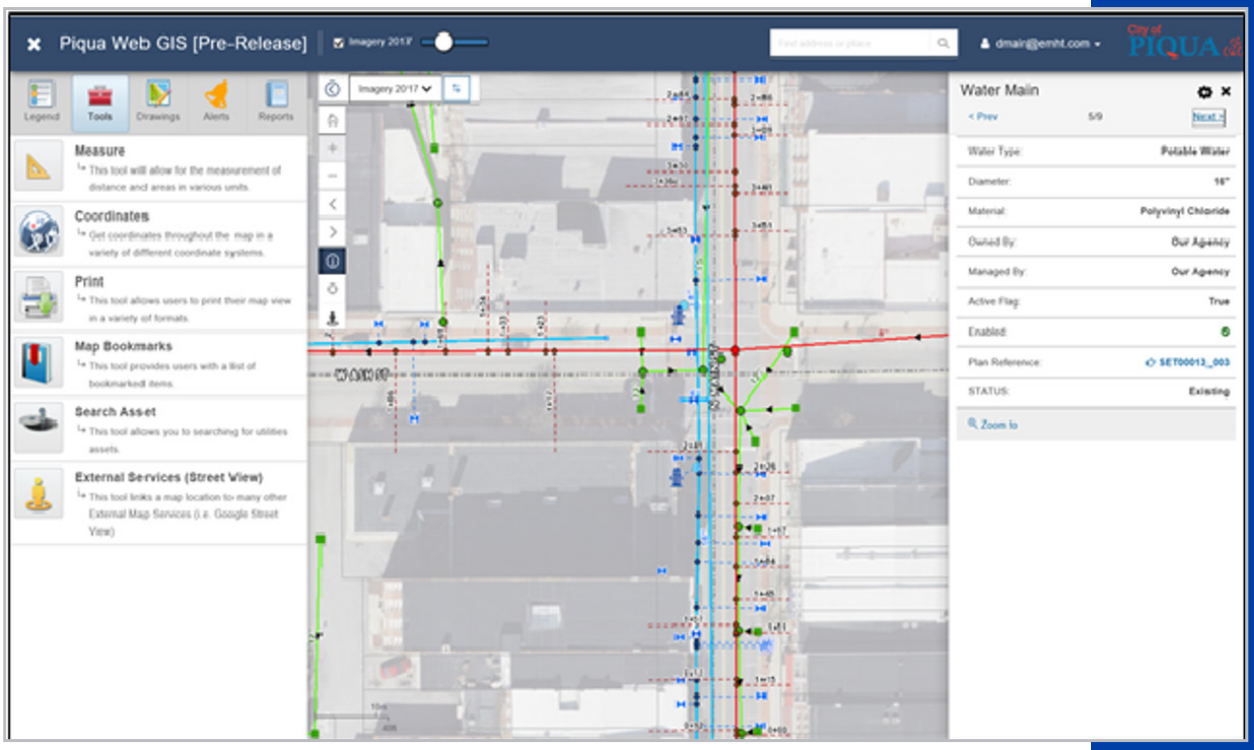
Date of Activities:

1999-Present

Reynoldsburg Recent Highlights Include:

The main tool from the GIS program that the City uses is the Web GIS. It provides quick and easy access to a wide variety of layers. However, there are layers that the City would like to have included that they are not able to provide a budget to have data prepared for them. One of those layers is the street light inventory. Instead, EMH&T has provided an environment for them to collect and prepare this data in a self-service model. We have provided the enterprise geodatabase constructs and developed an ESRI Collector app for them to have City forces collect the information over-time. This saves the City precious resources and allows them to get familiar with the power of GIS as it evolves in the City.

CITY OF REYNOLDSBURG



City of Piqua GIS Planning and Implementation, Piqua, OH

EMH&T was initially selected for a pilot project that determined the GIS design, procedures and implementation planning for underground utility GIS development. We are currently in Phase 3 of four total phases for full-scale implementation. Each phase includes an aspect of data maintenance, data development, application development, and technology component support. Phase 1 specifically included the development of an advanced Web GIS platform and a GIS application focused on field crew update workflow to streamline the flow of information to the field and back to the office.

Owner/Contact:

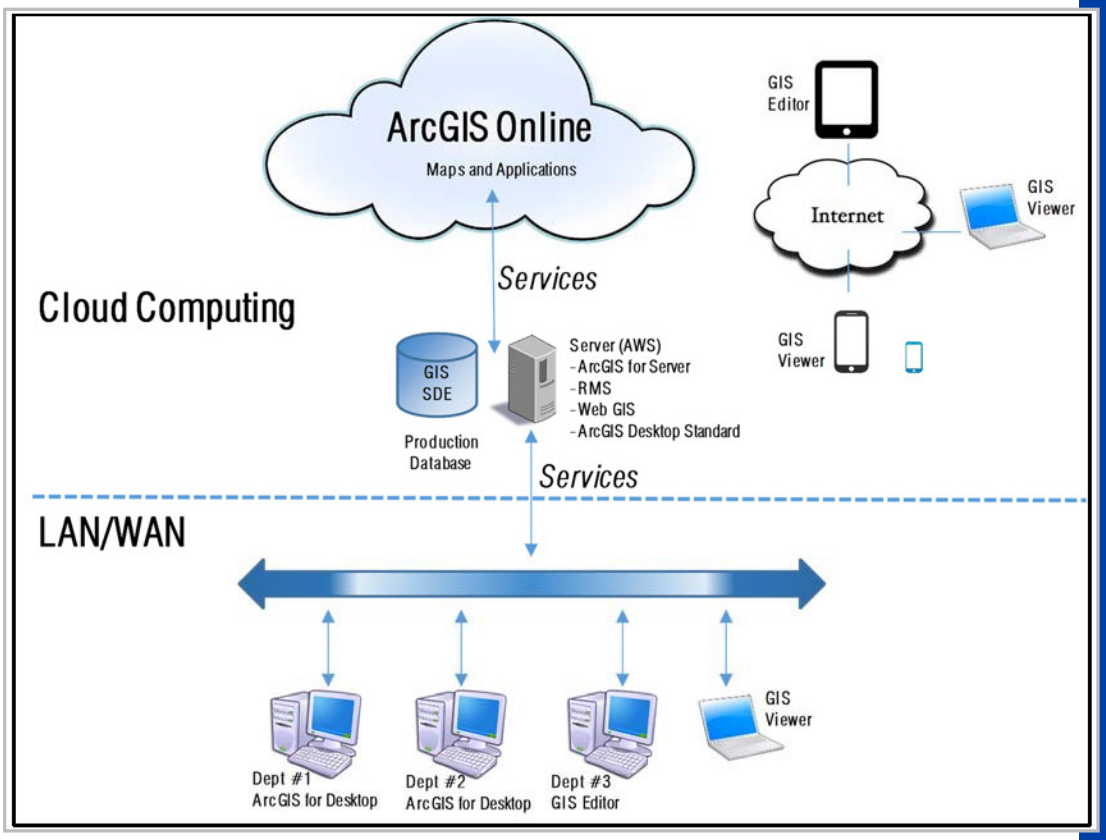
City of Piqua
Shane Johnson
(937) 778-2018, sjohnson@piquaoh.org

Date of Activities:

2017-Present

Piqua Recent Highlights Include:

The budget realities in Piqua mandated that the project be implemented in phases over 4 to 5 years. They also determined up-front that they wanted the project to include both main-line features and customer service features. EMH&T configured them early on with essential applications of web GIS, document management and exception handling. The platform for EMH&T field data collection used ESRI Collector and Survey 1-2-3 to collect very detailed and precise (Trimble R8 with centimeter accuracy) information and secure it on the GIS server immediately with a rich set of photo, attribute and condition assessment information. As the data is processed and verified in the office, the City has immediate access, so that even though the project is completed over time, they can gain the benefit of the data area-by-area as it is confirmed. Exception handling is also automated so that the City has direct access to provide the resolution for situations that they understand best.



City of Dover GIS Planning and Implementation, Dover, OH

Dover is located in the Northeast Ohio, adjacent to Interstate 77 and approximately 25 minutes south of Canton. It has a population approaching 13,000 and covers approximately 6 square miles. The City of Dover currently operates and maintains a GIS based on the ESRI ArcGIS applications with concurrent-use licensing for ArcView (basic), which is installed on multiple desktop computers across various city departments. Separate geo-databases are established for each department and for the underlying base layers in the system (streets, parcels etc). All geo-databases are centrally stored and accessed across a municipal fiber-optic network, which provides for gigabit connectivity between sites and to the desktop.

The City of Dover does export various layers to ArcGIS Cloud to provide mobile access to "snapshots" of mapping information for utility crews and for access to mapping information for various departments via web browser. The City of Dover's model for GIS development and maintenance is rooted in the on-site ArcGIS software and databases. Consequently, the city's GIS development focuses primarily on using the ArcGIS desktop software/model while being mindful of the desirability to export select layers to ArcGIS Online as needed for access by mobile and secondary users.

Owner/Contact:

City of Dover, David Douglas
(330) 343-6725, dave.douglas@doverohio.com

Date of Activities:

2018-Present

Dover Recent Highlights Include:

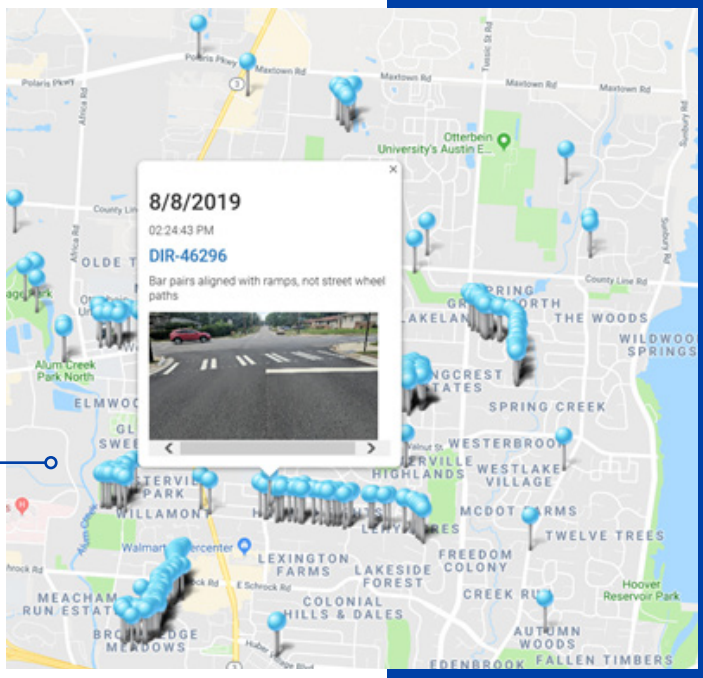
As Dover was contemplating city-wide GIS implementation, it was made clear that they wanted to re-use the existing data and make it readily available while making its current weaknesses (quality and completeness) very apparent. This is important because they will be implementing their GIS over several years and want to provide as much access as soon as possible. The major design parameters are then 1) essential applications of Web GIS and DMS as soon as possible; and 2) Load the initial data in the system and improve it over time to become authoritative – all the while making sure that symbology and reporting make this difference well known. This is a pattern that EMH&T sees over and over across our client base and we have an approach, platform and tools that enable us to accomplish this very well.

City of Westerville Web Based Construction Services Documents Application, CSDocs

EMH&T developed a Web-Based Construction Services Application initially targeted at providing an improved means of recording and tracking quantities completed on unit priced type capital improvement contracts. The scope of the application has since steadily grown into a much more widespread contract administration application consisting of the following 13 Modules:

1) Project Overview

a. Contract Status/Project Summary
b. Key Personnel/Contact List
c. Payment and Retainage Summaries
d. Location map with daily report photos and punchlist photos (as shown right)



2) Funds

a. Tracks funds by funding source
- Bid amount
- Current contract amount
- Projection amount
- Paid to date
- Current payable
- Unpaid balance: (current contract vs. current payable)
- Projected funds available: (current contract vs. projected)
- Current encumbered funds available (current contract vs. encumbered)
- Projected encumbered funds available (encumbered vs. projected)

Fund	Current Payable	Bid Amount	Current Contract	Projection Amount	Available Funding	Paid to Date	Current Surplus
Street Reconstruction	$1,463,405.47	$2,508,135.01	$2,616,541.75	$2,299,862.77	$2,621,674.19	$874,721.15	$5,132.44
Smoke Burr Signal		$97,938.48	$97,938.48	$97,938.48	$105,000.00	$0.00	$7,061.52
Alum Creek Connector Trail	$409,290.53	$519,930.66	$547,733.71	$514,801.50	$556,325.81	$429,791.24	$8,592.10

3) Pay Items

a. Document quantitites completed to date by pay item
b. Document quantities completd by location
c. Linked to daily reports and when entered.

Group	Ref #	Spec	Description	Location	Bid Qty	Unit	Contract Qty w/CO	Unit Price	RPR Qty to Date
Group "28" (contains 11 items)									
28	28-100	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Not for Entry		E.A.		$72.50	
28	28-101	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Birckview Rd	8	E.A.	8	$72.50	8
28	28-102	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Brent Ct	4	E.A.	4	$72.50	
28	28-103	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Briarcliff Dr	10	E.A.	10	$72.50	1
28	28-104	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Brice Rd	20	E.A.	20	$72.50	20
28	28-105	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Elmbrook Ln	2	E.A.	2	$72.50	2
28	28-106	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Kingsley Dr	24	E.A.	24	$72.50	24
28	28-107	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Lancaster Ave	2	E.A.	2	$72.50	
28	28-108	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Leighton Dr	30	E.A.	30	$72.50	28
28	28-109	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Pinion Pl	4	E.A.	4	$72.50	4
28	28-110	608	Detectable Warning System, 2' x 4' (Per City of Columbus 1551, Type E, Red in Color)	Rocky Den	12	E.A.	12	$72.50	
Group "29" (contains 11 items)									
29	29-100	608	Remove & Replace Concrete Curb Ramps & Sidewalk (Per R-10C)	Not for Entry		S.F.		$10.25	
29	29-101	608	Remove & Replace Concrete Curb Ramps & Sidewalk (Per R-10C)	Birchview Rd	1200	S.F.	1200	$10.25	1184

4) Submittals

a. Submittal management to track submittal status, ball in court, and comments.
b. Submittal register/schedule and reports:

5) Request for Information (RFIs)
- a. Create and respond to RFIs
- b. RFI tracking to include the capability to assign responsibility, consolidate comments, and issue responses
- c. RFI Log

6) Field Orders
- a. Create and issue Field Orders
- b. Field Order Log

7) Change Requests
- a. Create and issue Change Requests, including tracking Contractor initiated change request.
- b. Track status and ball in court
- c. Track Quotes to include Requested, Pending, and Approved items.
- d. Change Request Log linking the Change Requests to associated Change Orders.

8) Change Orders
- a. Create and issue Change Orders
- b. Change Order Log shows link to Change Requests and Pay Applications

9) Daily Inspection Reports
- a. Includes all legacy daily report information
- b. Work summary text fields are searchable
- c. Track Completed Quantities with links to Pay Item Module
- d. Photos

10) Pay Application
- a. Generate draft/"Pencil Entry" estimates based on RPR Daily Reports
- b. Reconcile and Track RPR vs. Contractor quantities
- c. CA Review
- d. Create quantity balance Change Requests if there are quantity overruns
- e. Prepare Pay Application Documents

11) Punch Lists
- a. Create and track deficiencies throughout the project to include locations, notes, and pictures.
- b. Track contractor Sign Off and RPR Status/ Sign Off entries
- c. Create punch list versions such as Running, Pre Final, and Warranty

12) Documents
- a. Bid Documents, General Conditions, Supplemental Specifications, Addendums
- b. Bid Tabulation
- c. Notice to Proceed
- d. Schedule of Values
- e. Project Meetings
- f. Material Test Reports
- g. Contract Correspondence
- h. Closeout Documents

13) Reference Library
- a. Standard Drawings, Installation guides, All References beyond submittals

EMH&T

Construction Observation Report

5500 New Albany Road
Columbus, Ohio 43054

Phone: 614.775.4500
Fax: 614.775.4896

Project: 20170314
Date: 9/5/2017
Tuesday

PROJECT NAME:
2017 Street Rehabilitation Project, Contract A and 2017 Bridge & Culvert Maintenance (Construction Observation)

CONTRACTORS:

Contractor	Work Force	Equipment	Work Hours
G&G Cement	1 Supt, 9 Lab	JD Backhoe, Case Skidsteer w/ jack hammer attachment, Utility Truck and Trailer	7am-430pm
G&G Cement	1 Op, 2 Lab	Utility Pickup Trucks, JD Backhoe, Tandem-axel dumptruck	7am-4pm
M&D Blacktop	1 For, 4 Lab	Utility Pickup Trucks and Trailers	7am-5pm

SUMMARY OF WORK:
G&G crew on Vincent Ct. trench excavating to 22" depth, placing 6" underdrain. Two (2) existing Curb Inlets in center portion of street are in fair condition. RPRs confirmed with G&G crew that window for 6" underdrain is to be sawed into existing structure and structure reconstructed as needed. RPR Brooks observed crew has potholed for utilities throughout street, WOW, Electric, and Gas; crew reports no conflicts with underdrain installation to this point. RPR Simmons had spot observation on Vincent this afternoon. G&G concrete crew began placement of spot C&G on Spring Hollow Ln after completing Spring Hollow Service Rd mid-day. G&G also had excavation crew removing spot C&G and ramp areas on Spring Hollow Ln as marked.

RPR Brooks met with Kyle Strawser at Birch Drive to look at additional full depth cracks in existing caveling concrete base at W side of FDR completed last Friday throughout Birch portion of Burns intersection, near 80'x22'. SCR Jim Nolen confirmed RPRs field observation that further base repairs will likely lead to further base damage and repair have to stop somewhere. Again, it will be noted to City that next future rehabilitation of this area of Birch and Burns will need FD reconstruction to remove existing concrete base.

M&D Blacktop performed asphalt emulsion sealant in northern third of Community Center parking areas this day. AM hours crew worked on drying, RPR was not able to confirm if one or two coats were able to be placed this day.

COMMUNICATION:
215pm-Jim Nolen, Chad Joice, and Laura Ball on Community Center sealing and Parks budget forecast.

TRAFFIC CONTROL:
42" grabber cones at curb replacement locations. Detour closure of CLR entrance at Community Center

WEATHER:
Sky: Partly Cloudy **Temp:** 58-74 **Wind:** 5 **Comments:** No precipitation

RPR: Brooks, Jacob **DATE:** 9/5/2017 **MILES:** 37.0000 **HOURS:** 6.5
SUPERVISOR: Blackburn, James **DATE:** 9/7/2017

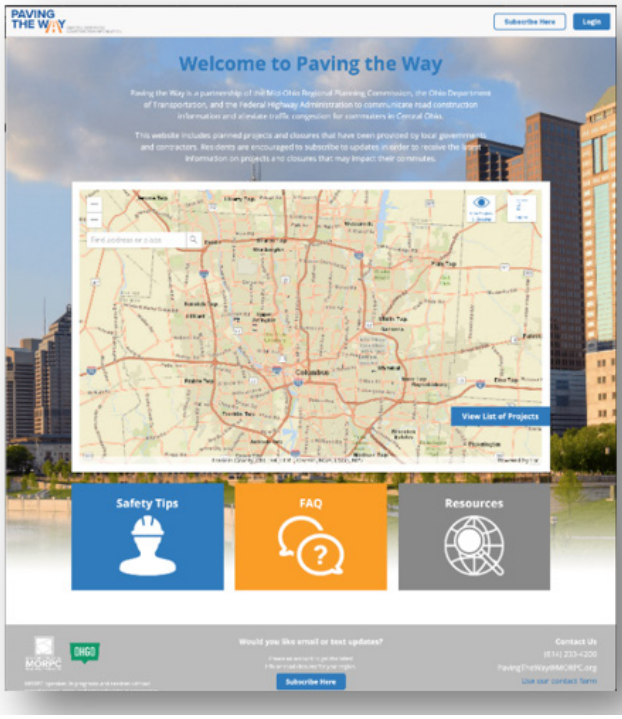
Spring Hollow Lane pavement section from Service Rd to Main

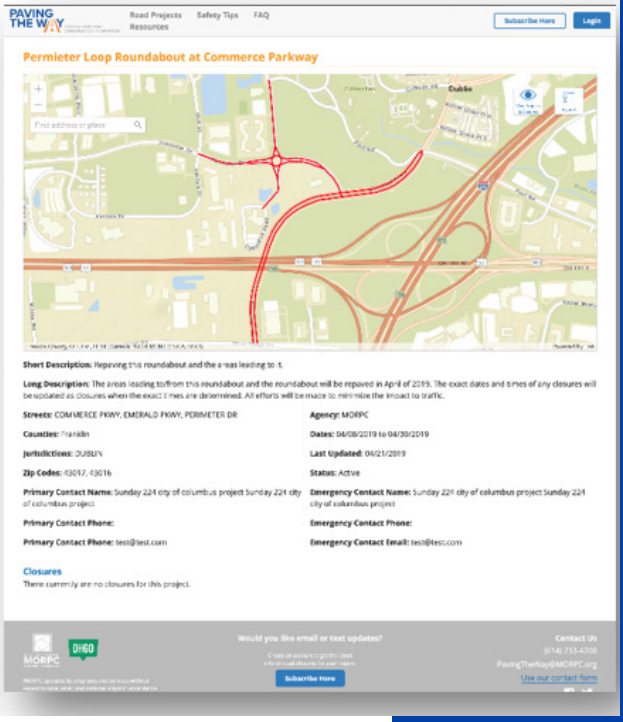
Vincent Ct pavement section

Owner: EMH&T
User Contact:
City of Westerville, Scott Tourville
(614) 901-6665, scott.tourville@westerville.org

Date of Activities:
2018-Present

JMT Project Experience





Mid-Ohio Regional Planning Commission, Paving the Way System Redesign, Columbus, OH

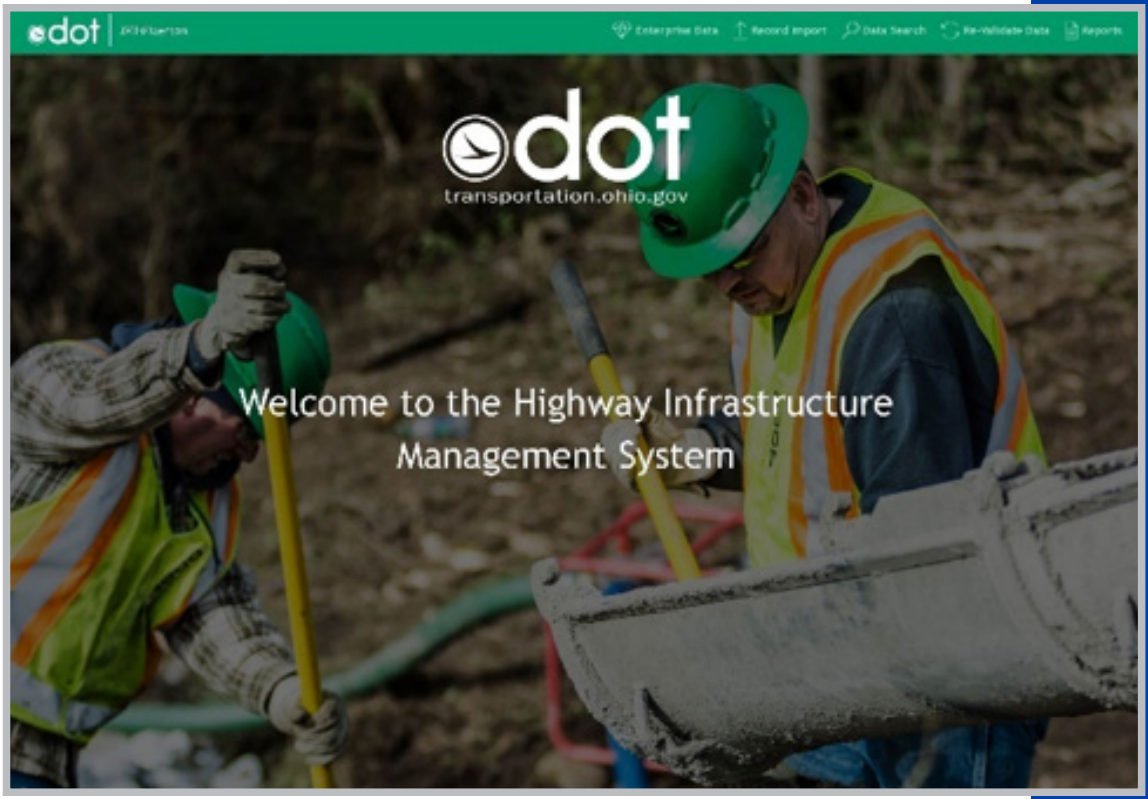
The JMT Technology group was chosen by the Mid-Ohio Regional Planning Commission (MORPC) to re-build the pavingtheway.org web site. The web site provides road construction project status updates and road closure information for member communities in the 15-county central Ohio area. The new web site includes GIS elements for mapping road projects and closures, allows for regional external agencies to update their project and closure information and provides email and SMS notifications to the public for updates on projects and/or closures in geographic areas that they select.

The development work for the project is complete and MORPC is currently training regional partners in the process for adding new projects and updating projects through their lifecycle. The new site is expected to go live early in 2020.

Owner/Contact:
MORPC, Aaron Schill
(614) 233-4157, aschill@morpc.org

Date of Activities:
2018-2019

morpc
Mid-Ohio Regional Planning Commission

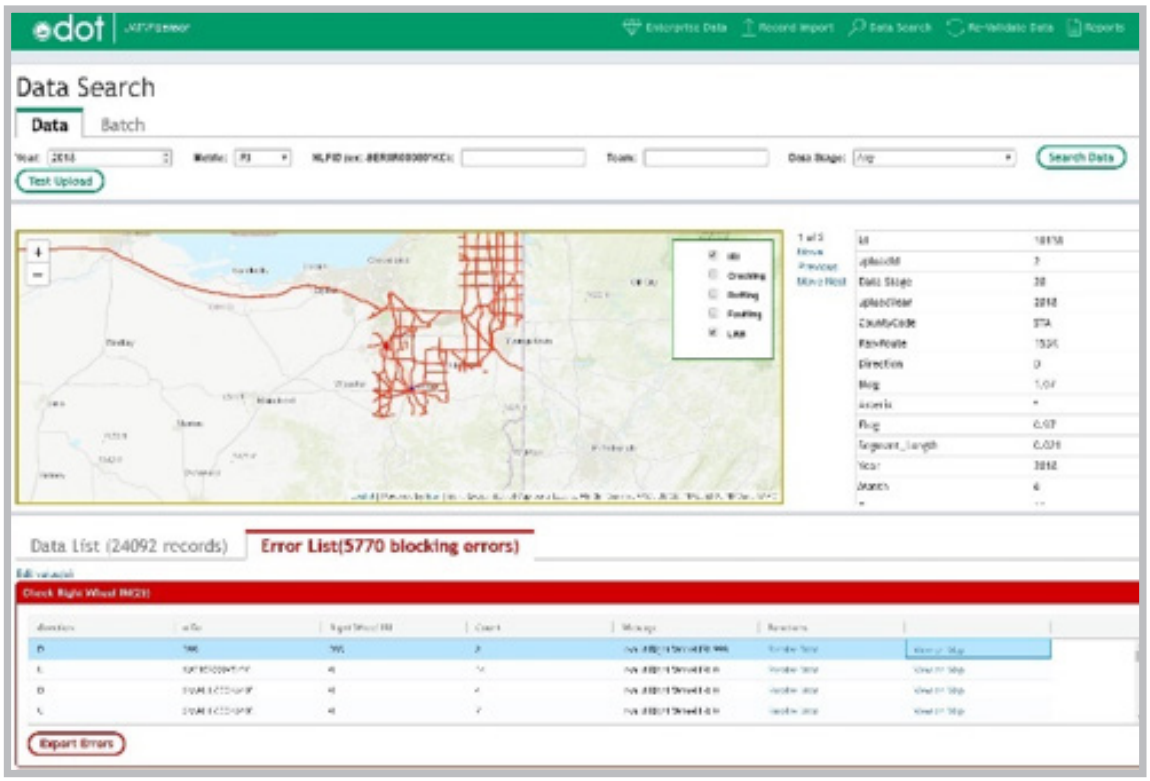


Ohio Department of Transportation (ODOT), Highway Information Management System

ODOT collects and processes pavement condition data (rutting, cracking, faulting and roughness) on a subsection of its roadway network each inspection cycle. Approximately 350,000 records are collected annually using Pathway Services' PathRunner vehicle and PathView software, and the data must be further processed to align with federal reporting requirements. Historically, data processing required months of time, using a combination of disparate systems and manual methods. ODOT requested an application to replace outdated and inefficient methods with interactive, automated data processing that streamline workflows, meet MAP-21/FAST (Fixing America's Surface Transportation) Act performance reporting requirements, and generate files for ODOT's Enterprise Data Warehouse and annual Highway Performance Monitoring System (HPMS) submittal.

JMT developed ODOT's Highway Information Management System (HIMS) to import pavement condition data from Pathway Services' PathView software and interactively process the data using a series of incremental data validation and logical consistency tests. The system:

- Imports batch files from the PathView system for roughness (IRI), rutting, cracking, and faulting;
- Flags potential areas of concern in the imported data and allows users to resolve the issues either by returning to the raw PathView dataset or by making modifications in the HIMS platform;
- Identifies issues with spatial reconciliation of data against ODOT's latest Linear Referencing System, gaps in collected data, and other data anomalies;
- Allows users to interactively resolve identified issues while logging decisions in a lineage table;
- Fills gaps for reporting purposes if condition data is unavailable for the current year, using a perpetuation method which ensures that the best available data is included even if the road segmentation parameters have changed;
- Generates summary reports, such as frequency distribution graphs based on parameters such as county, district, route, data element (IRI, rutting, etc.);



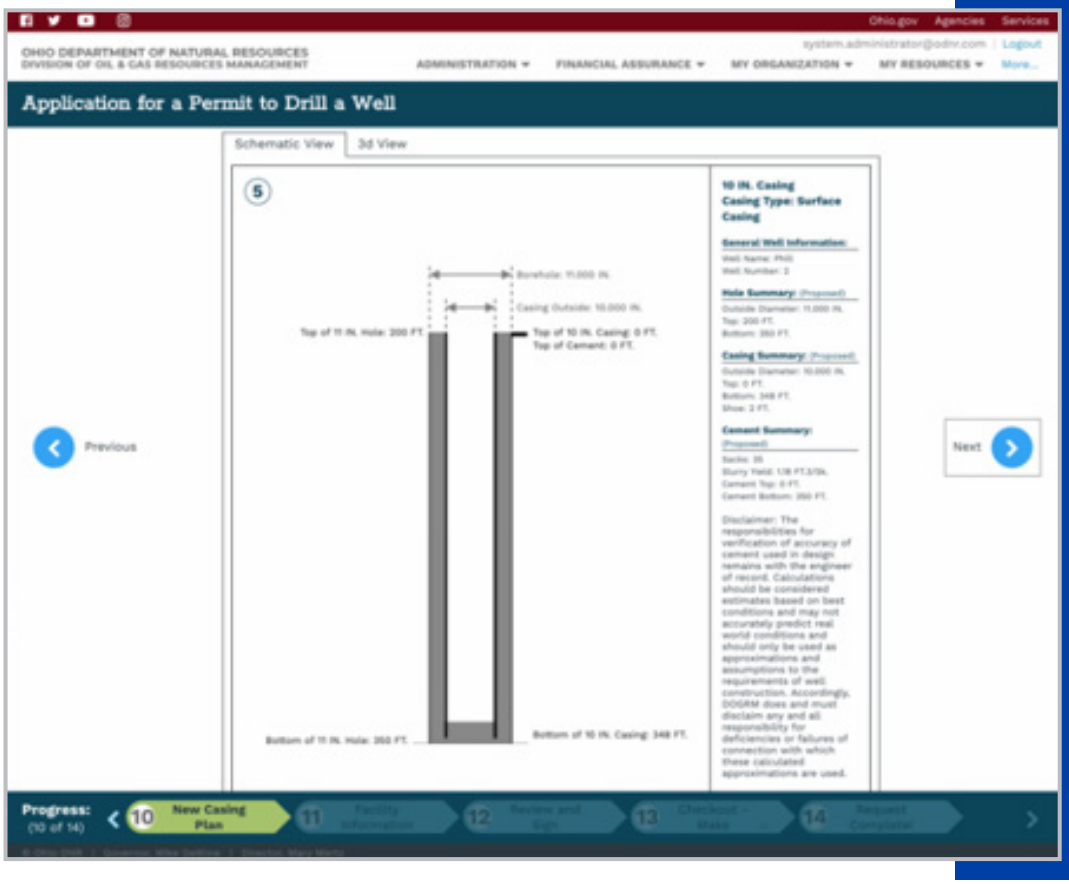
- Prepares data for ODOT's Enterprise Data Warehouse which conforms to their Data Governance requirements; and
- Exports the validated data to files formatted for HPMS submittal.

HIMS is a configurable system built utilizing a Microsoft SQL Server database with Esri Leaflet, ArcGIS Server, ASP.Net Core, C# and an Angular web front end for user input. The system utilizes stored procedures to manipulate ST geometry for highly efficient customized operations.

Utilizing the JMT solution, ODOT can now more efficiently process pavement condition data, identify and resolve issues much more effectively, and report the best available pavement condition data for a particular roadway segment. HIMS standardizes and streamlines ODOT's process for generating pavement data deliverables for federal reporting requirements.

Owner/Contact:
ODOT, Brian Schleppi
(614) 995-5998, brian.schleppi@dot.state.oh.us

Date of Activities:
2018-Ongoing



Ohio Department of Natural Resources, Relationally Integrated Computer System (RICS) for the Division of Oil & Gas

JMT is building a new system for the Ohio Department of Natural Resources Division of Oil and Gas Resources Management to replace their current RBDMS platform with a web-based system to support ODNR's registration, financial assurance, permitting, field and emergency operations.

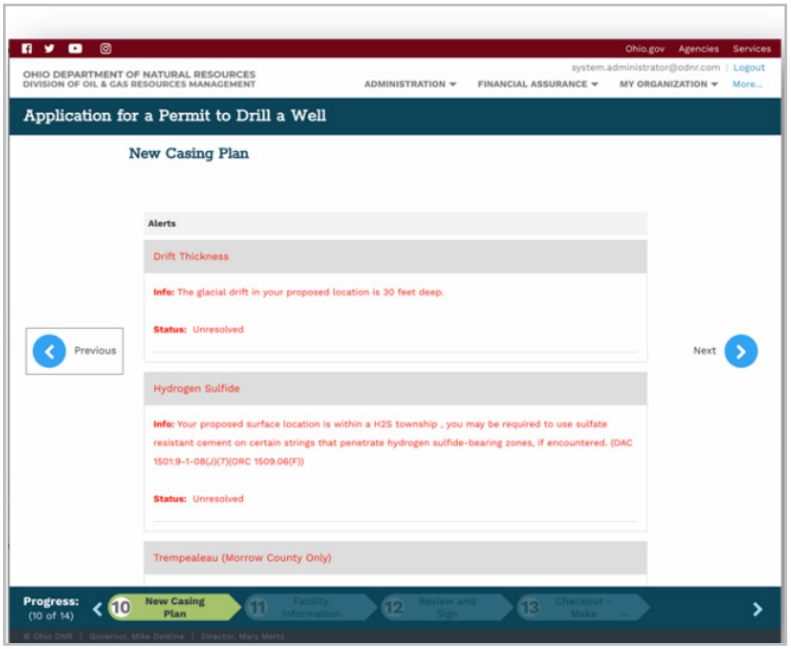
This new system RICS system is first, a platform that allows ODNR to define their workflows, build pages to complete the flows, define the data entities and deploy those flows.

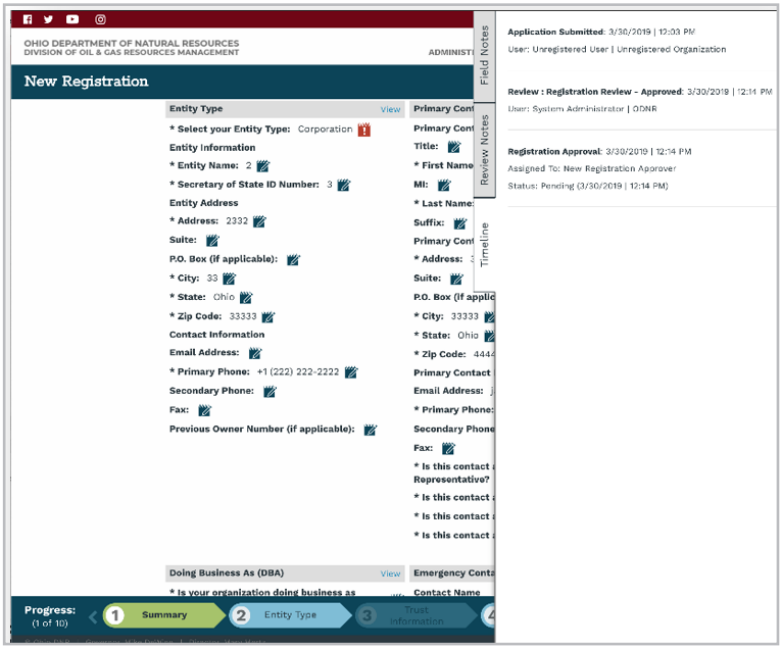
One example workflow allows approved entities to submit a permit application to drill an oil and gas well. This flow walks them step by step through the permit application, giving them guidance on the applicable rules and laws. They can pay the appropriate fees online and submit their permit application. Once submitted it routes to the appropriate staff inside of ODNR for a multi-level review and approval process.

Along with the flow portion of the platform there are components built into the application that those flows can take advantage of. Specifically, contacts, notes, approval, tasks, emailing, mailing, and payment processing tools that allow the flows to perform other actions. One example of this is assigning multi-level reviews of submitted data to the appropriate group and routing the review.

These approval flows take advantage of multi-user note sharing, auditing, checking the status of where the approval is in the approval flow and auditing.

In addition, JMT has built components specific to the Oil and Gas industry. For instance, the RICS permitting workflow walks someone requesting a permit application through the process of designing a well casing plan. This component utilizes GIS technology to query for applicable GIS data to determine what rules and regulations must be complied with based on where the applicant indicates they wish to build the well. Such conditions include the presence of underground drinking water, underground mines and other geologic features. Finally, because oil and gas wells do not necessarily go straight down vertically, GIS allows the RICS system to display the proposed well in 3D so that ODNR staff can identify possible conflicts with other nearby wells. Based on the well requirements entered by the user, the RICS generates multiple views of the information, such as the Schematic View, 3D View, Map Location and Well Requirements.





Owner/Contact:
ODNR, Jon Rayfield
(614) 265-1053, jon.rayfield@dnr.state.oh.us

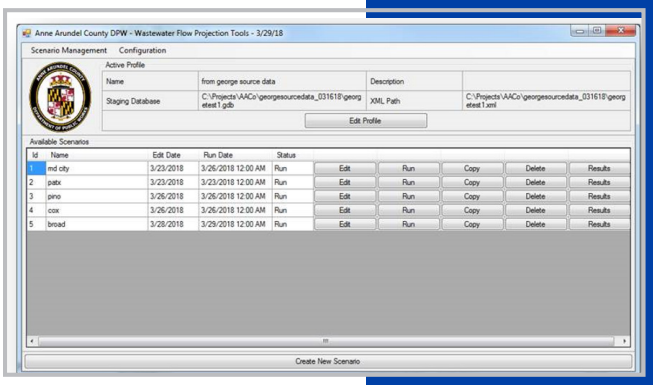
Date of Activities:
2017-Ongoing

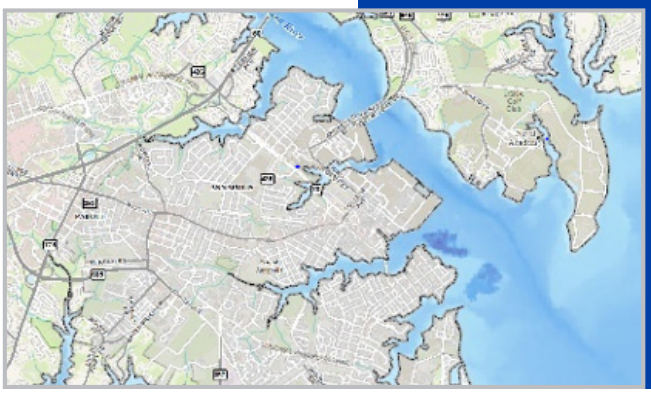
Anne Arundel County, Maryland Open-End GIS Systems AE Services

In 2011, JMT Technology Group was awarded an open-end agreement for professional GIS services, a contract that remains active today. Under this contract, JMT has completed several projects:

GIS Strategic Plan: JMT has been supporting Anne Arundel County's Office of Information Technology Geographic Information Systems Division (OIT GIS) with developing its Countywide GIS Strategic Plan. This project has entailed extensive stakeholder meetings with a wide cross-section of County agencies to discuss and assess the County's GIS capabilities, needs, and priorities. The results of these stakeholder meetings were synthesized through gap analysis into results identifying the County's GIS needs synthesized as recommendations for improvements to the staffing, business processes, data, and technologies that the County relies upon to support its robust GIS capabilities. The final result of the GIS Strategic Plan will be a plan that addresses the County's GIS needs and wants as short and long term strategies designed to achieve specific prioritized goals in its GIS operations. Following the completion of the Strategic Plan, this will be supported by an implementation plan which will guide the county through this process over the near and long term.

Fiber Infrastructure Updates: The county hired JMT Technology Group to review spatial data from several sources and create an authoritative GIS dataset containing their optic fiber infrastructure for utility line marking. JMT converted contract drawings in PDF format into TIFF files, geo-referenced them, digitized features, and attributed the optic fiber points and INET sites with their source. To meet the County's requirement to be able to access the contract drawings from the GIS in the future and to assist JMT editors with document cataloging, JMT developed a custom ArcGIS Desktop add-in. The add-in makes it possible for users to view the contract drawing(s) or individual sheets associated with an optic fiber point feature. Similarly, users can search for a contract drawing or individual sheet in the add-in and find all related optic fiber point features. JMT developed and tested the add-in within our editing environment and we assisted the county in deploying it in their environment. We developed a user manual to accompany the add-in that explains how to install and configure the add-in for use by editors and those with read-only access, and how to use all functionality available in the add-in.





Imagery and Planimetric Basemap Cache Development: JMT designed and developed a cloud-based environment to support the creation of basemap and imagery caches for the county. The cache services were successfully deployed for mobile and web mapping applications, providing both in-house and cloud-based services to county users. The imagery and basemap cache provided foundational layers to support Anne Arundel County's online GIS services and mapping capabilities. JMT implemented an Amazon Web Services (AWS) platform to effectively support the short duration, CPU intensive processing and data storage requirements of creating the imagery and basemap caches. In addition to the cache creation, JMT built a repeatable workflow and created a set of processing tools that allowed for the conversion of the County's planimetric feature data into a format suitable for contribution to Esri's Community Maps project. This process included a review of the existing database schema of the planimetric features to determine any conversions or transformations required to align with Esri's Community Map program standards and Data Prep Tools. The final database was submitted to Esri for inclusion into the Community Maps program and has been published into the ArcGIS Online basemap services.

SharePoint Migration and Enterprise Roadmap: JMT worked together with a sub-consultant to assist Anne Arundel County's Department of Information Technology in migrating to SharePoint 2013 and developing a roadmap for the future expansion of SharePoint. Tasks performed during this project included project initiation and planning; requirements analysis and stand up of SharePoint 2013 Foundation; migration from SharePoint 2010 to 2013; research on the feasibility of integrating SharePoint with Google Drive and Google Calendar, the ability to search SharePoint content from external applications, and the viability of being able to locate documents that reside within SharePoint from ArcGIS Desktop; and knowledge transfer. JMT provided oversight to our sub-consultant and provided recommendations to Anne Arundel County on how to successfully integrate the County's Document Management add-in (developed under the Fiber Optic Infrastructure GIS Updates project) with SharePoint. The integration will allow the County to move digital as-builts and other documents into SharePoint and access them through ArcMap. Additionally, the County can create new links between GIS features and documents in SharePoint.

On-Call Database Support: Upon request by Anne Arundel County's GIS Manager, JMT provided database administration (DBA) support to the Office of Information Technology. This involved analyzing existing server architecture and hardware specifications in both the production and test environments (Esri ArcGIS Server, Microsoft SQL Server, and Microsoft IIS and ArcGIS Web Adaptor) and proposing optimized server architecture and hardware specifications; assisting with new server configuration to include the initial configuration of the SQL Server and creation of a maintenance plan; and providing on-demand support post-deployment. In October 2016, JMT's DBA received kudos from the GIS Manager for getting a failed server back up and running, calling him a "valuable asset" as a team member of the OIT emergency response team.

CountyView Application Enhancements: Anne Arundel County's GIS Department requested assistance from a JMT GIS application developer to review their CountyView application, a custom desktop application that leverages the .NET framework, Visual Basic .NET, ArcObjects, and Esri's ArcEngine. This application was developed by another consultant and the county asked JMT to determine if it would be possible to implement bug fixes and enhancements to the application in its current state. JMT reviewed the code and began reorganizing the configuration files into XML to make the application easier to customize. We refactored and reorganized the code to make it more legible from a development standpoint and then proceeded to apply fixes to improve the overall efficiency and speed of the application. JMT implemented many enhancements including improved query capabilities across multiple database types, making them faster and case-insensitive; a new installation program that allows users to deploy updated versions of CountyView; a copy/paste functionality from the Identify tool; feedback functionality; two-way communication between Cass Works and County View; and more. JMT received kudos from the Anne Arundel County GIS Manager in March 2017, who said that the application developer and JMT exceeded her expectations on this project.

Wastewater Flow Projection Tool: The Department of Public Works uses a custom ArcGIS Desktop tool to perform analyses of wastewater flow and project future requirements. DPW sought JMT's assistance in upgrading the tool from ArcGIS Desktop 10.1 to version 10.5 and to implement several enhancements. Under this task, JMT and a sub-consultant performed requirements validation and re-developed the Wastewater Flow Projection Tool. We are getting ready to test the application prior to deploying it at the county. JMT will be providing documentation and on-call technical support.

Geocortex Support: Anne Arundel County uses Geocortex, a commercial-off-the-shelf product that gives users the ability to create and configure web-based mapping applications without having to rely on a developer. They hired JMT to provide technical support to fix several critical workflows that no longer functioned due to recent ArcGIS Server and Geocortex software upgrades. JMT fixed the existing workflows and expanded on them. We also built new workflows. JMT prepared two documents under this task: a how-to guide for adding basic style and images to Geocortex Essentials workflows and a step-by-step guide for creating and deploying Workflow 5 workflows in Geocortex.

Owner/Contact: Anne Arrundel County, David Gillum, (410) 222-4023, ltgill00@aacounty.org

Date of Activities:
2011-Ongoing

3SG Plus Project Experience

City of Columbus Building and Zoning Columbus, OH

3SG Plus provided the following services for the City of Columbus Building and Zoning Department:

- Electronic Plan Review (ePlan) solution for City plan reviewers in OnBase
- OnBase integration with City's permitting software (Accela) enabling end users to check the status of plans submitted
- OnBase set up as the single repository to store all archived documents (>10 years) for easy search and retrieval

Owner/Contact:
City of Columbus, Michael S. Bowen
(614) 645-3239, MSBowen@columbus.gov

Date of Activities:
12/2015

City of Columbus Department of Public Health, Columbus, OH

3SG Plus provided the following services for the City of Columbus Department of Public Health:

- Birth and Death Certificate Request Solution and Payment Receipt Tracking Solution
- Import of State birth information for processing in OnBase
- Streamline Health System migration (>1.5million documents)

Owner/Contact:
City of Columbus
Department of Public Health, Joe McCann
(614) 645-6100, joemc@columbus.gov

Date of Activities:
8/2018

Franklin County Auditor/Franklin County Data Center, Columbus, OH

3SG Plus provided the following services for the Franklin County Auditor:

- Implemented the Board of Revisions (BOR) solution for Franklin County Auditor and Case Management solution for Franklin County Child Support Enforcement Agency using OnBase.
- Provide managed services to the entire Franklin County users and work in conjunction with Franklin County Data Center

Owner/Contact:
Franklin County Auditor, David Smalley
(614) 525-7475, davidsmalley@franklincountyohio.gov

Date of Activities:
6/2016

City of Columbus Department of Public Utilities, Columbus, OH

3SG Plus provided the following services for the City of Columbus Department of Public Utilities:

- Streamline/automation of existing paper-based processes related to performing safety inspections.
- Installation of Custom Windows Universal App on Windows tablets to collect safety inspection details while working in offline mode and later sync to OnBase.
- Custom UWP application optimized for touch friendly input.

Owner/Contact:
City of Columbus
Department of Public Utilities, Rick Schomaker
(614) 645-7177, RJSchomaker@columbus.gov

Date of Activities:
7/2018

NiSource Corporation, Columbus, OH

3SG Plus provided the following services for the NiSource Corporation:

- Scanned more than 10 million documents in the last decade for various departments and continuing to do the "day forward" documents as well.
- Configured OnBase in 3SG Plus Cloud for easy search and retrieval of the document processed by 3SG Plus.

Owner/Contact:
NiSource Corporation, Teresa Smith
(614) 460-6028, tmsmith@nisource.com

Date of Activities:
8/2012

EMH&T

Section 4:

Proposed Rates

EMH&T Rates

Personnel Category | Description of Service	Current Rate	2020	2021	2022
Project Manager | BA/BS with 10 years' experience, MA/MS with more than 15 years' experience. Project responsibilities include serving as primary point of contact with clients, managing project teams, identifying scope, schedule, and budgets for GIS projects.	$48.75/per hour	$50.00/per hour	$52.50/per hour	$55.13/per hour
GIS Analyst | Associates degree in GIS Technology, Civil Engineering Technology, Surveying, Geography, or related field with significant GIS-related coursework or equivelant experience. Three years of GIS work experience using GIS/GPS technology and working with MS Word, Excel and the internet. Candidates must have training in the use of ESRI ArcGIS software products.	$27.00/per hour	$29.00/per hour	$30.45/per hour	$31.97/per hour
Developer | BA/BS with five years' experience, MA/MS with four years' experience. Responsibilities can include application development, providing technical expertise, mentoring team members and performing QA/QC of GIS solutions.	$32.00/per hour	$34.00/per hour	$35.70/per hour	$37.49/per hour
Systems Architect | Bachelor's degree in area such as computer science, engineering or information systems and 8 years of related work experience. Design, configure, operate and perform maintenance on networking and computer systems. This can include hardware, software, web portals, internet and intranet connections, firewalls, servers, and security. A systems architect considers the size, resources, data needs, desired user experience and budget of each company to determine its computing needs and network configuration. Must have a working knowledge of DNS, SMTP, IIS, RDBMS, and Active Directory. Proficient with Windows Server, Windows and VMware.	$45.00/per hour	$48.00/per hour	$50.40/per hour	$52.92/per hour

Hourly Cost Multiplier is 313%

JMT Rates

Personnel Category | Description of Service	2020	2021	2022
Project Manager | Assigned the management (at least 3-5 years experience in project management) of a specific project and the work performed under assigned tasks. Performs day-to-day management of the project, identifies issues and risks and recommends possible issue and risk mitigation strategies associated with the project. Acts as a facilitator between agency contractor. Is responsible for ensuring that work performed under tasks is within scope, consistent with requirements, and delivered on time and on budget. Identifies critical paths, tasks, dates, testing, and acceptance criteria. Provides solutions to improve efficiency (e.g., reduce costs while maintaining or improving performance levels). Monitors issues and provides resolutions for up-to-date status reports. Demonstrates excellent writing and oral communications skills. Education: Bachelor's Degree from an accredited college or university in Engineering, Computer Science, Information Systems, Business or other related discipline. Master's degree or project management certification is preferred.	$63.30/per hour	$66.50/per hour	$69.90/per hour
Business Analyst | Serves as a computer systems expert on assignments that typically involve establishing automated systems, where concern is with overall life cycle structure; and conducts feasibility studies from design, implementation and post-implementation evaluation from a number of possible approaches. Design criteria must be established to accommodate changes in legislation, mission, or functional program requirements. Education: Bachelor's Degree from an accredited college or university in Computer Science, Systems Analysis, Information Systems or a related field or three (3) years of equivalent experience in a related field and a minimum of two years of experience in information business systems analysis.	$59.40/per hour	$62.40/per hour	$65.50/per hour
Sr. Application Developer | Serves as a lead in the architecture, design, and implementation of web and mobile applications; Mentor junior and mid-level developers; Create high-quality mobile, web and desktop solutions, demonstrating your ability to apply skills utilizing best practices while meeting project deadlines; Working from static application mockups, wireframes, and functional requirements, develop solutions that are bug-free and meet the acceptance criteria defined for each project; Collaborate with project managers, business and systems analysts, UX designers, application developers and quality assurance team to deliver high-quality deliverables; Provide expertise to the group with regards to enterprise data strategies, such as data quality, data flows, data warehousing, big data, data analytics, and data science; Provide expertise to the group with regards to application and data security; Research and implement newer technologies as they become available; Non-business hours support may be required on a rotating schedule for urgent and critical issue resolution; Coordinate with IT staff to deploy solutions. Education: A Bachelor's Degree in Computer Science, Information Technology, or related discipline from an accredited college or university or three (3) years of equivalent experience in a related field with 8+ years of web programming/architecture experience with a wide range of technologies	$62.00/per hour	$65.10/per hour	$68.50/per hour
Application Developer | Create high-quality web and mobile solutions, demonstrating ability to apply skills utilizing best practices while meeting project deadlines; Working from static application mockups, wireframes, and functional requirements, develop solutions that are bug-free and meet the acceptance criteria defined for each project; Collaborate with project managers, business and systems analysts, UX designers, application developers and quality assurance team to deliver high-quality deliverables; Research and implement newer technologies as they become available. Education: A Bachelor's Degree in Computer Science, Information Technology, or related discipline from an accredited college or university or three (3) years of equivalent experience in a related field.	$51.70/per hour	$54.30/per hour	$57.00/per hour

Personnel Category | Description of Service	2020	2021	2022
Senior GIS Analyst | Performs data research, investigation, and verification; Sesigns and maintains geodatabases in ArcSDE; Uses ETL tools for data migration; Develops, documents, and implements quality assurance and quality control procedures; Evaluates new software and tools; Automates repetitive geoprocessing tasks; Creates and publishes map services; Manages versioned geodatabases; Assists project and task managers in formulating and implementing project plans and managing task-based work and regularly communicates task progress to the project manager; Works directly with customers to identify and document requirements; determines how GIS technology can help meet customer needs and formulates and implements cost-effective GIS-based solutions; Utilizes GIS technology to perform complex and advanced spatial analysis and distills results into formats that are easy to comprehend; Research, develop and offer innovative approaches to problem-solving; Provides mentorship to junior team members, including GIS technicians and interns; Tests and analyzes custom applications or tools and coordinates with developers to address bugs and enhancements; Assists with application deployment and testing at a client site; Develops training materials and manuals; Provides instruction to internal staff and clients; Supports field data collection using GPS and other mobile data collection tools; Supports GIS data creation, conversion and manipulation as needed. Education: Bachelor's degree in geography, GIS, computer science, information technology, engineering, planning, or related field. Minimum of two years of experience in the application of GIS technology.	$59.50/per hour	$62.50/per hour	$65.70/per hour
GIS Analyst | Performs data research, investigation, and verification; Sesigns and maintains geodatabases in ArcSDE; Uses ETL tools for data migration; Develops, documents, and implements quality assurance and quality control procedures; Evaluates new software and tools; Automates repetitive geoprocessing tasks; Creates and publishes map services; Manages versioned geodatabases; Assists project and task managers in formulating and implementing project plans and managing task-based work and regularly communicates task progress to the project manager; Works directly with customers to identify and document requirements; determines how GIS technology can help meet customer needs and formulates and implements cost-effective GIS-based solutions; Utilizes GIS technology to perform complex and advanced spatial analysis and distills results into formats that are easy to comprehend; Research, develop and offer innovative approaches to problem-solving; Provides mentorship to junior team members, including GIS technicians and interns; Tests and analyzes custom applications or tools and coordinates with developers to address bugs and enhancements; Assists with application deployment and testing at a client site; Develops training materials and manuals; Provides instruction to internal staff and clients; Supports field data collection using GPS and other mobile data collection tools; Supports GIS data creation, conversion and manipulation as needed. Education: Bachelor's degree in geography, GIS, computer science, information technology, engineering, planning, or related field. Minimum of two years of experience in the application of GIS technology.	$40.00/per hour	$42.00/per hour	$44.10/per hour

Personnel Category | Description of Service	2020	2021	2022
GIS Tech | Performs data research, investigation, and verification; Performs data editing tasks under the direction of a project or task manager and regularly reports progress on assigned work; Follows quality assurance and quality control procedures and provides input on ways to more efficiently and effectively accomplish tasks; Follows best practices when working within a versioned geodatabase; Creates and maintains spatial attribute and metadata information; Utilizes ArcGIS Desktop and its extensions to perform spatial analysis and distills results into formats that are easy to comprehend; Performs data translation from CAD and other data formats into GIS; Follows test scripts in the testing of applications and thoroughly documents results; Fills internal data and map requests; Develops high quality cartographic products for internal and external customers. Education: Bachelor's degree in geography, GIS, computer science, information technology, engineering, planning, or related field, with relevant coursework in GIS. A minimum of training or internship experience in an area of GIS.	$28.50/per hour	$30.00/per hour	$31.50/per hour

Hourly Cost Multiplier is 300%

3SG Plus Rates

Personnel Category | Description of Service	2020	2021	2022
Project Manager (OnBase)	$49.38/per hour	$50.86/per hour	$52.39/per hour
Imaging Document Manager	$37.75/per hour	$38.82/per hour	$39.34/per hour

Hourly Cost Multiplier is 300%

Section 5:

Environmentally Preferable Approach

As a corporate citizen, EMH&T's responsibility is not only to design sustainable projects, but to act as a **sustainable corporate citizen**.

EMH&T Operating Philosophy on Sustainability

EMH&T is committed to creating environments that are livable, environmentally responsible, and sustainable. Proof of that commitment is EMH&T's in-house initiative called NextGenerationGreen™ which integrates our multi-disciplined experts to thoroughly evaluate and optimize the profitability and practicality of sustainable options. This working group of experts representing the practice areas of water resources, environmental sciences, civil engineering and landscape architecture research the efficacy of various accepted green practices and determine the potential benefits of the application to individual project sites. Team members within NextGenerationGreen™ are LEED certified and are accustomed to designing within the guidelines established by the LEED US Green Building Council. This group ensures that EMH&T's designers and engineers stay current on trends in the industry and encourage sharing these strategies internally and with our clients.

GreenSpot: Evidence of Commitment

As a City of Columbus GreenSpot Member, EMH&T fully supports the City's environmental stewardship. In not only design, but also incorporating sustainability into our operations is important to EMH&T. EMH&T is aware of the City's initiative to conform to the ISO 14001 Environmental Management Standard, and is familiar with the City's Environmental Policy (Effective 6/16/14) and Environmental Management System. EMH&T has a full-service Environmental Division that will work closely with our Divisions to ensure that this project will comply with pertinent environmental laws and policies, and to make sure this compliance is appropriately documented. In addition, our firm will ensure that all subcontractors and vendors are aware of the City's environmental and record-keeping policy, including the roles and responsibilities related to environmental aspects of this project's work.

Project Design for the City of Columbus

We understand the City's duty to enhance the quality of life, now and into the future for people living, working, and raising families in Central Ohio through the economic, efficient, environmentally responsible stewardship of superior public utilities. EMH&T agrees that we want to help the City inspire high standards of excellence in the delivery of City of Columbus services for a strong, safe, and healthy community with shared economic prosperity and quality of life.

Specific to this project, EMH&T proposes the following environmentally preferable considerations:

GIS projects, by their very nature, are environmentally friendly solutions in the form of communications with other departments across the City's organization to deliver and sustain state-of-the-art technology solutions between the public and private sectors. Additional ways to reduce energy consumption include:

- Smart use of collaboration tools such as web based meetings for project coordination, so as to reduce greenhouse gas emissions associated with the travel of meeting attendees.
- Utilize and recommend electronic submissions and correspondence to project team members, so as to minimize paper usage and greenhouse gas emissions associated with physical deliveries.
- Utilize digital plan review tools for internal QA/QC efforts in order to minimize paper usage.

EMH&T

Appendix:

Non Collusion Affidavit

Non-Collusion Affidavit

(This affidavit must be executed for the proposal to be considered)

State of __Ohio_____)

County __Franklin_____)

_Sandra C. Doyle Ahern, MEn_____, being first duly

sworn deposes and says that she is, _____President_____,(sole owner, a partner, president, secretary, etc.) of the party making the foregoing proposal or bid; that such bid is genuine and not collusive or sham; that said bidder is not financially interested in, or otherwise affiliated in a business way with any other bidder on the same Contract; that said has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or any other bidder or to secure any advantage against the City of Columbus, Ohio or any person or persons interested in the proposed Contract; and that all statements contained in said proposal or bid are true; and further, that such bidder has not directly or indirectly submitted this bid, or the contents thereof or divulged information or data relative thereto to any association or to any member or agent thereof.

Sandra C Doyle Ahern
Signature of Affiant

Sworn to and subscribed before me this 16th day of December, 2019.

Candie K. Lester, Notary public in and for

Franklin (county) Ohio (state)

(Seal)

My commission expires: Feb 17, 2020

NOTARIAL SEAL STATE OF OHIO
Candie R. Lester
Notary Public, State of Ohio
My Commission Expires 02-17-2020