OHM Advancing Communities®

Proposal for

GENERAL ENGINEERING SERVICES

City of Ann Arbor Public Works / Systems Planning Unit

RFP No. 23-16 | Addenda Received: #1

Proposal Due Date
Thursday, March 30, 2023, 2PM

March 30, 2023

OHM Advisors®

Attn: Kyle Pettibone, Public Works Engineer
City of Ann Arbor Procurement Unit
c/o Customer Service Desk
301 East Huron Street
Ann Arbor, MI 48104

Re: RFP No. 23-16 – Public Works / Systems Planning General Engineering Services

Dear Mr. Pettibone,

We understand that the City of Ann Arbor (City) desires as-needed engineering assistance and support across both its Public Works and Systems Planning Units. This assistance and support will allow the City to continue providing a high level of service to its residents from within their Public Services Area.

Our team is committed to providing experienced staff with the flexibility to provide engineering assistance in whichever format is required to meet the City's needs. This includes on-site engineering, routine remote assistance, emergency response services, or typical capital project engineering. In any of these situations, the staff presented within our proposal represent a team uniquely qualified to support the City. Key elements of our team's overall approach include:

- Dedicated project manager – Our PM will function as a single point of contact for the City for all projects executed under this contract, providing the City with strong continuity of service.
- Experienced staff – We have assembled a strong team with experience on City projects, so the City can be comfortable that we can deliver as proven in the past.
- Local presence – The majority of the key staff members work out of our Ann Arbor and Livonia offices, and several live in or within 10 miles of the City. When needed for quick response, our team will deliver.
- Proven expertise – Serving municipalities with general engineering and support services is our bread-and-butter. We know how to deliver successful projects to the City because of our deep experience in these areas.

Chris Elenbaas will serve as the single point of contact for this contract and will be closely supported by assistant project manager, Cresson Slotten. Cresson and Chris together bring over 50 years of experience in the engineering and planning services field, with a majority of that time spent working on City projects and processes. They are accustomed to the unique challenges of working in the City and have relationships that can help advance projects throughout the City's various service units. At the engineering level, Mackenzie Johnson is designated to provide the routine support necessary by Public Works or Systems Planning. These staff members were selected for their successful past work with the City and considerable experience as it relates to typical work performed by Public Works and Systems Planning.

Since 2015, OHM Advisors has held the contract to provide engineering services to the Public Works and Systems Planning Units with a well-rounded team of motivated technical professionals. We hope to continue to serve the City through this upcoming contract for the foreseeable future.

Sincerely,
OHM Advisors

George A. Tsakoff

George Tsakoff, PE
Principal in Charge

c (734) 495-9568 **e** george.tsakoff@ohm-advisors.com

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SECTION A: PROFESSIONAL QUALIFICATIONS

Who We Are

OHM ADVISORS

OHM Advisors is a team of over 600 people from different backgrounds working in 18 cities across Michigan, Ohio, Indiana, Kentucky, and Tennessee. We strive to use our combined expertise and talents to continually advance the communities we serve. Our work spans client communities across the public and private sectors—including municipalities, state and federal agencies, Fortune 100 companies, developers, schools, universities, and more.

As a growing firm with full-service capabilities under one roof, we are listed on ENR's list of Top 500 Design Firms and recognized for our contributions to our industry. But it's not awards or personal gain that drives us. It is a passion for making a difference through innovative, people focused problem solving, design and ideas that drive whole communities forward—today, and well into the future.

Firm Growth
OHM Advisors was established in 1962 and has been growing steadily ever since. As a multidisciplinary organization, we provide a variety of services to our clients with a passion to be Advancing Communities for many years to come.

Firm Ownership
OHM Advisors is a privately held corporation, governed by a seven-member Board of Directors and has 43 employee shareholders.

Full Legal Name	Orchard, Hiltz & McCliment, Inc.
Contract Address	355 South Zeeb Road, Suite A Ann Arbor, MI 48103
Phone	734.522.6711
Web	ohm-advisors.com
Authorized Negotiator	George Tsakoff, PE
Project Manager	Chris Elenbaas, PE
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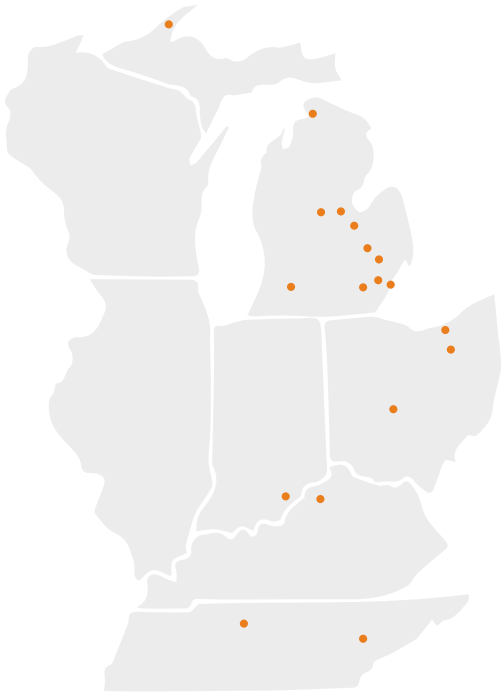


18 LOCATIONS THROUGHOUT MI, OH, IN, KY & TN

600+ EXPERTS OF DIVERSE BACKGROUNDS & TALENTS

10 COLLABORATIVE DISCIPLINES

Our Services

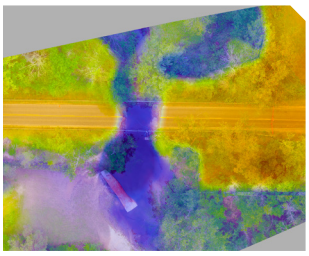
AREAS OF EXPERTISE

Architecture

- Complete Architectural Design Services
- Site & Facility Evaluation
- Facility Master Planning
- Space Planning & Programming
- Interior Design
- Sustainable Design

Construction Engineering

- Construction Design
- Construction Engineering & Inspection
- Project Administration & Closeout



GIS & Innovative Technologies

- Mobile GIS
- Software Solutions
- System Analysis
- System Design & Implementation
- Innovative Technologies

Landscape Architecture & Urban Design

- Public Park Space & Master Plans
- Streetscapes
- Trails & Greenways
- Green Infrastructure
- Branding, Wayfinding & Signage
- Visualization & Graphics
- Site Design

Mechanical, Electrical & Plumbing Engineering

- Heating, Ventilation & Air Conditioning
- Plumbing
- Lighting & Controls
- Power Distribution
- Safety & Security

Municipal Engineering

- Community Engineering
- Infrastructure Assessment & Planning
- Funding Assistance
- Design & Implementation

Planning

- Public Engagement & Facilitation
- Economic Development Planning
- City & Regional Planning
- Land Development, Zoning & Entitlements
- Transportation Planning
- Codes & Standards

Surveying

- Road Design Surveys
- ALTA/NSPS Land Title Surveys
- Boundary Surveys
- Topographical Surveys
- Hydrographical Surveys
- Right-of-way Surveys
- As-built Surveys
- Stock Pile Volumetric Surveys
- Construction Layout

Transportation

- Traffic Engineering
- Transportation Planning
- Roadway & Highway Design
- Bridge Engineering & Diverse Structures
- Multi-modal Transportation Engineering

Water

- Stormwater Management
- Drinking Water
- Wastewater
- Asset Management
- Ecological Services

	Key Personnel	Office Location	Project Role
MUNICIPAL/CIVIL	George Tsakoff, PE	Livonia	Authorized Negotiator, Municipal Lead
	Chris Elenbaas, PE	Ann Arbor	Point of Contact, Municipal Project Manager
	Cresson Slotten	Ann Arbor	QA/QC Engineer, Municipal Assistant Project Manager
	Kyle Selter, PE	Livonia	Municipal Engineer
	Thomas "TJ" Lentner, PE	Ann Arbor	Municipal Engineer
WATER RESOURCES	Robert Czachorski, PE	Livonia	Water Resources Assistant Project Manager
	Greg Kacvinsky, PE	Detroit	Stormwater Lead
	Mackenzie Johnson, EIT	Livonia	On-site Engineer, Environmental Engineer
	Jennifer Drinan, PE	Livonia	Water Resources Facilities Project Manager
ASSET MANAGEMENT	Murat Ulasir, PhD, PE	Livonia	Asset Management Lead
	Susan Knepper, PE	Livonia	Asset Management, Environmental Engineer
	Mike Cousins, GISP	Livonia	GIS, Technology Lead
	Marcus McNamara	Ann Arbor	Road Asset Management, PASER Lead
ARCHITECTURE, MEP, LANDSCAPE	Christopher Ozog, AIA, LEED AP	Livonia	Project Architect
	Amanda Porath, PE	Petoskey	Structural PM (Buildings)
	Sean Tabacsko	Saginaw	Mechanical PM
	Ted Cogswell, PE	Livonia	Electrical PM
	Sarah Huddas, PLA	Livonia	Landscape Architect
TRANSPOR-TATION	Brian Ardanowski, PE	Livonia	Transportation Engineer
	Adam Rychwalski, PE	Livonia	Structural Engineer (Bridges)
FIELD SERVICES	Phil Maly	Ann Arbor	Construction Manager
	Fraser Payne, PE	Ann Arbor	Construction Engineer
	Andy Schripsema, PE, PS	Livonia	Survey Manager

Your Project Team

ORGANIZATION CHART

City of Ann Arbor

George Tsakoff, PE
Authorized Negotiator

Chris Elenbaas, PE
Project Manager, Point of Contact

Cresson Slotten
Assistant Project Manager, QA/QC Engineer

OHM Advisors attests to the fact that the key personnel provided within this proposal have adequate availability to provide the services as outlined in this document. In addition to the key staff that will support the project directly, we have over 620 professionals firm-wide to provide as-needed support to our clients.

Mackenzie Johnson, EIT
On-site Engineer

MUNICIPAL

George Tsakoff, PE, *Municipal Lead*
Chris Elenbaas, PE, *Municipal Project Manager*
Cresson Slotten, *Municipal Asst. Project Manager*
Kyle Selter, PE, *Municipal Engineer*
Thomas "TJ" Lentner, PE, *Municipal Engineer*

ASSET MANAGEMENT

Murat Ulasir, PhD, PE, *Asset Management Lead*
Susan Knepper, PE, *Asset Management, Environmental Engineer*
Mike Cousins, GISP, *GIS, Technology Lead*
Marcus McNamara, *Road Asset Management, PASER Lead*

FIELD SERVICES

Phil Maly, *Construction Manager*
Fraser Payne, PE, *Construction Engineer*
Andy Schripsema, PE, PS, *Survey Manager*

WATER RESOURCES

Robert Czachorski, PE, *Water Resources Asst. Project Manager*
Greg Kacvinsky, PE, *Stormwater Lead*
Mackenzie Johnson, EIT, *Environmental Engineer*
Jennifer Drinan, PE, *Facilities Project Manager*

ARCHITECTURE, MEP, LANDSCAPE ARCHITECTURE

Christopher Ozog, AIA, LEED AP, *Project Architect*
Amanda Porath, PE, *Structural PM (Buildings)*
Sean Tabacsko, *Mechanical Project Manager*
Ted Cogswell, PE, *Electrical Project Manager*
Sarah Huddas, PLA, *Landscape Architect*

TRANSPORTATION

Brian Ardanowski, PE, *Transportation Lead*
Adam Rychwalski, PE, *Structural Engineer (Bridges)*

George Tsakoff, PE

AUTHORIZED NEGOTIATOR, MUNICIPAL LEAD

Education
- Master of Science in Civil Engineering, Wayne State University, 2013
- Bachelor of Science in Civil Engineering, Michigan State University, 1998

Professional Registration(s)
Professional Engineer
- MI, 2013, #6201060848

Experience
With OHM since 2013
15 years prior experience

Professional Affiliation(s)
- Chi Epsilon, National Civil Engineering Honor Society
- American Water Works Association (AWWA)

Background

As a Principal in OHM Advisors Municipal Services Group, George Tsakoff has decades of expertise with general municipal consultation, engineering analysis, design, and contract administration for a wide array of municipal capital improvement projects. George is involved with projects from start to finish, including phases of work for engineering analysis, preparation of construction plans, contract documents, and detailed specifications, as well as bidding and construction phases.

George specializes in serving as an advisor to municipal clients to help them achieve not only their short-term goals and projects, but to think about and plan for the long-term. In this role, he assists with supporting the site plan review process, capital improvement planning and implementation, and grant and loan funding. He has experience with the MDOT LAP process, MI-EGLE State Revolving Fund, Drinking Water Revolving Fund, and SAW Grant Funding for stormwater, asset management, and wastewater improvements.

George is also charged with managing a talented team of professionals across various departments and offices to deliver projects to clients seamlessly, with efficiencies in analysis, design and construction implementation that result in highly successful projects and long-term client relationships over the past 25 years.

Select Relevant Experience

Public Works and Systems Planning Units for As-needed Engineering Services, Ann Arbor, Michigan
Principal in Charge for a contract agreement with City of Ann Arbor through the Public Works Unit and Systems Planning Unit for as-needed services. Engineering assistance provided to these City units has been ongoing since 2015, with a recent contract agreement renewal in 2022 fiscal year for two additional years of engineering services. More recent tasks under this agreement include various support related to the City Solid Waste Management Program, various stormwater analysis related tasks across areas of the City, and water system support tasks.

Public Services Area for As-needed Engineering Services, Ann Arbor, Michigan
Principal in Charge for the as-needed contract agreement with the City of Ann Arbor that was awarded in 2022 to assist the City with ongoing engineering design services. OHM Advisors has assisted on several project since the start of the contract last summer, including the GCPE local streets water main and resurfacing design, Ann Street water main and resurfacing design, Miller-Spring-Chapin sanitary analysis, and other various tasks.

Public Services Area for As-needed Construction Inspection, Ann Arbor, Michigan
Principal in Charge for the as-needed contract agreement with the City of Ann Arbor that began in June 2021 to assist the City with on-going field inspection needs. OHM Advisors has assisted on several project since the start of the contract, including N. Maple Road emergency

Select Relevant Experience Continued

reconstruction, Manchester Street rehabilitation, Broadway Street resurfacing and water main, and support with yearly street resurfacing program.

Fuller Street Culvert under AMTRAK Rail Emergency Replacement, Ann Arbor, Michigan
Principal in Charge for the analysis, design, bidding, and contract administration for an emergency project with City of Ann Arbor, MDOT Office of Rail, and Amtrak, and additional permitting coordination through EGLE for floodplain impact to the Huron River. The new culvert consisted of approximately 82 feet of 60-inch RCP along with two new 96-inch diameter structures. At the upstream end of the project, 8 feet of 48-inch RCP was installed to accommodate a closure pour between the proposed 96-inch structure and an immediately upstream existing stormwater vault. The slope adjacent to Fuller Street was reconstructed and stabilized with restoration and the entire work site including the railroad track ballast was replaced, concluding with improvements to the outlet of the culvert at the Huron River for heavy rip rap and strategic modification of the outlet elevation at the river.

Northside Interceptor Condition Assessment, Ann Arbor, Michigan
Project Manager for preparation of contract documents related to the condition assessment of approximately four miles of 78-inch pipe from an upstream location near the U of M Hospital, downstream to the City wastewater treatment plant. The condition assessment included laser scanning and sonar by a contractor to evaluate the structural and I/I condition of the interceptor along this route. Once the condition assessment was completed, OHM provided further analysis regarding the data.

Streetlight Replacement CIP, Ann Arbor, Michigan
Project Manager for preparation of contract documents related to light pole and fixture replacement for approximately 75 light poles in 2019 and 300 light poles in 2021 for downtown and residential neighborhood areas throughout the City. These projects implement findings from the City's asset management system, which was previously created with OHM Advisors under a separate project.

Richland Gardens Water Main Replacement, Farmington Hills, Michigan
Principal in Charge for the replacement of approximately 18,000 feet of 8" water main within the Richland Gardens Subdivision, including preliminary engineering, design, plan preparation and bidding. A majority of this water main was installed by the horizontal directional drilling process and included the installation of new fire hydrants, gate valves and wells, and water services.

11 Mile Road Rehabilitation; Middlebelt to Inkster, Farmington Hills, Michigan
Principal in Charge on this project designed to provide one mile of hot mix asphalt widening and resurfacing, concrete curb and gutter, storm sewer, precast box culvert, sewer, drainage, steel sheet piling, traffic signals, signing and pavement marking on 11 Mile Road from Middlebelt Road to Inkster Road in the City of Farmington Hills, Oakland County. This was an MDOT Local Agency Project. OHM led all major facets of the design and construction engineering work including survey layout, construction engineering, construct administration, and inspection. Coordination between the Contractor, MDOT, RCOC, the City of Farmington Hills, and the designers was key, as multiple underground utilities and old infrastructure conflicted with this project.

7 Mile Road Pathway, Northville Township, MI
Principal in Charge on this preliminary engineering and TAP Grant Application effort for 1.8 miles of 10-foot wide HMA pathway within a 14-foot-wide clear zone. A TAP Grant application was submitted in 2022 and the client is awaiting a commitment from MDOT with a positive outlook. Specific preliminary engineering efforts involve coordination with CSX railroad on a crossing east of Northville Road, coordination with County Parks and Recreation on a connection to Hines Park, and a HAWK pedestrian signal crossing of Northville Road, south of 7 Mile Road. Additionally, there is coordination with the Township on integration of the shared use pathway into the frontage of their Legacy Park and new essential services complex.

Chris Elenbaas, PE

POINT OF CONTACT, MUNICIPAL PROJECT MANAGER

Education
- Bachelor of Science in Civil & Environmental Engineering, University of Michigan, 2005

Professional Registration(s)
Professional Engineer
- MI, 2009, #56730

Experience
With OHM since 2022
18 years prior experience

Professional Affiliations
- American Water Works Association (AWWA), 2009
- American Public Works Association (APWA), 2022

Background

Chris Elenbaas serves as a Senior Project Manager and has over 18 years of broad experience within municipal engineering, including master planning, engineering analysis, asset management, condition assessment, detailed design, and construction administration. His primary focus has been within municipal water supply including storage tanks, pump stations, distribution mains, and large diameter transmission mains. Beyond water infrastructure, he has served as a design engineer for wastewater gravity mains, force mains, lift stations, pedestrian pathways, roadways, streetscapes, and recreational facilities.

Beyond his consulting experience, he has over four years working within a public works environment and is accustomed to field and emergency response efforts. Successfully managing municipal assets is his primary goal and his work has involved numerous examples of making data driven design decisions to help communities meet their service goals for residents.

Select Relevant Experience

Pittsfield Charter Township, US-12 Wastewater Improvements, Ann Arbor, Michigan*
Project Manager and Lead Technical Engineer for a multi-phase sanitary interceptor improvement project for Pittsfield Charter Township. Phase 1 design included over 16,000 feet of new 36-inch interceptor sewer with depths reaching up to 40 feet. Included the first open cut application of fiberglass reinforced pipe (FRP/GRP) within the State of Michigan to address concerns of hydrogen sulfide corrosion. Phase 1 construction cost was over $27M with subsequent planned phases totaling over $35M.

Farmington Hills / Great Lakes Water Authority Temporary Pump Station, Farmington Hills, Michigan
Project Manager for the emergency design, hydraulic analysis, permitting and startup of a 3,200 gpm temporary water booster station in the City of Farmington Hills. The pump station was required while GLWA performed a pipeline renewal on their existing 48-inch and 54-inch PCCP transmission main. Design and field efforts ensured the City of Farmington Hills maintained water service for over two months while the necessary work was completed. Challenges included addressing rare permitting requirements, cold weather installation and handling surge issues within the existing distribution system.

Barton Pump Station Valve Improvement Project, Ann Arbor, Michigan*
Lead Engineer for valve and process piping improvements at the City of Ann Arbor Barton Pump Station, which supplies approximately 85% of the City's raw water from the Huron River to the City's water treatment plant. Included a detailed sequence of work to minimize disruption of flow from the 40 MGD pump station into the WTP. Internal and external gate and butterfly valves ranged from 8" up to 42" inch. The project also included replacement

Select Relevant Experience Continued

of a 36" x 72" sluice gate on the City's Barton Dam, which serves as primary isolation for the City's largest intake into the Huron River. Project construction cost is over $4.6M.

2023 Miscellaneous Utility Projects, Ann Arbor, Michigan
Served as Project Manager for the design of water main, road resurfacing, and sanitary sewer improvements at five project locations across the City of Ann Arbor. The $4.1M project includes 5,300 feet of water main replacement. In multiple locations, the design team's detailed assessments identified additional infrastructure issues that were incorporated into the bid documents.

Pool & Ice Rink Facility Improvements, Ann Arbor, Michigan*
Chris served as the City of Ann Arbor's Project Manager both as a consultant and City employee for several major improvements to the City's pool and ice rink facilities. Work included the successful transformation of the Veteran's Park Pool mechanical systems to modern regenerative filtration with efficient pumping and heating systems. At Mack Pool, Chris led the design of a new filter and pumping systems. At the two other facilities, Buhr Park and Fuller Park, his work included significant maintenance projects and the installation of UV disinfection to maintain a high level of service to the City's park users.

Raw Water Main Condition Assessment, Ann Arbor, Michigan*
Served as Project Manager for the raw water main condition assessment with the City of Ann Arbor's water treatment plant. The project included the internal and external evaluation of one mile of 24-inch cast/ductile iron transmission main and one mile of 42-inch prestressed concrete cylinder pipe (PCCP). Managed all City responsibilities include preparing the project request for proposals, selection of an inspection firm, staff coordination, consultant management and finance coordination.

West High Service Pump Station, Ann Arbor, Michigan*
Served as Project Engineer and onsite owner's representative for the construction of a new 12 MGD high service pump station at the City of Ann Arbor water treatment plant. The pump station incorporated four dry pit vertical turbine pumps driven by 200 hp VFDs fed from a new motor control center and 3000 KVA substation. The constrained WTP site required extensive site piping replacement, including new 36-inch water main and CIPP lining of an existing corroded 24-inch steel water main from the 1920s that was inaccessible below other WTP buildings. Project construction cost was over $9M.

Western Townships Utilities Authority, 48-inch Haggerty Road Interceptor Rehabilitation, Canton, Michigan*
Served as the Lead Engineer for the rehabilitation of over 4,300 feet of 48-inch sanitary sewer within the busy Haggerty Road corridor in Canton Township. The interceptor sewer was originally constructed of intermittent brick and cast-in-place concrete via tunneling with depths exceeding 50 feet. The brick sections were exhibiting advanced deterioration, with one region partially collapsed. Project bid documents included spiral-wound, slip lining and CIPP alternatives, with CIPP being selected for construction.

7 Mile Road Water Tower and Vault Modifications, Northville, Michigan
Served as Project Manager for the construction phase engineering efforts for a new 500,000 gallon elevated storage tank and of two new control vaults in Northville Township. The project required detailed coordination with the Great Lakes Water Authority and extensive water system work within constricted sites demanding unique easement conditions. Project construction cost was over $6M, and is anticipated to be complete in late 2023.

Completed prior to joining OHM Advisors.

Cresson Slotten

QA/QC ENGINEER, MUNICIPAL ASSISTANT PROJECT MANAGER

Education
- Bachelor of Science in Civil Engineering, University of Michigan, 1986

Professional Registration(s)
Professional Engineer
- MI, 1993, #38784

Experience
With OHM since 2021
34 years prior experience

Professional Affiliation(s)
- Chi Epsilon, National Civil Engineering Honor Society
- American Water Works Association (AWWA)

Background

As a member of OHM Advisors' Municipal Services Group, Cresson Slotten is utilizing his substantial and diverse experience gained from a 33+ year career with the City of Ann Arbor, Michigan in their engineering, systems planning and public works groups, including seven years as the City's Systems Planning Unit Manager, on a variety of civil and municipal projects for multiple OHM Advisors clients. His significant background in private development reviews and construction oversight, as well as capital improvement project design, bidding and project management is beneficial on both private and publicly funded infrastructure projects for various communities.

Cresson's experience in strategic and technical infrastructure planning, including master planning, capital improvements planning/programming and infrastructure asset management across municipal utilities, transportation and solid waste systems will assist communities and agencies with both their short-term and longer-view strategies and visions.

Some of the local communities and agencies that Cresson has worked with over the years, as well as now with OHM Advisors, include: the City of Ann Arbor; Washtenaw County Water Resources Commissioner's Office and Department of Public Works; Ann Arbor DDA; University of Michigan; Michigan Department of Transportation; SEMCOG; Washtenaw Area Transportation Study (WATS); Ann Arbor Area Transportation Authority (AAATA); Washtenaw Regional Resource Management Authority (WRRMA); Pittsfield Charter Township, Ann Arbor Charter Township, Scio Township, and Superior Charter Township, among others.

Select Relevant Experience

Solid Waste Dept. Work Plan and RFP Development Assistance, Ann Arbor, Michigan
Project Manager; Assisted the City and its recycling collections contractor to develop and implement adjustments to collections in multi-family housing sites. Also worked with City staff to develop a Request for Proposal (RFP) for the City's commercial solid waste collections franchise that incorporated the City's zero waste goals to the greatest extent possible, and included extensive and detailed requirements for proposers to include in their proposals and work plans.

Clark Road Pump Station Replacement, Superior Township, Michigan
Project Manager; Replace an existing pre-manufactured "can" station installed in 1969 with a new relocated pump station building and wet well, including over 700 feet of new 12-inch and 18-inch gravity sanitary sewer utilizing trenchless installation.

2021 Streetlight Replacement and Painting, Ann Arbor, Michigan
Project Engineer; Assisted with design development for preparation of contract documents for the replacement of light poles and fixtures in the downtown and along major roadways

Select Relevant Experience Continued

throughout the City. This project is a recurring light pole CIP to implement findings from the City's asset management system, which was previously created with OHM Advisors under a separate project.

Solid Waste Resources Management Plan, City of Ann Arbor, Michigan*
Project Manager for the development of the City's plan, including scoping of the project, procurement and selection of consultant team and City lead throughout the public engagement and plan development process. This effort, which had over sixty participants on its advisory committee, resulted in the plan that optimizes resources, mitigates financial and operational risk, and improves customer service.

The Treeline – Allen Creek Urban Trail Master Plan, City of Ann Arbor, Michigan*
Member of the project management team that was responsible for providing direction on project decisions and coordinating the entire master plan process. This element of the City's Master Plan lays out the plan for the Treeline, formerly known as the Allen Creek Greenway, as an urban trail and improvements to the Allen Creek floodplain connecting City-owned properties, neighborhoods, and downtown businesses to the regional Border-to-Border trail (B2B Trail) and the Huron River.

Sanitary Sewer Wet Weather Evaluation Project, City of Ann Arbor, Michigan*
Member of the project management team providing guidance on the project; provided background and insight on the City's sanitary collection system; participated in, and assisted with the community engagement efforts; and, provided review and QA/QC of project materials and deliverables. This project, which OHM Advisors performed for the City, evaluated the effectiveness of the City's 11-year-long Footing Drain Disconnection (FDD) Program to reduce wet weather impacts in the sanitary system through flow metering, FDD effectiveness evaluation, hydrologic modeling, hydraulic modeling, capacity assessment, alternative evaluation, and an extensive public engagement program.

Stormwater Model Calibration and Analysis Project, City of Ann Arbor, Michigan*
Member of the project management team providing direction and guidance on the project; provided background and insight into the City's stormwater management system; participated in, and assisted with the community engagement efforts; and, provided review and QA/QC of project materials and deliverables. This project developed a calibrated validated computer model of the entire City of Ann Arbor stormwater system, to analyze the existing system's performance to determine its current level of service and to recommend improvements to the stormwater system.

Capital Improvements Plan/Program Lead, City of Ann Arbor, Michigan *
Developed, guided, and managed the City's collaborative, prioritized and data-based approach to capital improvement planning. Working with thirteen asset category teams consisting of planning, engineering and operational staff and some key outside stakeholders, and utilizing GIS-based asset inventories and condition data along with a prioritization model tool, assembled and formed the City's 6+ year Capital Improvements Plan (CIP), every other year, and adjusting the plan in the intervening year. This included adoption of the CIP by the Planning Commission and utilization of the CIP in the creation of the recommended two-year Capital Projects Budget for City Council approval.

Engineering Division Private Development Team Leader, City of Ann Arbor, Michigan*
Led the City Engineering Division's role in private development and other non-City funded infrastructure projects, overseeing a team of engineers in site plan and engineering plan reviews and construction oversight for these projects. Also oversaw and supervised the team's design, bidding and project management of various City infrastructure projects including utility extensions and replacements, road reconstruction, and sidewalk and bike path construction.

Completed prior to joining OHM Advisors.

Kyle Selter, PE

MUNICIPAL ENGINEER

Education
- Bachelor of Science in Engineering, Civil Engineering, University of Michigan, 2014

Professional Registration(s)
Professional Engineer
- MI, 2019, #6201068941

Experience
With OHM Since 2014
All experience with OHM

Professional Certification(s)
- Pavement Surface Evaluation and Rating Certified
- EGLE, Stormwater Operator
- EGLE, Soil Erosion and Sedimentation Control, Part 91, SE/C 02397

Background

As a Project Engineer in OHM Advisors' Municipal Engineering Group, Kyle Selter is part of a team that focuses on providing services to a variety of our municipal clients. Involvement with these clients includes design services for pathways, roads, lighting, water main, storm sewer, and sanitary sewer. Kyle has also participated in OHM's rotation program, providing him field experience in the observation of various construction activities.

Select Relevant Experience

Solid Waste Collections Audit, Ann Arbor, Michigan
Project Engineer; Responsible for collecting and analyzing existing solid waste account information for over 1,400 parcels within the downtown area. The audit expectation is to gain an understanding of the known and unknown solid waste account information and determine a preliminary potential tiered level of service as an option for a possible downtown district, which would make billing across downtown customers fair and equitable.

2021 Streetlight Replacement and Painting, Ann Arbor, Michigan
Project Engineer; Responsible for leading the design team to produce Invitation to Bid Documents and plan preparation, as well as coordinating construction bidding and construction engineering support for a project involving replacement and painting of light poles, and replacement of luminaires, foundations, and associated pavement and restoration work. This project is part of the City's streetlight asset management program that stems from the City's streetlight condition database. The intent of the project is to replace or rehabilitate streetlight components throughout the City of Ann Arbor to maintain an appropriate level of service.

Commercial Solid Waste Franchise Collection Request for Proposal, Ann Arbor, Michigan
Project Engineer; Responsible for drafting a Request for Proposal (RFP) for the City's commercial solid waste franchise collection service that incorporated the City's zero waste goals to the greatest extent possible, and included extensive and detailed requirements for proposers to include in their proposals and work plans. Also met with and presented draft RFP language to project stakeholders and incorporated optional collection services as desired by downtown businesses.

Arbor Hills Booster Station Demolition, Ann Arbor, Michigan
Engineer; Responsible for contract document preparation, construction bidding, and construction engineering support for demolition of the Arbor Hills Booster Station building. Coordination with multiple City departments was necessary to organize and procure background documentation to allow for successful bidding and demolition of the project.

2019 Streetlight Replacement, Ann Arbor, Michigan
Engineer; Responsible for project oversight, as well as municipal design, contract document preparation, and construction bidding for a project involving replacement of light poles, luminaires, foundations, and associated pavement and restoration work. This project is part of the City's annual streetlight replacement program that stems from the City's streetlight condition database. The intent of the project is to replace or repair streetlight components

Select Relevant Experience Continued

throughout the City of Ann Arbor that have been identified as high priority.

Northside Interceptor Condition Assessment, Ann Arbor, Michigan
Engineer; Responsible for contract document preparation and construction bidding for condition assessment of a sanitary sewer interceptor. The interceptor consists of approximately 20,000 feet of 78" RCP, located along the north side bank of the Huron River. Multi-sensor inspection of the interceptor as well as Level 2 MACP inspections of the manholes were performed as part of this project. Coordination with colleges that had property adjacent to the interceptor and the Washtenaw County Road Commission was necessary to access the interceptor for inspection.

Prospect Road Pathway, Superior Township, Washtenaw County, Michigan
Project Engineer; Responsible for design, contract document preparation, construction bidding, and construction engineering support of an ADA compliant pathway project. The project is approximately 1,900 LF located along the east side of Prospect Road from Berkshire Drive to Geddes Road and includes both 10-foot-wide asphalt and concrete shared use pathway and 14-foot-wide timber boardwalk segments. The project also included fire hydrant relocation, water main exploratory excavation, franchised utility coordination, and site restoration. The project was awarded Transportation Alternatives Program funding from the Southeastern Michigan Council of Governments and was bid through MDOT's Local Agency Program. An LAP project application, SHPO, and NEPA forms were necessary to be completed and the MDOT Project Planning Guide was required to be followed. Extensive coordination with Washtenaw County Road Commission was also required as the WCRC was the Authorized Local Agency of the project.

General Drive Road Reconstruction Special Assessment District (SAD), Plymouth Township, Michigan
Engineer; Reconstruction of General Drive, located in an industrial park under the jurisdiction of Wayne County between Joy Road and Ann Arbor Road, west of Haggerty Road. The existing concrete roadway had considerable pavement failures throughout the industrial park. The project consisted of replacing the existing concrete road with 10" of concrete over 9" of 21AA aggregate over an approved sub-grade for the 27'-wide roadway. The project also included the installation of new edge drain on both sides of the road for improved sub-grade performance. A special assessment district that included the businesses along the route was established to fund the project.

9 Mile Road Sanitary Sewer, Novi, Michigan
Engineer; Responsible for design, contract document preparation, and construction bidding for a gravity sanitary sewer project. The project is located along the Nine Mile Road corridor between Evergreen Court and Beck Road and includes design of trenchless and open cut deep sewer up to approximately 30 feet deep, as well as design of parallel sanitary sewer, water main relocation, and gravel road replacement. The project was proposed to alleviate hydraulic issues related to two existing upstream pump stations that outlet to the existing force main along the route. Extensive community outreach was required as part of this project due to the impact construction of the deep sewer installation had on existing wells and the road closure. Coordination with multiple permitting agencies and franchise utility companies was required including: MDEQ for dewatering, sanitary sewer, and water main; RCOC; Oakland County Water Resources Commission; Wayne County Health Division; Consumers Energy, and AT&T.

Meadowbrook Culvert Replacement, Novi, Michigan
Project Engineer; Responsible for project coordination, contract document preparation, and construction bidding for a road box culvert replacement project. The project was located on Meadowbrook Road between Grand River Avenue and 11 Mile Road. A complete road closure was determined to be viable for the project, which required coordination with property owners and the Road Commission for Oakland County. The project also required permitting from the Michigan Department of Environmental Quality for work within Bishop Creek which required an on-site meeting with the MDEQ and application through the MiWaters portal. The final construction cost of this project was $277,570.44.

Thomas "TJ" Lentner, PE

MUNICIPAL ENGINEER

Education
- Bachelor of Science in Materials Science Engineer, University of Michigan, 1998

Professional Registration(s)
Professional Engineer
- MI, 2003, #51096

Experience
With OHM since 2012
10 Years prior experience

Professional Certification(s)
- ACI Concrete Field Testing Technician, Grade 1
- MCA Concrete Field Testing, Levels 1&2
- USDOT Haz-Mat
- MDOT Density Technology
- Michigan Certified Aggregate Technician, Level 1
- MDOT, HMA Paving
- Pressure Pipe Rehabilitation
- Constructing Pedestrian Facilities for Access
- HMA Laboratory Technician, Level 1
- EGLE, Storm Water Management - Construction Site
- EGLE, SESC Comprehensive Part 91
- Nuclear Gauge Safety Certified
- Concrete Paving Inspection
- OSHA 10-Hour Safety
- APAM LRW Workshop

Background

Thomas "TJ" Lentner is an experienced project and field engineer on our municipal team who has performed on a variety of projects with and before OHM. He worked for a large testing company both as a technician and later as a staff engineer managing technicians and projects in all aspects of construction testing. TJ has also worked for the University of Michigan and City of Ann Arbor as a designer and an inspector on projects including water main installation, parking lots and HMA and concrete road reconstructions and repairs as well as storm sewer and sanitary sewer projects. He has performed QA/QC on projects, constructability review of projects and site plan review of projects. TJ leads design projects by incorporating construction and design experience in his designs.

Select Relevant Experience

2021 PASER Ratings, Ann Arbor, Michigan
Assistant Crew Chief for all of 2021 Ann Arbor PASER.

GCPE Local Street and Water Main, Ann Arbor, Michigan
Lead Designer for $4M city-funded project that consist of 8" and 12" water main, storm sewer, road reconstruction with HMA, curb and gutter repairs, driveways, ADA improvements, restoration, pavement markings and WCWRC coordination.

Westnedge Water Main and Resurfacing, Kalamazoo, Michigan
Lead Designer for $6M MDOT funded LAP project that consist of 16" water main, storm sewer, sanitary sewer, road resurfacing with HMA, curb and gutter repairs, driveways, ADA improvements, restoration, pavement markings and traffic signal upgrades.

Academy Water Main and Reconstruction, Kalamazoo, Michigan
Lead Designer for $1M City funded project that consist of 8" water main, storm sewer, road reconstruction with brick pavers and HMA, curb and gutter repairs, driveways, ADA improvements, restoration, pavement markings and Amtrak rail coordination.

County Street Reconstruction, Milan, Michigan
Lead Designer for $1M MDOT funded LAP project that consist of water main, storm sewer, road reconstruction with HMA, curb and gutter, driveways, ADA improvements, restoration, pavement markings and railroad coordination.

Eastbelt Sanitary Sewer, Saline, Michigan
Lead Designer for City of Saline funded trunkline sewer, water main and road reconstruction project. The $6M project consists of open cut and directional drilled 18" sanitary sewer, 12" water, storm sewer, traffic signal upgrades and road reconstruction.

Select Relevant Experience Continued

Main Street Resurfacing, Monroe County, Michigan
Lead Designer for MDOT TEDF Category F funded two-course road resurfacing project on Main Street between Dexter and US-23. The log style project consisted of HMA cold milling, SAMI, HMA pavement, curb and gutter repairs, guardrail upgrades, shoulders, structure adjustments, MOT and pavement markings.

Kilgore and Porter Resurfacing, Kalamazoo, Michigan
Lead Designer for City funded road resurfacing project on Kilgore between Westnedge and Oakland and Porter between Frank and Parsons. The log style project consisted of HMA cold milling, HMA pavement, curb and gutter repairs, structure adjustments, MOT and pavement markings.

Lakeview Reconstruction, Battle Creek, Michigan
Lead Designer for road reconstruction, water main and storm sewer improvements project on Columbia Avenue and on Lakeview. The project consits of road reconstruction with curb and gutter, driveways and sidewalk. The 8" water main consisted of new water main and water services. The storm sewer included installing 36" and greater storm sewer trunkline improvements. The project also included MOT and pavement marking plans.

Platt Road Resurfacing, Washtenaw and Monroe Counties, Michigan
Lead Designer for MDOT LAP road resurfacing project on Platt Road between Main Street and Redman. The log style project consisted of HMA cold milling, HMA pavement, curb and gutter repairs, ADA improvements, guardrail upgrades, pedestrian signal improvements, structure adjustments, MOT and pavement markings.

Main Street Reconstruction & Wabash Street Rehabilitation, Washtenaw and Monroe Counties, Michigan
Field Engineer for the water main installation and road reconstruction of Main Street in the City of Milan between Platt and the Ann Arbor Railroad. Full reconstruction consisting of water main replacement, new curb and gutter, storm sewer replacement, aggregate base, HMA pavement, ADA improvements, signage and pavement markings. Wabash work consisted of water service improvements, concrete repairs, ADA improvements, HMA mill and fill, pavement markings and signage.

Canfield and Ferman Street Reconstruction, Milan, Michigan
Field Engineer for the completion of water main installation and all of the road reconstruction of Ferman Street in the City of Milan between 2nd Street and Main Street. Canfield reconstruction was from Platt to Division. Full reconstruction consisting of water main replacement, new curb and gutter, storm sewer replacement, aggregate base, HMA pavement, ADA improvements, signage and pavement markings on both roads.

2017 Road Program, Ypsilanti, Michigan
Lead Designer for road resurfacing project in the City of Ypsilanti. The work consists of HMA resurface, signage and ADA improvements, curb and gutter repair, driveway repair, pavement marking, traffic control plan ands special provisions.

Prospect Street Reconstruction Ypsilanti, Michigan
Field Engineer for the road reconstruction of prospect in the City of Ypsilanti between Holmes and Cross as well as the resurface of Prospect between Michigan Avenue and Cross Street. Full reconstruction consist of new curb and gutter, drainage improvements, aggregate base, HMA pavement, ADA improvements, signage and signal improvements.

Smokler-Textile Water Main Improvements, Ypsilanti, Michigan
Lead Field Inspector for larger water main reconstruction project for Ypsilanti Charter Utility Authority. TJ was the day-to-day inspector for installation of over 10,000 LF of PVC water main installed to replace an existing system. In addition to water main and water services work included ADA ramps, concrete driveway approaches and sidewalk repairs.

Robert Czachorski, PE

WATER RESOURCES ASSISTANT PROJECT MANAGER

Education
- Master of Science in Hydraulics in Civil Engineering, University of Michigan, 1996
- Bachelor of Science in Civil Engineering, University of Michigan, 1994

Professional Registration(s)
Professional Engineer
- MI, 1998, #43827
- OH, 2009, #73798

Experience
With OHM since 2004
10 years prior experience

Professional Affiliation(s)
- Michigan Water Environment Association, Collection System Committee Member
- Water Environment Federation, Member

Background

Robert Czachorski has 25 years of experience in consulting with a focus on water resources and a deep expertise in sewer collection systems. Robert is the firm's Practice Leader for collection systems and is a nationally recognized expert in wet weather sewer issues. A career interest has been on bringing new technologies and processes to water resource systems. Some of his key accomplishments include:

Extensive Collection Systems Experience – Performed studies for an extremely broad array of clients and projects, including some of the largest and most complicated sewer collection systems in the country.

Smart Technology and Water Quality – Leads a team at OHM focused on smart systems and water quality that won the Cleveland Water Alliance's Internet of H2O challenge in October 2017 focused on tackling harmful algal bloom on Lake Erie.

H2Ometrics Data Analytics Platform – Developed cloud-based water and sewer data analytics platform that manages flow and rain data from dozens of systems, comprising thousands of data feeds and billions of data points.

The Antecedent Moisture Model – Developed a hydrologic model for antecedent moisture impacts on sewer systems. The model has been applied to hundreds of sewersheds and has optimized wet weather upgrades for dozens of systems. The approach resulted in a 2001 Award from the Water Environment Federation and a 2007 award from the American Council of Engineering Companies.

Robert has performed studies for nearly 100 municipal utility systems. He has helped these communities gain a better understanding of their systems, improve system performance, and optimize capital upgrades. He is the Principal in Charge of some of the firm's largest accounts, including Ann Arbor, Oakland County Water Resources Commissioner, Macomb County Public Works, Delta Township, and Los Angeles, CA.

As a Project Manager, Robert routinely delivers successful projects to our clients with high levels of quality and client satisfaction. He accomplishes this through a unique combination of strong technical capabilities, excellent communication skills, and team building that includes the client, consultants, and public.

Select Relevant Experience

GLWA CSO Long-Term Corrective Action Plan, Detroit, Michigan

Project Manager; OHM was a sub-consultant on the LimnoTech team for development of the CSO Long Term Control Plan (LTCP) for this regional wastewater system serving four million people. Robert was the Project Manager for OHM's tasks, which included leading the design standards and level of service development, alternatives evaluation, conceptual engineering, and stakeholder engagement for alternatives. OHM also assisted with hydraulic modeling, water quality modeling and system optimization tasks.

Select Relevant Experience Continued

Willow Lift Station Study Facilities Design, Delta Township, Michigan
QA/QC Engineer; QA/QC on evaluation of the existing sewer system to determine, the most cost effective and sustainable solution, and develop a plan that successfully completes the upgrades. The plan consisted of understanding the hydraulic capacity and performance of the lift station and its impacts on the upstream system performance. A limited flow-metering program with only two temporary flow meters was performed, along with analysis on antecedent moisture effects on wet weather flows to develop design peak flow rates. Hydraulic modeling focused on the interceptors and trunk sewers in the area, without simulating every pipe in the service areas. Utilizing an asset management approach to evaluating the force mains and developing recommendations for physical conditions assessment on those segments that were the most critical was also performed.

Ann Arbor Sanitary Sewer Improvements and Preliminary Engineering Project, Ann Arbor, Michigan
Project Manager; Sanitary Sewer Wet Weather Evaluation Project (SSWWEP), performed by OHM Advisors between 2013 and 2026, provided the basis for the City's long-term planning and improvements for the sanitary sewer system. Robert was the Project Manager for the Sanitary Sewer Improvements & Preliminary Engineering (SSIPE) project, which involved performing flow metering, sewer investigations, modeling and preliminary engineering for improvements to several interceptor sewers in the City. The study focused on six interceptor areas that were identified in the SSWWEP. The SSIPE project involved development of preliminary engineering designs and cost estimates for the six interceptor areas.

Evergreen-Farmington Sewage Disposal System As-Needed Services and Long Term Corrective Action Plan, Oakland County, Michigan
Project Manager; Development of a flow-meter based billing system for this regional collection system serving approximately 350,000 people in fifteen communities. Scope included flow meter data review, mass flow balance, billing system development, community coordination and processing of flows for the bills. Data processing and editing is performed in H2Ometrics for this system comprising 240 flow meters and 20 rain gauges.

YCUA Meter Based Billing System, Ypsilanti Area, Michigan
Project Manager; Development of a sewer meter-based billing system. YCUA desired to bill their five municipal sewer customers based on actual metered sewer flow rather than water consumption records. This more properly accounts for inflow and infiltration volumes and provides an incentive for the communities to control their wet weather flows. OHM developed a flow metering plan for 20 locations, assisted with site selection and flow metering contractor selection, and processes the data from the meters. Data processing and editing is performed in H2Ometrics.

Ann Arbor Sanitary Sewer Wet Weather Evaluation Project, Ann Arbor, Michigan
Project Manager; Project manager and lead technical public engagement engineer for the City's evaluation of their sanitary collection system. The City of Ann Arbor performed approximately 2,700 footing drains disconnections (FDDs) from their sanitary sewer system between 2001 and 2012. The City retained OHM to perform an evaluation of the effectiveness of the FDD program and develop alternatives for improving the sanitary system. OHM's approach included flow metering, FDD effectiveness evaluation, hydrologic modeling, hydraulic modeling, capacity assessment, alternative evaluation and an extensive public engagement program.

MSDGC Flow Metering Standard Operating Procedures & As Needed Services, Cincinnati, Ohio
Project Manager; Prepared standard operating procedures for operations (SOPs), maintenance and analysis of over 300 sewer flow meters and rain gauges for MSDGC. As the district began working with multiple vendors for flow and rainfall monitoring, they desired to have a consistent set of standards to be followed for field procedures and data processing. OHM Advisors prepared a series of SOPs memos documenting all aspects of existing practices and made recommendations for enhancements.

Greg Kacvinsky, PE

STORMWATER LEAD

Education
- Master of Business Administration, University of Michigan, 2002
- Bachelor of Science in Civil Engineering, University of Wisconsin, 1995

Professional Registration(s)
Professional Engineer
- MI, 1999, #6201045590
- IL, 2002, #55992
- IN, 2002, #10302031
- WI, 2009, #40503-6

Experience
With OHM since 2011
16 years prior experience

Professional Affiliation(s)
- American Public Works Association
- Michigan Water Environment Association (MWEA)
- American Council of Engineering Companies (ACEC)

Background

Greg Kacvinsky has extensive experience in water resources engineering, focusing on watershed master planning, sewer system design, combined sewer system analysis, floodplain studies, capital improvement program development, and regulatory assistance. He has led numerous urban watershed projects that have integrated conventional hydraulic improvements with watershed-wide measures to reduce runoff and enhance stormwater quality. Greg also assists clients with program funding options, including stormwater utility implementation and business planning for local enterprise funds. His experience throughout the Midwest brings a unique perspective, as he employs best practices learned through projects in Illinois, Wisconsin, Indiana, and Iowa, as well as in Michigan. Greg routinely presents at regional and national conferences on engineering issues relating to municipal sewer systems, stormwater management, stormwater utilities, Low Impact Development (LID), hydrologic and hydraulic modeling, watershed master planning, and other wet weather phenomena.

Select Relevant Experience

Pepper Pike Stream Stabilization, Ann Arbor, Michigan
QA/QC Engineer; Streambank stabilization project in Ann Arbor, MI. This project included an 800-foot restoration of an open channel in a residential area, including adjustments/ protections to an adjacent sanitary sewer, a large drop structure to provide a safe vertical transition, step pools, pool-riffle sequences, a natural channel meander, and reconnection to the adjacent floodplain.

DWSD Green Stormwater Infrastructure Program Management, Detroit, Michigan
Program Manager; A $12M contract to provide DWSD with stormwater planning, design, and site plan review services. This project included the design of green stormwater infrastructure projects, including system modeling, sewer separation, infiltration BMPs, flood control, and water quality enhancement. This project also included assistance with updating stormwater design standards and policies, reviewing site plans, and providing guidance on key transportation infrastructure projects.

Regional Stormwater Rules and Policy Guidance, Livingston, Macomb, Oakland and Wayne Counties, Michigan
Project Consultant; assisted the four-county group to develop regional stormwater rules for land development. This work focused on the evaluation of water quality and channel protection standards that met the unique needs of Southeast Michigan, as well as innovative flood control guidance that provides flexibility for greenfield and brownfield site plans of various sizes. Developed technical guidance on proposed rules and prepared documents to seek regulatory approval from EGLE.

Briarwood Ponds Retrofit Study, Washtenaw County, Michigan
Project Manager; A study of the existing four stormwater detention ponds surrounding Briarwood Mall. These ponds, on a branch of the Malletts Creek, were not designed to address water quality or to provide any reasonable detention for frequent storm events. This study included an analysis of potential retrofits to outlets of each of the four ponds, including the impacts on along downstream reaches of Malletts Creek as far downstream as Mary Beth

Select Relevant Experience Continued

Doyle Park. The project team used the City's SWMM model to analyze the retrofits and compared pond water levels to observed level data from sensors installed by the University of Michigan Engineering Department.

Midland Stormwater Master Plan & Capital Improvement Plan, Midland, Michigan
Project Manager; A City-wide analysis of Midland's stormwater collection system, including the development of a SWMM-based model. The model was used to evaluate the impacts of the June 2017 flood, which was close to a 100-year storm event. OHM worked closely with City staff to determine the appropriate level of service for the stormwater system and developed a capital improvement plan to replace undersized storm sewers throughout the City. The final report also included recommendations to develop a dedicated funding source for stormwater.

Allen Creek Flood Control, Ann Arbor, Michigan
Project Manager; Hydraulic design and survey components of a $7.4M FEMA-funded flood control project, serving as a subconsultant to Bergmann Associates. This project included detailed site survey and hydraulic modeling to reduce the Allen Creek floodplain by approximately six feet along the Depot Street corridor. Successfully obtained a Conditional Letter of Map Revision (CLOMR) from FEMA and provided design services for the flood control weir and culvert to the Huron River.

Battle Creek Stormwater Asset Management Plan, Battle Creek, Michigan
Project Manager; This project included a City-wide condition assessment of wastewater and stormwater assets, development of a capital improvement plan and O&M plan for all assets, and recommendations for future budgets. The stormwater asset management plan included a funding feasibility study with recommendations for a stormwater utility, and the development of hydraulic models for components of the City's stormwater system.

Refugee Road Pedestrian Improvements and Shared-Use Path, Columbus, Ohio
QA/QC Engineer; Currently working with OHM's transportation group to evaluate the potential for a roadway widening project to accommodate a bicycle/pedestrian pathway. This effort included the evaluation of FEMA floodplain data, the development of a new HEC-RAS hydraulic model, and the evaluation of existing and proposed culvert scenarios under existing City hydraulic standards.

OCWRC Stormwater Rules Update, Oakland County, Michigan
QA/QC Engineer; Worked with the OCWRC to develop a new set of stormwater rules to address new EGLE permit requirements. This project included a complete re-write of the County's stormwater rules manual, addressing stormwater infiltration requirements, flood control requirements, and design standards. As part of this project, the team developed a new spreadsheet tool to simplify the calculation process and provide an efficient method to determine required volumes.

Traverse City Stormwater Asset Management Plan & Stormwater Master Plan, Traverse City, Michigan
Project Manager; SAW Grants for both stormwater and wastewater. This project included the development of a city-wide stormwater hydrologic/hydraulic model, flow metering for the wastewater system, and physical evaluation of collection system assets, including over 30 miles of storm sewer assets and over 1,000 manholes. Developed capital improvement plans for both the stormwater and wastewater systems, and worked with the City to explore funding options for the stormwater system.

Rochester Hills Stormwater Asset Management Plan, Rochester Hills, Michigan
Project Manager; This project consisted of a $2M SAW Grant to develop asset management plans for its stormwater and wastewater infrastructure. The project included city-wide enhancements to its GIS databases, physical evaluations of collection system assets, flow metering, modeling, and the development of rate studies for both utilities. The stormwater rate study included coordination with key local stakeholders to explore the feasibility of community-wide revenue sources for the stormwater system. The stormwater management plan included a review of existing water quality BMPs and recommendations for future maintenance.

Jennifer Drinan, PE

WATER RESOURCES FACILITIES PROJECT MANAGER

Education
- Bachelor of Science in Civil and Environmental Engineering Magna Cum Laude, University of Michigan, 1995
- Bachelor of Arts in Business Administration, University of Michigan, 1988

Professional Registration(s)
Professional Engineer
- MI, 2000, #6101046859

Experience
With OHM since 2015
20 years prior experience

Professional Certification(s)
- Michigan Water Environment Association
- American Water Works Association, Michigan

Professional Affiliation(s)
- Michigan Water Environment Association
- American Water Works Association, Michigan

Background

Jennifer Drinan has 25+ years of experience in the construction and design of wastewater treatment, water treatment facilities, storm water, and wastewater collection systems and water distribution systems. Her planning, design, and construction experience has provided her with the technical and managerial skills required for complex water and wastewater projects. She has proven success in projects involving multi-disciplined facilities and construction sequencing at existing facilities to provide process continuity during construction.

Select Relevant Experience

Ann Arbor WWTP Tertiary Clearwells Improvements, Ann Arbor, Michigan
Project Manager; Leading the study and design team in the inspection and design of the WWTP clear wells. Confined space entries were performed for each of the two clear wells to evaluate the existing condition and identify needed repairs of the structure and equipment. The design team identified that the function of the clear wells changed since the original design intent. The WWTP currently uses UV for disinfection in lieu of chlorine. This allowed the team to re-evaluate the aeration system to focus energy efficient and cost-effective improvements in the clear well and coordinate monitoring of improvements with the existing dissolved oxygen and blower control system. The design also included geotechnical investigations to determine the impact of ground water elevations on the sequence of construction and the impact of the known artesian conditions located at the WWTP site.

Residuals Handling Improvements, City of Ann Arbor, MI *
Lead Resident Project Representative for residuals handling improvements project construction services for the City of Ann Arbor. The wastewater treatment plant has a design capacity of 29.5 mgd and currently disposes of biosolids using either land application or dewatering and landfilling. The project includes retrofitting new gravity belt thickening and centrifuge dewatering systems into the existing solids handling facilities, replacement of gravity thickener equipment and conversion of gravity thickeners to blend tanks. Temporary liquid sludge and dewatered cake truck loading facilities allow for sequencing of construction activities while the plant staff maintain ongoing residuals handling activities. Additional design elements include collection and treatment of odors from the sludge thickening, dewatering, conveyance, and storage facilities, thickening and dewatering polymer facilities, conveyance equipment, permanent liquid and dewatered sludge truck loading facilities, heating and ventilating facilities, new boilers to support plant-wide heating requirements, a new unit substation and associated 4.8kV electrical system. Responsible for supervising resident engineers, coordinating construction activities with plant operations, review and preparation of RFI responses, investigation and resolution of construction issues, preparation and negotiation of construction change orders.

State Street Sanitary Improvements Pump Station Equipment Replacement, Ypsilanti Area, Michigan
Project Manager for design and construction services for the rehabilitation of a residential wet well/ dry pit duplex sanitary pump station. The pump station was converted to a submersible triplex station rated for 2,100 gpm at 82 TDH to more effectively manage the wet weather flows

Select Relevant Experience Continued

experienced in the area. Project included selective demolition of 500 gpm pump station, guiderails, and discharge piping within the existing concrete wetwell; replacement of the control panel and integration with the existing telemetry system; and new natural gas backup generator and automatic transfer switch. Installation of 3700 LF of 10-inch force main. Project required bypass pumping to maintain service during the selective demolition and equipment replacement activities. The project focused on improving the reliability of the pump station while minimizing disturbances to the nearby neighbors during construction, bypass pumping and operations.

YCUA Wastewater Treatment Plant Tertiary Filter Improvements, Ypsilanti Area, Michigan
Project Manager; Design and construction for the tertiary filters improvement project. The existing 12 west filters, with a design filtering capacity of 5 mgd, were constructed and commissioned as part of the original plant in the early 1980s. This project includes assessment of the existing multi-media filters and backwash system; recommendation of replacement filtering technologies and air-assisted backwashing; replacement of washwater supply pumps right-sized for the new filter systems; integration of VFDs on the washwater pumps to improve flow control and energy savings; associated demolition; provision of air piping and valves, and associated improvements in electrical and instrumentation. The construction phase focused on coordinating with YCUA's operations to minimize disturbances from construction while maintaining YCUA's ability to effectively treat wastewater. This project was funded through the SRF program and OHM coordinated submittals and communications with EGLE through design and construction including contractor compliance with Davis Bacon and American Iron and Steel requirements.

Expansion of Existing Wastewater Treatment, Ypsilanti Community Utilities Authority, Ypsilanti, MI *
Lead Resident Engineer for the expansion of the existing wastewater treatment from a nominal 29 mgd facility to an average capacity of 46 mgd for the Ypsilanti Community Utilities Authority. Project included new concrete tanks, mechanical, and electrical systems for the primary, secondary, and tertiary treatment of water, biosolids treatment improvements which required the staging of demolition; construction and start-up of temporary solids dewatering equipment; and the renovation and installation of new thickening, dewatering, truck loading, and incineration systems. The project also included expansion of the maintenance and administration buildings, renovation of solids building, and demolition of the existing incinerator required lead paint abatement services. Responsible for supervising three resident project representatives (RPRs) and the supervisory control and data acquisition (SCADA) programming team.

OCWRC PFAS Evaluation and Source Tracking, Commerce Township, Oakland County, MI
Project Manager; PFAS source tracking for the Commerce Township wastewater treatment plant. Developed a PFAS characterization strategy in a collection system dominated by force main by sampling at a subset of lift stations receiving flow from potential PFAS sources. Tracked PFAS within the facility to quantify loading to the environment via effluent and biosolids.

Wastewater Asset Management Plan, Saginaw, Michigan
Project Manager for the development of the wastewater asset management for the combined wastewater system including treatment facilities and collection system. Working closely with the City of Saginaw personnel to provide a customized asset management program to focus on the areas where additional resources are necessary: interfacing between the facilities computerized maintenance management s software, GIS, financial management software and SCADA; collection system condition assessment; and life cycle costing.

Installation/Commissioning of Municipal Landfill Gas Recovery and Blower System, DTE Biomass *
Construction Manager for the installation and commissioning of a municipal landfill gas recovery and blower system. Ms. Drinan selected and managed general, mechanical, and electrical contractors. She was also responsible for the construction schedule to meet start-up requirements in order to qualify for federal tax credits and communication with landfill owner and end-user of the landfill gas.

Mackenzie Johnson, EIT

ON-SITE ENGINEER, ENVIRONMENTAL ENGINEER

Education
- Bachelor of Science in Environmental Engineering, Michigan State University, 2016

Professional Registration(s)
Engineer in Training (EIT) - 2016

Experience
With OHM since 2016
1 year prior experience

Professional Certification(s)
- NASSCO, MACP, PACP, LACP certified

Background

Mackenzie Johnson is an engineer in the Environmental and Water Resources Group at OHM Advisors. Her experience includes water systems modeling, collection systems modeling, data analysis, condition assessment, and field investigation. She also has experience working with GIS, AutoCAD, and water system and collection system modeling software applications. Mackenzie takes pride in her thoroughness and diligence as she works to provide the client with effective and optimal solutions.

Select Relevant Experience

Sanitary Sewer Improvements and Preliminary Engineering Project, Ann Arbor, Michigan
Project Engineer; Mackenzie was extensively involved in this project which involved flow metering, field investigation, data analysis, condition assessment, system modeling, and preliminary engineering to resolve sanitary sewer capacity issues throughout the City. Mackenzie was a part of the field investigation crew and in charge of compiling and analyzing the collected field data as well as the flow metering data. She conducted a condition assessment of the sanitary sewer pipes throughout the City and created GIS maps to display the findings. She was responsible for writing the reports regarding the field investigation discoveries and the flow metering data analysis. Additionally, she assisted in preparing a presentation and correspondence to the residents of the City. She contributed to the modeling and preliminary engineering efforts to resolve the sanitary sewer capacity issues.

June 25, 2021 Storm Event Analysis, Ann Arbor, Michigan
Project Engineer; A large rain event in June of 2021 resulted in extensive flooding and basement backups in a neighborhood within the City. This project involved analyzing the storm and sanitary sewer systems to determine the cause of the flooding and basement backups in this area and to provide recommendations on what could be done to prevent these occurrences in the future. Mackenzie analyzed available flow meter and rain gauge data to better understand the extent and intensity of rainfall throughout the City. She also performed sanitary sewer hydraulic modeling to simulate conditions observed during the rain event. Additionally, she assisted with public engagement efforts, which involved presenting at public meetings, conducting an online survey, and conducting resident interviews. She then developed a technical memorandum for the City detailing the analyses performed as well as the findings and recommendations.

Curb Drain Study, Ann Arbor, Michigan
Project Engineer; Recommendations from the June 25, 2021 Storm Event Analysis project included performing a curb drain study within the impacted neighborhood to identify locations where curb drain could be installed to facilitate footing drain disconnections. Mackenzie reviewed the City's existing public stormwater system layout to identify those neighborhood properties without an adjacent curb drain or stormwater pipe. She then developed a map of the proposed curb drain layout such that all neighborhood properties would have direct access to a

Select Relevant Experience Continued

curb drain or stormwater pipe. She also estimated the amount of flow to be discharged to each stretch of curb drain in order to provide a recommendation of curb drain sizing. She then developed a technical memorandum for the City detailing the analyses performed as well as the proposed curb drain layout.

Sanitary Sewer and Stormwater Evaluation Survey, Ann Arbor, Michigan
Project Engineer; Recommendations from the June 25, 2021 Storm Event Analysis project included performing a sanitary sewer and stormwater evaluation survey within the impacted neighborhood to identify sources of inflow and infiltration into the sanitary sewer system. This study involved performing physical condition assessments of the sanitary sewer and stormwater manholes within the impacted neighborhood as well as reviewing the City's sanitary sewer and stormwater pipe inspection data to assess their condition. Smoke testing was also performed within this neighborhood to identify sources of inflow and infiltration into the sanitary sewer system. The contribution of inflow and infiltration from each of these sources were tabulated in a water budget, and the condition assessment results and recommended rehabilitation efforts for these assets will be documented in a technical memorandum.

Austin Avenue Sanitary Sewer Analysis, Ann Arbor, Michigan
Project Engineer; The City had received numerous reports of basement backups over the years from multiple homeowners residing in a particular neighborhood. Mackenzie interviewed residents within the neighborhood to better understand their experiences. She also reviewed the flow metering data from the flow meters near this area for evidence of surcharging. She performed sanitary sewer hydraulic modeling to compare the flow metering and observational data to the modeling results in order to identify the potential cause of the basement backups and develop recommendations for improvement. She then developed a technical memorandum for the City detailing the analyses performed as well as the findings and recommendations.

Ypsilanti Communities Utility Authority State Street Pump Station Analysis, Ypsilanti Area, Michigan
Project Engineer; Mackenzie performed a flow metering and sanitary sewer hydraulic modeling analysis for the YCUA as a part of the State Street Pump Station Analysis project. This project involved performing an extensive evaluation of the State Street Pump Station and the surrounding sanitary sewers to determine improvements needed to adequately convey wastewater flows in this area. Mackenzie assisted in the flow metering efforts and analyzed the flow meter data to determine the average and peak flows that were expected to be conveyed through the pump station and downstream sewers. She also performed sanitary sewer hydraulic modeling to determine whether the existing sanitary sewers had sufficient capacity to convey the anticipated flows. She also used the hydraulic model to evaluate various alternatives to convey the anticipated peak flows without causing pipe surcharging. Mackenzie then documented the findings from the flow metering and modeling analyses in a final report.

Ypsilanti Communities Utility Authority Water System Master Plan, Ypsilanti Area, Michigan
Project Engineer; The Water System Master Plan incorporates the components of a water reliability study, general plan, and asset management plan. Mackenzie was involved in performing an inventory and condition assessment of the Authority's vertical assets. Mackenzie also created a new water system hydraulic model using the existing GIS for the network layout. She utilized available population and consumption data to determine current water system demands and project future demands for 5-year and 20-year planning periods. She then created and calibrated the water model to analyze pressures and fire protection throughout the system for existing and future demand scenarios and created GIS maps displaying the model results. Mackenzie documented the modeling process and model results in a report.

Murat Ulasir, PhD, PE

ASSET MANAGEMENT LEAD

Education
- Post-Doctoral research in Environmental and Water Resources Engineering, University of Michigan, 2002
- Doctoral Degree in Environmental and Water Resources Engineering, University of Michigan, 2001
- Master of Science in Environmental and Water Resources Engineering, University of Michigan, 1996
- Bachelor of Science in Environmental Engineering, Technical University of Istanbul, 1992

Professional Registration(s)

Professional Engineer
- MI, 2003, #51291

Experience

With OHM since 2001

9 years prior experience

Professional Affiliation(s)
- Michigan Water Environment Association, 2001
- American Water Works Association, 2005

Background

As an Infrastructure Asset Planning Specialist, Murat Ulasir provides assistance to communities for developing long range infrastructure planning and investment strategies, which support a well-planned and maintained infrastructure network that is sustainable and enhances local community character and identity. He has experience with a wide variety of Infrastructure Asset Planning services including infrastructure modeling, master planning, and capital improvement planning, as well as developing asset management programs.

His infrastructure modeling expertise includes water resources modeling expertise (hydraulic and hydrologic models) and infrastructure condition and deterioration forecasting modeling, as well as modeling of impact of climatological factors related to a variety of infrastructure asset performance measures, including water main breaks, inflow and infiltration rates, water demand variations etc.

Murat has experience in advanced data analytics procedures (e.g. statistical modeling, artificial intelligence, neural networking, etc.) for identifying trends in the data. He has developed several business management dashboard for clients in order to summarize institutional information content as well as help clients use these platforms for effective management of their infrastructure assets. He has extensive experience with presenting technically complex concepts in public presentations utilizing a variety of media (GIS, 3-D visualization modeling, etc.) in order to facilitate understanding and meaningful collaboration.

Select Relevant Experience

Ann Arbor Sanitary Sewer Wet Weather Evaluation Project, Ann Arbor, Michigan

Asset Management Specialist; The City embarked on an innovative solution to address basement flooding and sewer overflows through a footing drain disconnection (FDD) program, and now desired to evaluate the program. OHM formulated a detailed plan of action to achieve the objectives. Key concepts in our approach included the following: a public engagement strategy based on building trust and emotional as well as intellectual engagement of stakeholders, multiple approaches to evaluate the FDD effectiveness including the use of the continuous Antecedent Moisture Model that has proven to be very effective. A risk-based approach to assessing potential for basement backup using statistical frequency analysis. A comprehensive evaluation of alternatives that includes green and grey infrastructure and evaluation of new approaches to reducing wet weather basement backup risks. Use of national resources, such as a national expert and the Water Environment Research Foundation, to identify the complete range of alternatives for consideration.

West Park Storm Sewer Modeling & Forensic Review, Ann Arbor, Michigan

Asset Management Specialist; The focus of this project was to re-design existing swirl concentrator units in an effort to provide treatment to the first flush flow rate from the upstream watershed. The project included development of hydraulics and hydrology to serve as the basis for the design for reconfiguration of the existing in-line swirl concentrator devices within the storm sewer system. The basis of design for this project included some innovative approaches to evaluating the first flush flow rate from the tributary areas.

Select Relevant Experience Continued

OCWRC Farmington Hills Water System Modeling & Analysis, Farmington Hills, Michigan
Asset Management Specialist; OHM was retained to provide a Water System Sustainability Plan for the City of Farmington Hills. The primary purpose for the requested plan is for DWSD rate reduction. There is recognition that rates can be reduced by implementation of effective storage. Preliminary calculations have shown a relatively short pay-back period for the investment. Secondary concerns include a new model of the system, water quality issues, potential revisions to pressure districts and other typical master plan updates. The resultant update is expected to generate a new capital improvement plan. The plan is envisioned to consist of four main components, which are: hydraulic modeling software evaluation, water master plan, water storage evaluation, and a capital improvement plan based on asset management principles and prioritization processes

Evergreen-Farmington Sewage Disposal System As-Needed Services and Long Term Corrective Action Plan, Oakland County, Michigan
Project Engineer; Responsible for development of a long-term plan to address sewer overflows from the County's EFSDS system, which collects sewage from 15 communities comprising over 300,000 people. The project scope included detailed field investigations, modeling, analysis, development of alternatives, and development of a long-term corrective action plan. The project is being conducted in a phased approach and additional work is ongoing.

Clinton-Oakland SDS As-Needed Services, Oakland County, Michigan
Project Manager; Upgrades to the management and reporting system for this sewer disposal system serving nine communities and over 250,000 people. The new system provides methodologies and tools for billing the local communities based on actual meters flows from nearly 60 flow meters in the system. Antecedent moisture models were developed to review meter flows for accuracy during wet weather periods.

Novi Sanitary Sewer Capacity Study, Novi, Michigan
Project Engineer; Development of the City of Novi sanitary collection system study and Capacity, Operation, Management and Maintenance (CMOM) program. Project included performing flow monitoring at seven local sites and collecting flow data from six regional flow meters to assess rainfall / flow relationships in the system. Data collected was used to perform an inflow and infiltration analysis and capacity assessment for the system. An antecedent moisture model was prepared to develop a frequency analysis for peak flows. Several tools were developed to simplify and automate the process of issuing sewer permits and reporting of information to the MDEQ, including a Part 41 sewer permit tracking system.

Livonia Sanitary Sewer Asset Management Plan, Livonia, Michigan
Modeler; Worked with the City to submit a Department of Environmental Quality (MDEQ) Stormwater, Asset Management and Wastewater (SAW) grant application. The end product resulting from the grant program was an asset management plan complete with a rate study, assessing the anticipated future system needs of the City compared to the current revenue. Approximately 20 meters as well as three rain gauges were used to collect flow information, which subsequently was converted into a representative hydraulic and hydrologic model of the collection system; capacity evaluation was performed as well based on MDEQ overflow threshold mandate. In the calibration process, was able to pinpoint an area of unusual hydraulic blockage, which turned out to be a twelve-foot light pole stuck in a manhole, causing significant backups.

Detroit Schools Facilities Assessment & Facility Planning Services, Detroit, Michigan
Project Manager; Overseeing assessments, capacity evaluation and space planning components for 12 million+ SF of indoor and outdoor learning facilities resulting in a comprehensive, prioritized capital improvement plan. Components such as facility condition and school capacity were used in the development of the rating system.

Susan Knepper, PE

ASSET MANAGEMENT, ENVIRONMENTAL ENGINEER

Education
- Bachelor of Science in Environmental Engineering, University of Florida, 2013

Professional Registration(s)
Professional Engineer
- MI, 2017 #65127

Engineer in Training
- FL, 2013

Experience
With OHM since 2016
3 years prior experience

Professional Affiliation(s)
- American Water Works Association, MI Chapter, Conference Committee, Social Media Committee, and Communications Council
- Great Lakes Water Authority, Analytical Work Group Participant

Background

Susan Knepper is an environmental engineer in the Environmental and Water Resources Group at OHM Advisors (OHM). Her water resources experience includes hydraulic modeling, hydraulic calculations, water system optimization studies, asset management, condition assessment, site plan reviews and design, emergency planning, and capital improvement planning of water systems.

Susan is skilled in various computer programs including ArcGIS Pro, InfoWater Pro, InfoSurge, Assetic Predictor, AutoCAD, and Microsoft Office programs.

Susan is an OHM QA/QC person for their water master plan projects, which includes asset management plans, and is very familiar with the water systems and operations of numerous communities throughout Michigan and Tennessee. Susan enjoys understanding the client's needs and point of view and offering appropriate recommendations and solutions. She is an active member in the Michigan Section of the American Water Works Association (AWWA).

Select Relevant Experience

Ann Arbor Stormwater & Wastewater Asset Management Plan, Ann Arbor, Michigan
Project Engineer; Susan served as the primary engineer and was extensively involved with assisting the City in developing their Assetic Predictor Model, which helps a community with predicting system degradation and long-term investment needs, and setting up their Assetic Register dashboard, which acts as a hub for asset data. Met with the City on a bi-weekly basis to develop a base model and help make technical decisions about their model. Performed data analysis on the City's condition data to determine best inputs into the model. Developed the current model with the help of the City based on asset information, technical analysis, and institutional knowledge to produce a realistic and reliable model. Imported the City's sanitary and stormwater sewer mains into their Assetic Register. Created profiles to aid in City staff in their dashboard set-ups.

Ann Arbor Streetlight Inventory, Ann Arbor, Michigan
Project Engineer; Susan developed the City of Ann Arbor's streetlight Assetic asset management model with the information collected from the City's streetlight condition assessment project. She worked closely with City staff to create a functional model to help the City plan for future capital investment needs based on an optimized failure analysis. The streetlight Assetic model helps the City plan for their repairs and replacements in a proactively and not reactively.

Orion Township General Engineering Services, Orion Township, Michigan
Water Engineer; Assists Orion Township with various engineering and construction related tasks. Susan is the main water modeler for the Township and thoroughly understands their system operations. She helps solve low pressure, low available flow, and/or water tower issues for the Township through water modeling, SCADA, and direct conversations with their operators. In addition, she's helped perform site plan and engineering reviews for residential, commercial and industrial developments within the Township.

Select Relevant Experience Continued

NOCWA Organization Formation & As-Needed Services, North Oakland County, Michigan
Project Engineer; Provides on-going analysis of demands and operations of the four NOCWA community members. She coordinates development of the yearly operation plan with the NOCWA Operations Committee and provides emergency response analysis and modeling. Operational updates and technical expertise are provided at the NOCWA board meetings on an as-needed basis. Susan communicates directly with GLWA on projects that will impact NOCWA communities. During GLWA contract negotiations and yearly rollouts of GLWA charges, she performs the analysis to show the financial impact to each community under current operations and proposed operations.

Auburn Hills General Engineering Services, Auburn Hills, Michigan
Water Engineer; Assists the City of Auburn Hills with various engineering and construction related tasks. Susan is the main water modeler for the City and thoroughly understands their system operations. She helps solve low pressure, low available flow, water tower, and/or pump station issues through water modeling, SCADA, and direct conversations with their operators. In addition, she's helped perform site plan and engineering reviews for residential, commercial and industrial developments within the community.

Livonia General Engineering Services, Livonia, Michigan
Water Engineer; Works closely with the City to help solve any system issues that may result in lower than allowable pressures or flows. She's helped the City under emergency GLWA meter pit failures to ensure that their residents receive water at appropriate pressures. She has solved pressure reducing valve issues that were restricting flow. She has helped reduce the number of water main breaks the City was having through water system recommendations as results of asset management planning. She has assisted the City in their ISO fire suppression rating review by using the City's water model to find answers and solutions to issues the City was experiencing in the field. By correcting the issues in the field, with the use of the water model, the City was able to rank as a "Class 2" community, which puts the City among the top 2% of all fire departments in the United States. Due to the improved ratings, some customers saw reduced insurance rates.

LCWA General Engineering Services, Livingston County, Michigan
Project Engineer; Water asset management planning, modeling, and demand analysis.

Livonia Sanitary Sewer Asset Management Plan, Livonia, Michigan
Project Engineer; Assisted with the City of Livonia's Stormwater, Asset Management and Wastewater (SAW) grant project. Performed condition assessment data analysis, deterioration forecasting, asset management prediction modeling, and budget recommendations for anticipated sewer rehabilitation and maintenance programs.

Scio Township, Source Water Draw Optimization Study, Scio Township, Michigan
Project Engineer; Assessed the Township's water system operations to provide improvement recommendations in regard to their source water draw amounts and elevated storage tank use. The project included converting their model to an extended state model and validating this with field recorded pressures. The goal of this project was to provide clear guidance to the Township on how to better utilize the storage volume in their tank to offset their source water draw. The analysis also included improvement recommendations, master meter controls and the evaluation of a second storage tank, to prevent exceedances of their source water draw contract rates now or into the future.

Canton Township General Engineering Services, Canton Township, Michigan
Water Engineer; Susan serves as Canton Township's primary water distribution engineer and expert. She works closely with the Township to help solve any system issues that may result in lower than allowable pressures or flows. She assists the Township with completing the Basis of Design in Act 399 permits.

Michael Cousins, GISP

GIS SERVICES LEAD, TECHNOLOGY LEAD

Education
- Bachelor of Science in Geography with a Specialization in Spatial Information Processing, Michigan State University, 2007

Experience
With OHM since 2014
8 years prior experience

Professional Certification(s)
- Geographic Information Systems Professional (GISP), GIS Certification Institute, 2012, #29470
- Esri ArcGIS Desktop Certified Professional 19-001, 2019
- OSHA, Confined Space Entry
- Former GIS/LIS Technologist, ASPRS, 2009

Professional Affiliation(s)
- Improving Michigan's Access to Geographic Information Networks (IMAGIN)
- Michigan Communities Association of Mapping Professionals (MiCAMP), Member, 2014-Present
- Urban and Regional Information Systems Association (URISA), Member, 2012-Present
- Ohio-Michigan GIS User Group (OH-MI), Member, 2014-Present

Background

Michael has over 16 years experience in consulting with a primary focus on GIS, project management, and asset management. Michael is the team's lead technical GIS expert and has a strong work ethic with the ability to address complex problems and design technical solutions. Michael specializes in the areas of GIS, asset management, environmental planning and assessment, and floodplain management. The popularity and near necessity of GIS technology within municipal government and public organizations has driven his desire to understand the spatial and attribute components to public assets, such as utilities and natural features, along with asset management.

As the firm's practice leader for GIS, Michael is responsible for managing and overseeing all GIS tasks within each discipline. This includes the mentoring and training of all staff members spread throughout each of our regional offices. Michael's team currently consists of a team of 12 dedicated GIS staff members.

Michael is the Information and Technology Leader of the OHM Asset Management team. He is responsible for all GIS components of an asset management plan. This includes but is not limited to the following: data collection, data implementation, and data standardization.

Select Relevant Experience

Wellhead Protection Interactive Viewer, Clinton, Eaton and Ingham Counties, Michigan
Project Manager; Creating and developing the new Tri-County Wellhead Protection Viewer application. The app was a regionally coordinated effort to map potential contaminant sources and accompanying wellhead protection areas which impacts the entire region. Tasks included GIS updates, integration of various web services, customization of online web map, and documentation of online application. This public tool provides continually updated information and data to support and guide regional wellhead and groundwater protection efforts and decisions.

Novi DPW Asset Data Collection, Novi, Michigan
GIS Service Lead; Management of the field data collection and GIS data management of horizontal stormwater, sanitary, and water infrastructure assets across the entire City of Novi. Data collection is being completed using Eos-GNSS Positions Systems and ArcGIS Online. Over 43,000 structures in total are to be GPSed and delivered to the City of Novi for integration into their GIS. Operations Dashboards are being used by internal and external project managers to ensure the project is on-time and on-budget.

SEMCOG Infrastructure Asset Management Plan Development Assistance, Southeast Michigan
GIS Service Lead; SEMCOG acquired the assistance of OHM Advisors as part of a region-wide Infrastructure Asset Management planning project. The purpose of this project is to assist SEMCOG in developing the southeast Michigan infrastructure asset management program

Select Relevant Experience Continued

across all infrastructure owners. Michael is leading OHM's GIS effort with this project as they seek to collect and analyze the region's utility networks. Several key components of this project include: Community outreach through a series of story maps, collection of each municipality's GIS, standardizing of the data into one common database, analyzing of the data from a regional perspective, and reporting of the results back to the Region and State.

Ann Arbor Streetlight Inventory, Ann Arbor, Michigan
GIS Service Lead; Created the data collection forms for the field crews. Developed a new condition rating methodology for the assessment of 1,500 City owned streetlights. Condition ratings were then combined with light attributes to form priority ratings, which help determine which lights to focus rehabilitation efforts on in the future. Generated recommended rehabilitation methods for all lights that were investigated. Assisted in writing the final condition assessment technical report that summarizes the entire project and serves as a guide for future asset management planning. Finalized all project data into a GIS compatible deliverable for the City to join to their working geodatabase.

Dearborn Citywide Sewer Study, Dearborn, Michigan
GIS Service Lead; for this Citywide hydrologic and hydraulic evaluation of the sanitary, combined, and storm sewers and development of recommendations to successfully mitigate street and basement flooding. Project tasks include developing hydrologic and hydraulic models for six project areas, flow metering and data analysis, model calibration, evaluating existing system performance, completing a root cause analysis to flooding issues and development of solutions. These tasks culminate in the delivery of a final set of feasible 5-year and 30-year solutions. This set of solutions will serve as a roadmap for the City to mitigate flooding into the future.

Traverse City Stormwater Asset Management Plan & Stormwater Master Plan, Traverse City, Michigan
GIS Service Lead; Three-year $2M SAW Grant to develop Asset Management Plans for its stormwater and wastewater infrastructure. Project includes city-wide enhancements to its GIS databases, record drawing research, system survey, detention pond and open channel assessments, sewer televising, manhole inspections, modeling, and the development of rate studies for both utilities. The stormwater rate study will include coordination with key local stakeholders to explore the feasibility of community-wide revenue sources for the stormwater system.

Traverse City Wastewater Asset Management Plan, Traverse City, Michigan
GIS Service Lead; The City's three-year $2M SAW Grant to develop Asset Management Plans for its stormwater and wastewater infrastructure. Project includes City-wide enhancements to its GIS databases, record drawing research, system survey, detention pond and open channel assessments, sewer televising, manhole inspections, modeling, and the development of rate studies for both utilities. The stormwater rate study will include coordination with key local stakeholders to explore the feasibility of community-wide revenue sources for the stormwater system.

GIS Services & Support, Washington Twp., Michigan
As the GIS consultant for the Township, Michael has worked with the Township to redevelop all their GIS needs. OHM GIS is responsible for updating and maintaining all their GIS data, custom ArcGIS Online applications, licensing, et al. Michael has implemented several new routine maintenance field applications to assist and track all work being performed in the field. With software and hardware ever evolving, we have ramped up the usage of high-precision data collection utilizing the latest tools available.

Signing Bridge Connection Inventory, Various Locations, Michigan
GIS Service Lead; OHM Advisors was tasked with developing a GIS inventory of all MDOT signing bridge connections on all MDOT trunkline routes in six regions throughout the state. Michael used the mobile data collection technique he had developed to GPS and collect a detailed inventory, including photos, for nearly 5,000 signs.

Marcus McNamara

ROAD ASSET MANAGEMENT, PASER LEAD

Education
- Master of Science, Civil/ Environmental Engineering, Wayne State University, 2011
- Bachelor of Science in Engineering, University of Michigan, 2000

Experience
With OHM since 2019, and 2002-2018
2 years prior experience

Professional Affiliation(s)
- American Public Works Association (APWA), Member
- APWA Downriver Branch, Past President

Background

Marcus McNamara's expertise includes municipal water main design, sanitary sewer design, paving design, and paving rehabilitation program management. He has field experience as a construction observer and construction engineer for several asphalt and concrete paving and maintenance projects. He also has reviewed more than 100 residential, commercial, and industrial site plans for various municipalities. He currently serves with OHM Advisors as a Project Manager and Client Representative for multiple communities in Michigan. He has been involved in several projects in communities including the Cities of Kalamazoo, Romulus, Ypsilanti, Milan, Battle Creek, Southfield, Troy, Dexter, Saline and Royal Oak as well as Freedom, Bridgewater, Lodi, Northfield, and Brownstown Townships. Marcus also has extensive contract administration experience on construction projects ranging from $50,000 to over $5,000,000.

Select Relevant Experience

PASER Condition Rating Services & Asset Management Planning Assistance, Ann Arbor, Michigan

Project Manager; Project includes bi-annual PASER data collection, quality control evaluations, and database management. Pavement condition forecasting and assistance with the City's capital planning program is provided as well.

Grand Street Reconstruction, Dexter, Michigan

Project Manager & Engineer; Road reconstruction project in the City of Dexter. Project included sanitary sewer main replacement, water and sanitary sewer service replacements, asphalt paving, and ADA improvements at the intersections and school entrance.

USDA Water Main Replacement, Milan, Michigan

Construction Manager; $5M road, water main, and sanitary sewer facilities project that included 5,500 feet of water main replacement, 3,500 feet of new water main and sanitary force main sewer installation, 2,500 feet of sewer replacement, 2,000 feet of sewer lining, one new sanitary pump station, and improvements at seven existing sanitary pump stations. The project also included the reconstruction of 5,500 feet of roadway following the utility improvements. The project was divided into two construction contracts utilizing both USDA loans and MDOT LAP funds.

Wick Road Reconstruction and Vining Road Rehabilitation, Romulus, Michigan

Project Manager; Design and construction phases of the reconstruction of Wick Road from a two lane roadway to a four lane boulevard from 850 feet west of Vining Road to 1850 feet east of Vining Road. The project included full signalization at Vining Road and rehabilitation of Vining Road from Wick Road south 1800 feet to I-94. The project included coordination with Great Lakes Water Authority (GLWA) for the installation of a 48-inch transmission water main along the entire project length.

Select Relevant Experience Continued

Prospect Road Corridor Improvements, Ypsilanti, Michigan
Project Manager; Prepared the design drawings and specifications in compliance with MDOT and Federal guidelines in order to complete the project through the STP-U program. Repair/reconstruction methods and proposed cross sections were developed for each segment of the corridor with varying conditions. The end result was a complete corridor resurfacing and reconstruction project that maximized the grant funding.

West Cross Reconstruction; Wallace to Courtland, Ypsilanti, Michigan
Project Manager; Total reconstruction of West Cross Street from Wallace Boulevard to Washtenaw Avenue. The existing concrete pavement was completely removed and replaced with asphalt pavement. The concrete curb and gutter was also completely removed and replaced. The existing road width was maintained, which includes one travel lane in each direction, and parallel parking on both sides. The reconstructed cross section included bike lanes in each direction.

Mansfield Street Reconstruction; Westmorland Street to Washtenaw Avenue, Ypsilanti, Michigan
Project Manager; Approximately 1,700 LF of road reconstruction and water main replacement. The project was a joint effort between the City of Ypsilanti, Ypsilanti Township, and the Washtenaw County Road Commission. Funding for the project was through the American Recovery and Reinvestment Act. The new road included concrete curb and gutter, and pedestrian crossing improvements at the school, and all intersections along the project.

Second Street Water Main and Sidewalk, Dexter, Michigan
Project Manager for the design and construction phases of this project. Project includes approximately 1,500 LF of 8" ductile water main and concrete sidewalk installation, and associated stormwater improvements.

Eastbelt Sewer Replacement, Saline, Michigan
Project Manager for the design phase of project. Project includes approximately 4,000 feet of interceptor sanitary sewer replacement and relocation, 2,400 feet of water main replacement, storm sewer installation, and road reconstruction and resurfacing.

Pennsylvania Road Water Main Improvements, Romulus, Michigan
Project manager on water main improvements along Pennsylvania Road from Wahrman Road to Wayne Road. This will provide system redundancy and public water main access to targeted development area south of the airport.

Adams Street Reconstruction, Ypsilanti, Michigan
Project Manager on a total reconstruction of Adams Street from Pearl Street to Cross Street – approximately 1,300 feet. The existing asphalt pavement and concrete curb and gutter was completely removed and replaced with concrete pavement with integral curb. The existing road width was maintained, which included one travel lane in each direction, and parallel parking on the west side.

Washtenaw Avenue Entrance Reconstruction, Washtenaw County / St. Luke Church, Washtenaw County, Michigan
Project Manager and Design Engineer for this project, which involved design of a shared access entrance for the County complex and St. Luke Church. Project included a boulevard entrance at Washtenaw Avenue, and parking and pedestrian access improvements on the church property. Project required extensive coordination with the County facility manager and the Church to accommodate access needs.

Pavement Maintenance Program, Troy, Michigan
Project Manager for condition rating and analysis of the City of Troy local road network. Approximately 260 miles of road were rated using the PASER rating system and the Roadsoft software. The condition information was analyzed and a report was prepared recommending a five-year plan for maintenance and reconstruction activities. The plan was coordinated with the capital improvement plan for utilities and federally funded road improvements.

Christopher Ozog, AIA

PROJECT ARCHITECT

Education
- Master of Architecture, Lawrence Technological University, 2001
- Bachelor of Science in Architecture, Lawrence Technological University, 2000

Professional Registration(s)
Professional Architect
- MI, 2006, #1301053769

Experience
With OHM since 2016
15 years prior experience

Professional Certification(s)
- CDT

Professional Affiliation(s)
- American Institute of Architects; Detroit chapter, member ID #30474454
- Organizer of AIA Detroit TAP Committee
- Past Director, Polish Roman Catholic Union of America
- AIA Mentor 2011-2012, 2015-2017
- Construction Specifications Institute, member, 2017-present

Background

Christopher is a Senior Architect with 21 years of professional experience, with a background on multi-discipline and complex project coordination as well as technology and documentation process and production. With 12 years' experience of developing specifications in conjunction with project documentation, Christopher views construction documents comprehensively and coordinates with team members to provide alignment of specifications with drawings. Leading teams to provide efficient and responsible solutions to client's needs is integral to his approach to the design process. His interests on projects include focus on the building enclosure, technology (BIM), communication and coordination with the team, and providing leadership to the project.

Select Relevant Experience

Knorrwood Pines Water Storage Tank, Oakland Township, Michigan
Architect; 1,600-GPM package booster station, 500,000-gallon ground storage tank, permanent generator, controls and SCADA improvements, and the addition of a chemical room in the existing wellhouse. The system will add sodium hypochlorite for disinfection and polyphosphate for dissolved iron sequestration. The project will be located on a well field property adjacent to a wetland which created unique challenges through the design process

EUPTA New Transportation Facility, Sault Ste. Marie, Michigan
Architect; This project consists of a new 22,000 SF facility with offices, vehicle storage garages, mechanics and maintenance bays, wash bay and a storage out building. The challenges with this project included the significant amount change in the ground elevation within the building footprint, the clay soils, no public utilities for water or sanitary and wetlands within the development area.

New Public Services Facility, Charlevoix, Michigan
Architect; New facility that included office areas, maintenance, work spaces, and vehicle storage. The City of Charlevoix consolidated their Department of Public Works (DPW) and Electrical Department into one public services facility. Additional site buildings included several accessory buildings for salt, vehicle, equipment, and materials storage

Oxygen Injection at Jackson Road Pump Station, Scio Township, Michigan
Architect; OHM Advisors completed technical analysis of liquid-phase odor control options to assess best present worth value for permanent installation. Oxygen injection was determined to be best value (cost and performance) for pump station. Substantial modifications of the existing pump station were necessary. Modifications included a building addition, liquid oxygen storage facility, and Class I, Division 2 electrical improvements, among other items.

Southfield DPW Facility Improvements, Southfield, Michigan
Project Manager / Project Architect; OHM provided concept studies to DPW Facilities for both new DPW storage building and vactor dump at current site, along with interior renovation study of main DPW Building to office and administration areas. Site building studies included

Select Relevant Experience Continued

evaluation of site circulation, optimized layout on existing site of for maximum building footprint, and opinion of costs. Building renovation studies included reorganization of staff areas to provide more efficient spaces, improved safety and security, and replacement of finishes and furnishings.

Lake Superior Sportsman Club Shooting Complex Study & Design, Ontonagon, Michigan
Architect; Study and design of a shooting complex at the Lake Superior Sportsman Complex located in Wilderness State Park, Ontonagon, MI. Partnered with Nowak & Fraus, OHM provided survey and architectural and MEP design services associated with the project. Final specifications for architectural and MEP work were included, along with construction plans, bidding assistance and construction oversight.

Emmons Plaza Splashpad, Rochester Hills, Michigan
Project Manager leading construction documentation and contract administration services for the project. Project included splash pad, storage/equipment building with restrooms, and associated site elements such as turf mound, Fiber optic pavement lighting, lighting, and decorative railings.

DPW Wall Repair and Re-Roof Project, Farmington, Michigan
Architect; Assessment and development of construction documents for repair of failed exterior masonry wall. Project included assessment of options for repairs, review of construction documents for QA/QC, and assistance in construction administration for field conditions and additional repairs.

Fire Station Nos. 1, 3, & 5 Mechanical Upgrades, Rochester Hills, Michigan
Project Manager; Rochester Hills had identified a need to replace the existing radiant heaters at Fire Station Nos. 1, 3 and 5 as part of ongoing maintenance and facility upgrades. The facility has minimal clearances to structure and existing equipment, and the new design will need take this into consideration. As part of the coordination during the design, Fire Station 1 had a 3D scan of the building to assess options for new equipment layout and confirm clearances.

Sylvan Glen Pro Shop Renovation, Troy, Michigan
Project Manager & Lead Design Architect; Renovation of existing 2,600 SF pro-shop for City of Troy Sylvan Glen Golf course. Project included re-configuration of existing layout to provide more efficient space and create delineation of public and private spaces used within building. Exterior renovation improvements modernized look of building while still maintaining existing character and providing a more prominent and visible entry.

Bennett Library Site Improvements, Livonia, Michigan
Architect; Project included improvements to the two entrances to the Bennett Library. The main entrance work included a new snow melt system, landscape, and new entry. Secondary entrance included repair work to an elevated slab for an area way, landscape, and new entry. Repair work to elevated slab included removal of existing composite slab, cleaning and prepping of existing steel, miscellaneous steel repairs, and installation of new concrete slab deck.

Library Façade Assessment and Repair, Royal Oak, Michigan
Project Architect for assessment and development of construction documents for repair of exterior façade. Project included assessment of options for repairs and development of construction documents and specifications.

Facility Condition Assessments & Feasibility Studies
Developed reports on building conditions, recommendations, and opinion of costs as well as developed feasibility studies on concepts for the following:

- Livonia Building 12 Concept and Scoping Package
- Milan Treatment Plan Masonry Assessment
- Romulus Fire Station Building Masonry Repairs
- Romulus Police and Fire – Relocation Study
- Canton Parks Pavilions Assessment
- City of Troy Fire Station #2 Roof Issue Assessment
- City of Ypsilanti Salt Dome Assessment and Repair
- Farmington Governor's Mansions Assessment and Phasing Plan
- Farmington City Hall Condition Assessment

Amanda Porath, PE

STRUCTURAL ENGINEER (BUILDINGS)

Education
- Bachelor of Science in Civil Engineering, Michigan Technological University, 1998

Professional Registration(s)

Professional Engineer
- MI, 2003, #49889

Experience

With OHM since 2018

21 years prior experience

Background

Amanda brought 20 years of experience to our team when her former firm, Northwest Design Group, joined OHM Advisors. Her experience includes structural engineering for buildings, marine structures, bridges, and historical structures, from conceptual design and planning & budgeting to final design, construction engineering and contract administration.

Amanda has spent ten years in the role of Project Manager and Engineer, taking on the responsibility of project teams and supervision of engineers and CAD staff. She has special expertise in AASHTO bridge design standards, Michigan Building Code, ACI, AISC, NDS and ADA. Proficient with various engineering software, including STAAD and TEDDS. Speaker, Michigan Bridge Conference. Contributing author to timber design standards.

Select Relevant Experience

New Public Services Facility, Charlevoix, Michigan

Client Representative; A new facility that includes office areas, maintenance, workspaces, and vehicle storage. The City of Charlevoix consolidated their Department of Public Works (DPW) and Electrical Department into one public services facility. OHM worked with City staff from the DPW and Electrical Department along with the City manager to develop the design for the new facility. Additional site buildings included several accessory buildings for salt storage, vehicle storage, equipment storage, and materials storage.

DPW Site Improvements and Vactor Dumping Station, Orion Township, Michigan

Design Engineer; Currently providing site/civil design services for Orion Township's DPW Site Improvements project. The project consists of new salt and sand storage, mixing area, brine runoff containment, general site design including grading, pavement, stormwater management and utilities, as well as additional storage buildings. Design services included development of construction documents, phasing plans/options and detailed cost estimates.

Petoskey District Library & Carnegie Building Facility Assessment, Petoskey, Michigan

Project Manager; Facility Assessment to identify recommended upgrades and deferred maintenance items at the current facilities at the Petoskey Library and the Carnegie Building. The assessment established the current condition of the building and property, and identified and quantified the building systems and components. Critical and non-critical maintenance or replacement requirements were recommended including an estimated cost for each recommendation. A replacement reserves cost table was prepared for major components identified to be repaired, replaced or which have significant maintenance requirements.

EUPTA New Transportation Facility, Sault Ste. Marie, Michigan

Project Manager; This project consists of a new 22,000 SF facility with offices, vehicle storage garages, mechanics and maintenance bays, wash bay and a storage out building. The challenges with this project included the significant amount change in the ground elevation within the building footprint, the clay soils, no public utilities for water or sanitary and wetlands within the development area.

Select Relevant Experience Continued

GLWA Northeast Water Treatment Plant Structural Repairs, Detroit, Michigan
Project Manager; On-site structural assessments of various structures and design of repairs at the Northeast Water Treatment Plant (NEWP). The NEWP was constructed in 1955 and consists of reinforced concrete structures throughout. Deterioration of the concrete structures, mainly from water infiltration over time, has created many instances of concrete reinforcement corrosion, spalling, cracking, and efflorescence. The project included design of repairs to concrete beams and slabs, steel catwalks and stairways, and access hatches. The water infiltration was addressed with additional surface area drains with a sloped concrete topping, waterproofing and perimeter drains.

Laughing Whitefish Falls State Park, Marquette County, Michigan
Project Manager Laughing Whitefish Falls State Park is home to a very impressive waterfall on the Laughing Whitefish River with observation decks and a viewing platform overlooking the falls. The State goals for this project included providing upgrades to existing structures with the highest level of accessibility. Staff structural engineers evaluated the existing structures, including platforms, stairs, foundation, and footings. We also performed a geotechnical investigation and site topographic survey. Our services included review of the ADA accessibility and universal design standards and a recommendation for the best course of action. Phase 600 and 700 construction phase activities including materials testing were completed in 2018.

Detroit River Boating Access Site Study, Detroit, Michigan
Project Manager for a study to determine the need for additional boating access along the Detroit River near Belle Isle. Study included researching existing site locations, conditions and amenities, a public survey conducted on-line and in person and functional use diagrams. This study was performed for the Michigan Department of Natural Resources. We coordinated throughout the study with local public safety officers, local marinas, and MDNR fisheries staff. Our final product was a comprehensive report with our recommendations for providing additional boating access on the river.

Camp Pet-O-Se-Ga Beach Bathhouse, Emmet County, Michigan*
Structural Engineer for this new 1,932 SF toilet and shower facility. This State of Michigan CMI funded project includes the building, a new public water system serving the building nearby campground, and other administrative facilities, in-ground pressurized sanitary system, site lighting and landscaping. The $250,000 building is designed with low maintenance vandal resistant features and state-of-the-art energy saving solar, electrical and mechanical systems. Green design features are simple but elegant in function. The building is founded on a unique lightweight fill foundation saving thousands in construction costs, on this extremely soft soil site. The exterior style matches the camp's 1930-1940 vintage log buildings. We designed this facility to provide campers and beach users with the highest quality in comfort and convenience, while maintaining the warm and rustic feel.

Levering Facility Improvements; Emmet County, Michigan*
Project Manager for the program planning, study, and design services for the Emmet County Road Commission's Levering Facility Improvements project. Developed alternate master plans for the entire facility with detailed cost estimates for review by the road commission. The chosen design included a new 12,000 SF heated vehicle storage building with an enclosed truck and heavy equipment wash bay, final site layout, site grading and drainage, and site utilities.

Crooked Tree Arts Center Renovation, Petoskey, Michigan*
Project Manager for structural and foundation design engineering services for the $4M renovation of this historical art center in downtown Petoskey, Michigan. Work included field inspections, condition assessment and analysis of the existing structure, and designed the structural modifications to preserve the existing building, and for a new addition.

Indicates work completed prior to joining OHM Advisors.

Sean Tabacsko

MECHANICAL PROJECT MANAGER

Education
- Bachelor of Science in Mechanical Engineering, Michigan Technological University, 2004

Experience
With OHM since 2013
9 years prior experience

Professional Affiliation(s)
- American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) – Eastern Michigan

Background

Sean is responsible for a building's HVAC and plumbing systems including the engineering, planning and managing of technical services. His skillset includes the technical aspects of design, system analysis, code research, technical calculations, drawing preparation, specifications, field work, shop drawings, coordination with other trades and job progress meetings on a variety of mechanical engineering projects. He is proficient in Trane Trace 700 simulation and AutoCAD design software. Sean takes pride in creating an energy efficient design that meets the needs of the client, in comfort as well as installation and operating costs. Project duties include coordinating with other areas of design, establishing preliminary design scope and budgets, making all calculations necessary to produce a set of final design documents, on-site construction observation, and review/ approval of construction change directives. He has served a project manager and lead engineer on a variety of municipal design projects, and additionally, K-12 schools, colleges and universities, industrial complexes and corporate commercial and healthcare facilities.

Select Relevant Experience

Fire Station Nos. 1, 3, & 5 Mechanical Upgrades, Rochester Hills, Michigan
Mechanical Engineer; Rochester Hills had identified a need to replace the existing radiant heaters at Fire Station Nos. 1, 3 and 5 as part of ongoing maintenance and facility upgrades. In addition, at Fire Station No. 1 the current overhead doors (under a separate contract) will be replaced with new glass doors, and there is concern of proximity of the radiant heaters to the new glass doors. The facility has minimal clearances to structure and existing equipment, and the new design will need take this into consideration. Fire Station Nos. 3 and 5 are similar spaces, with intent for radiant heaters to be replaced in similar layout to current system, as they function well in the current location. As part of the coordination during the design, Fire Station No. 1 had a 3D scan of the building to assess options for new equipment layout and confirm clearances.

Bennett Library Building Renovation and Site Improvements, Livonia, Michigan
Mechanical Engineer; Provided design for the installation of hot water snow melt for the main library entry. This included the installation of a new boiler, in-concrete radiant tubing, hydronic piping and controls. The project provided challenges such as venting of the boilers through an existing space and location of radiant manifolds within a landscaped area.

Sylvan Glen Pro Shop Renovation, Troy, Michigan
Mechanical Engineer; Project included re-configuration of existing layout to provide more efficient space and create delineation of public and private spaces used within building. Exterior renovation improvements modernized look of building while still maintaining existing character and providing a more prominent and visible entry. Interior improvements increased usable retail space while providing necessary support spaces and features.

Select Relevant Experience Continued

New Public Services Facility, Charlevoix, Michigan
Mechanical Engineer for a new facility that includes office areas, maintenance, work spaces, and vehicle storage. The City of Charlevoix consolidated their Department of Public Works (DPW) and Electrical Department into one public services facility. OHM worked with City staff from the DPW and Electrical Department along with the city manager to develop the design for the new facility. Additional site buildings included several accessory buildings for salt storage, vehicle storage, equipment storage, and materials storage.

Oxygen Injection at Jackson Road Pump Station, Scio Township, Michigan
Mechanical Engineer; OHM Advisors completed technical analysis of liquid-phase odor control options to assess best present worth value for permanent installation. Oxygen injection was determined to be best value (cost and performance) for pump station. Substantial modifications of the existing pump station were necessary. Modifications included a building addition, liquid oxygen storage facility, and Class I, Division 2 electrical improvements, among other items.

Waste Water Treatment Plant Improvements, Village of Milford, Michigan
Mechanical Engineer; Provided assistance for mechanical design and construction documents for new waste water treatment buildings housing highly specialized equipment and ongoing processes. This included special attention to design detailing and specifying materials to resist the caustic effect of the waste water processing. The facilities were also designed to match the existing architecture but house the latest technology in water treatment. Space planning was critical for both the operations and maintenance of these buildings.

Storage Tank Implementation, Canton Township, Michigan
Mechanical Engineer; Assistance for design and detailing of a new 5,700 SF multi-level booster pump building. Building designed to be compatible with adjacent residential zoning and local community zoning standards. Steel framed, masonry bearing wall with brick veneer system. Services included coordination with OHM's Water Resource Group to accommodate critical spatial and dimensional requirements crucial to the proper operations of the facility.

Farmington Hills Water System Improvements; Elevated Water Storage Tank, Farmington Hills, Michigan
Schematic Controls Engineer; Preparation of plans and specifications for the construction of a 3.0 MG elevated composite water storage tank for the City of Farmington Hills.

WWTP Makeup Air-Handling Unit investigation and Replacement, Detroit, Michigan
Design Engineer; Study to determine reasons for possible explosion and subsequent fire. Provided design of replacement unit with features to reduce risk of future fire. Project included the selection of a custom indirect gas fired make-up air unit to fit in the existing location. The new unit utilized explosion proof best practices.

New City Hall, Westland, Michigan
Mechanical Engineer; Renovation of an existing big box retail building into a modern municipal operations center for the City of Westland.

Facility Assessment, Detroit Water and Sewerage Department, Detroit, Michigan
Provided a facility assessment of all of the water treatment and distribution facilities with the DWSD system to allow investors an insight to the facility's condition during the departments bond sale. The assessment included electrical infrastructure as well as overall pumping, water treatment, controls, and reliability of the system.

Community Center HVAC Investigations, Orion Township, Michigan
Provided investigative services to determine the causes associated with the HVAC system control and comfort issues of a two-story 20,000 SF community center. Sean compiled results and recommendations into an assessment report. Advised the township of recommended steps to resolutions.

Ted Cogswell, PE

ELECTRICAL PROJECT MANAGER

Education
- Bachelor of Science in Electrical Engineering, Michigan State University, 1981

Experience
With OHM since 2023
39 years prior experience

Professional Registration
Professional Engineer
- MI, 2001, #47576
- OH, 2001, #66288

Professional Affiliations
- ISA, Toledo Chapter

Certifications
- National Ski Patrol
- First Aid / CPR / AED

Background

Ted has extensive experience providing electrical engineering services nationwide with a focus on municipal water/wastewater infrastructure and facility sustainability improvements. His broad experience includes planning, design, construction services and facility start-up. Typically serving as the lead electrical engineer for large scale water and wastewater improvements, he can reliably handle design of electrical controls, power distribution systems, and other related systems. Overall, his work also includes work in the fields of remediation, buildings, industrial, manufacturing, solar, wind, rail, and infrastructure.

On the facilities side, Ted recently worked to provide electrical engineering services for a major health system with ten hospitals, office buildings, and clinics throughout Ohio and Michigan. This included work within their sustainability department to design improvements with a focus on reducing energy use and saving money.

Select Relevant Experience

Maumee River Wastewater Treatment Plant Improvements, Lucas County, Ohio*
Lead Electrical Engineer for wastewater plant improvements. This project was a 7.5MGD expansion to the WWTP that included new switchgear, overhead distribution, buildings, 750KW and 400KW generators. The improvements also included an expansion of the plant control system using Allen-Bradley equipment.

Collins Park WTP Drive Replacement, Toledo, Ohio*
Lead Electrical Engineer for the project that included replacing a 2000HP slip recovery drive and a 3000HP constant speed synchronous motor drive. The two high service pump drives were replaced with medium voltage variable frequency drives. The existing high service pump controls were modified to control the new variable speed pumps.

Signal Wind Energy, Casper, Wyoming*
Lead Electrical Design Engineer, responsible for design of the underground electrical and underground fiber-optic communication systems for a new 16.5-megawatt wind farm. The electrical design consisted of 34.5 kV collection system for 11 GE 1.5-megawatt wind turbines. Electrical design included ampacity calculations for unfavorable thermal conditions, short circuit calculations, sheath voltage calculations, load flow analysis, and earth grounding calculations. Design also included loss calculations for the system, including cable, transformer, and sheath losses.

Signal Wind Energy Flat Ridge, Flat Ridge, Kansas*
Lead Electrical Design Engineer, responsible for design of the underground electrical and underground fiber-optic communication systems for a new 100-megawatt wind farm. The electrical design consisted of 34.5-kV collection system for 40 Clipper 2.5-megawatt wind turbines. Electrical design included ampacity calculations for unfavorable thermal conditions, short circuit calculations, sheath voltage calculations, load flow analysis, and earth grounding calculations. Design also included loss calculations for the system, including cable, transformer, and sheath losses.

Select Relevant Experience Continued

Collins Park WTP Stand-by Power, Toledo, Ohio*
Lead Electrical Design Engineer for this project that provided the Collins Park Filtration Plant with 10-megawatt of standby power. The system includes five 2,000-kW generators and paralleling switchgear. The generators were sized to maintain plant operation and be able to start the plant's high service pumps during periods of high flow. The largest high service pumps are 3,000-hp synchronous motors with full voltage starting. The switchgear is designed to provide closed transition transfer and soft loading to prevent process upset when testing.

Arc Flash Analysis NYCDEP, New York, NY*
Electrical Engineer, participating in the preparations of arc flash studies for New York City's 14 wastewater treatment plants. The overall study consisted of sending teams of individuals to the various plant sites to gather field data on medium and low voltage electrical distribution systems, including protective relay and breaker settings. Each plant's electrical distribution system was modeled using SKM Power Tools, and an arc flash analysis was performed to calculate the available incident energy hazard at each node in the system. Calculations were performed in accordance with NFPA 70E and IEEE 1584 standards. The study included producing labels for all relevant electrical equipment.

South Florida Water Management District, West Palm Beach, Florida*
Lead Electrical Design Engineer, The South Florida Water Management District (SFWMD) control channel flows and lake levels in southern Florida using gate structures. This project was an expansion of their existing telemetry system for ten gate structures. The gate structures are spread out over an area 80-miles long. The project provided remote telemetry units at each gate structure. Equipment required for automating the system included antennas, level sensors, gate position transmitters and modifications to existing control panels. This project also included structure hardening, stand-by power at two locations and new precast concrete control buildings at two locations.

Mansfield WWTP Control System Improvements, Mansfield, Ohio*
Lead Electrical Design Engineer , The Mansfield WWTP's existing control system was obsolete, repairs were difficult and expensive. This project included the upgrade of the plant's control system to Allen-Bradley PLC's and Wonderware. The system included a plant wide fiber optic network and telemetry system for monitoring pumping stations throughout the City. The telemetry system was radio based and communicates with eleven remote locations.
Operator interface computers are located in two separate control rooms and enabled operators to monitor and control the plant from each location.

ProMedica Health Systems Energy Star, Toledo, Ohio*
Licensed Professional for the ProMedica Health Systems Energy Star portfolio. ProMedica had an Energy Star portfolio of 24 buildings. The portfolio included Hospitals, office buildings and medical buildings. Work included updating the Energy Star data in Portfolio Manager. Updating the portfolio as buildings were bought or sold. Licensed Professional for Energy Star certification applications.

ProMedica Health Systems Demand Response, Toledo, Ohio*
ProMedica Health Systems participated in a Demand Response program with Enelx. ProMedica was paid for reducing their demand in the event of a grid emergency. If the grid was overloaded or grid capacity limited due to damage, ProMedica would reduce their load by using their standby generators and other load reduction methods. Six Hospitals participated in the program. Emergencies were rare but ProMedica was paid for availability and operation of their generators for an annual test. Pay back evaluations were completed for expansion of the program.

Completed prior to joining OHM Advisors.

Sarah Huddas, PLA

LANDSCAPE ARCHITECT

Education
- Bachelor of Landscape Architecture, (BLA) Michigan State University, 2009

Professional Registration(s)
Professional Landscape Architect
- MI, 2021 #3901001817

Experience
With OHM since 2016
6 years prior experience

Professional Certification(s)
- Michigan Certified Natural Shoreline Professional (MCNSP)

Professional Affiliation(s)
- Member of the American Society of Landscape Architects (ASLA)
- Secretary of Michigan ASLA for 2022
- Member of the National Society for Ecological Restoration (SER)

Background

Sarah Huddas is a landscape architect with OHM Advisors. She has over 13 years of experience in the landscape architecture field and is actively engaged in each phase of the design process. Her passion for landscape architecture and sustainable design allows her to create inspiring outdoor experiences that foster human and nature-based connections.

Select Relevant Experience

Ann Arbor Public Schools Site Improvements, Ann Arbor, Michigan
Lead Landscape Architect; Development of landscape plans for Pioneer High School and Scarlett Middle School entrances from concept iterations through construction documentation. Designs focused on development of spaces that can properly facilitate pedestrian circulation in a safe manner, while also paying careful attention to allow for site amenity access. Enhanced designs for both sites included updated site furnishings, decorative hardscape and planting of mostly native perennials, shrubs and trees to generate a refreshed aesthetic to each school's approach and convey a welcoming yet safe design.

U of M NC53 Parking Lot Expansion, Ann Arbor, Michigan
Urban Designer; Design services associated with the expansion of an existing parking lot to provide ±300 additional spaces and the adjacent installation of a DTE electric station on the west side of Huron Parkway. Design services included generating iterations of rendered site sections to depict multiple concepts, development of conceptual landscape design and construction documentation of planting plans for the site. Site design developed to help restore the landscape, replace habitat, provide a visual barrier to the DTE Apex Station and enhance the aesthetics of the site.

Pepper Pike Stream Stabilization, Ann Arbor, Michigan
Urban Designer; Developed renderings and landscape construction documents. Renderings modeled and conveyed the restoration techniques proposed in the project, displayed how these management techniques will minimize erosion, and restore the creek's natural habitat. Graphics developed also acted as communication tools that the client utilized to convey the design intent to the public. Hand drawn section elevations and computer generated "movement graphics" showcase the design process and help the public understand what to expect for the different phases of construction implementation. Completed planting plan construction documents. Developed a diverse species plant palette, followed tree replacement requirements, promoted habitat enhancement and erosion control techniques to ensure a successful final product.

Auburn Road Study & Reconstruction, Rochester Hills, Michigan
Landscape Architect; Worked closely with the City of Rochester Hills to develop a streetscape design along a half-mile corridor of Auburn Road. Streetscape treatments are intended to promote safety of the neighborhood through a pedestrian focused design, while also unifying the identity of this neighborhood within the greater context of the Rochester Hills community. Rain gardens along the corridor increase the sustainability of this area by capturing and cleaning stormwater, and other elements such as a plaza space with splash pad, park space, wayfinding and gateway elements complete the aesthetic of the proposed corridor.

Select Relevant Experience Continued

Riopelle Streetscape; I-75 to Division Street, Detroit, Michigan
Landscape Architect; Developed streetscape enhancements from I-75 Service Drive to Division Street within Eastern Market. The goal of the project is to transform this corridor within Eastern Market and make it a livelier, pedestrian friendly zone. Project enhancements include the creation of a curb-less street at the southern two blocks of the project, providing site furnishings as found elsewhere within the Eastern Market area, street trees, planting beds, decorative pavement, overhead festoon lighting and updated streetlights.

Grove Street Pathway, Ypsilanti Twp., Michigan
Lead Urban Designer and Graphic Support. Developed three concept designs to support different levels of development within North Hydro Park. The goal of the project is to provide a link for the Border to Border (B2B) Trail to connect through North Hydro Park, creating a more natural trail immersion experience and providing a link to additional amenities for the surrounding community. Additional project elements include developing the site for outdoor friendly activities, and creating a comprehensive and sustainability minded destination for the adjacent neighborhoods.

Roosevelt Park Improvements, Detroit, Michigan
Landscape Architect; Worked closely with multidisciplinary design team and client to see the Roosevelt Park improvements from concept design to construction documentation. This historic park sits adjacent to the Michigan Central Station, an iconic architectural beacon for the City of Detroit. Project goals included revitalization of the space to make it a welcoming park for all to gather, and included flex use options for multiple user-groups. Project role included assisting team with inventory and analysis, participating in concept design and design development exploration, attendance at internal, client-led, and public engagement meetings.

Central City Parkway Road Reconstruction, Westland, Michigan
Urban Designer; Provided technical support with construction documentation stages of the Central City Parkway Streetscape submittal. Actively involved in client meetings, bid assistance, and the construction administration phase.

Integrated Sustainable Asset Management Plan, Oakland County, Michigan
Urban Designer; Developed perspective renderings and other interpretive graphics to showcase ideas of sustainability and green infrastructure designs. These graphics helped portray the proposed ideas of wastewater sustainability focused design that seeks to identify green infrastructure-based capital improvements which will reduce overall energy consumption.

Oakland Streetscape, Farmington, Michigan
Urban Designer. Responsibilities included development of streetscape design from concept through construction documentation phases. Worked closely with client to ensure aesthetic matches that of the existing downtown Farmington/ Grand River corridor. Developed decorative hardscape and ornamental softscape solutions to promote walkability, safety and appeal of the area, using the site design to demarcate a sense of arrival into the downtown fabric.

Westland Wayfinding and Signage, Westland, Michigan
Urban Designer; Assisted with the development of wayfinding concepts and sign hierarchy throughout the City of Westland. Developed several iterations of different concepts. Modeled and rendered concepts to aid the client in understanding design vision. Assisted with the staking verification of each sign per construction documents. Coordinated with contractor and project team, reviewed shop drawing submittals, construction mock-ups, and verified final installation of Wayfinding and Shop and Dine Signs in TIFA and DDA districts within the City.

Sault Ste. Marie Downtown Placemaking & Access, Sault Ste. Marie, Michigan
Urban Designer; Project work consisted of the reconstruction and rehabilitation of four city street segments and adjacent City parking lots in the downtown area. The funding for this project came through a Community Development Block Grant (CDBG). This $5M construction project is intended to enhance the roadways and parking areas with new pavement, as well as enhanced site designs and amenities to improve the walkability and aesthetics of the area.

Brian Ardanowski, PE

TRANSPORTATION LEAD

Education
- Bachelor of Science in Civil Engineering, Michigan State University, 2007

Professional Registration(s)
Professional Engineer
- MI, 2011, #58471

Experience
With OHM since 2012
5 Years prior experience

Professional Certification(s)
- Autodesk Certified Professional, Civil 3D

Professional Development
- Mini Roundabout Symposium
- Analyzing crashes on multi-lane roundabouts
- Modern Roundabouts: Downtown and Suburban Revitalization
- The Marriage of Roundabouts and Access Management
- Empirical to Mechanistic-Empirical Approaches to Pavement Design
- Design Project Management
- Concrete Street Design
- Designing for Bicycle Safety, MDOT Bicycle Facility Design Course
- Complete Streets Seminar, Designing Healthy Livable Communities Conference

Professional Affiliation(s)
- American Society of Civil Engineers, member

Background

Brian Ardanowski works with a team of engineers designing roadway, bridge, and traffic projects for municipalities, counties, and state DOTs. Brian is familiar with MDOT, MDOT Local Agency Program (LAP), and numerous county/municipal plan preparation procedures from the project kick-off through the construction phase. His experience in plan preparation and design ranges from local 3R rehabilitation projects to major reconstruction projects. He has extensive knowledge of the MDOT road design procedures, standards, and specifications. He also has extensive experience in complex geometric design, including single and multi-lane roundabouts, roadside safety design, utility coordination, roadway drainage, pedestrian safety, and ADA compliance.

Select Relevant Experience

Nixon/Green/Dhu Varren Roundabout & Nixon Road Corridor Study, Ann Arbor, Michigan

Roundabout Design Engineer, responsible for a roundabout design at Nixon-Green-Dhu Varren. The roundabout design geometry aligned two offset tee intersections with a single lane roundabout, while balancing environmental site constraints and optimizing the safety of motorized and non-motorized users. The project also included stormwater management, non-motorized facilities, street lighting, and an extensive public engagement process. The design was coordinated with the 1.5-mile Nixon Road Corridor Study, which resulted in a preferred alternative that includes five additional roundabouts to reduce speeds.

Baker Road Intersections, Washtenaw County, Michigan

Project Engineer for all aspects of this MDOT LAP project. This project involved reconstructing two intersections (one stop control, one signal) each as modern roundabouts. The project is 0.30 miles in length and includes the addition of sidewalk, drainage improvements, green infrastructure, and street lighting. The two single-lane roundabouts are approximately 600 feet from each other. The goal of the project is to facilitate traffic flow reduce speeds along Baker Road, which services several Dexter Community School facilities, including the high school. There are many facets including: right-of-way acquisitions, construction staging, compact urban design with new sidewalk, utility relocations, and public engagement.

Currie Road from 8 Mile to 10 Mile, Washtenaw & Oakland Counties, Michigan

Lead Roadway Engineer responsible for the major elements of road design for this road reconstruction project. Currie Road was a gravel road and this project widened and paved Currie Road and reconstructed the intersections of Currie/8 Mile and Currie/9 Mile as roundabouts. The project also included vertical curve improvements, stormwater improvements, ROW acquisition, utility relocations, EGLE permitting, and a traffic signal at Currie/10 Mile.

Harris Road Reconstruction, Washtenaw County, Michigan

Project Engineer responsible for the major elements of road design for Harris Road from US-12 (Michigan Avenue) to Holmes Road in Ypsilanti Township. The existing pavement was removed and replaced with full depth asphalt cross section with bike lanes along with the addition of curb and gutter and ADA ramp upgrades throughout the project limits. Drainage

Select Relevant Experience Continued

improvements and upgrades were designed with focus being on proposed bio-swales and rain gardens to enhance green opportunities. OHM Advisors worked with the Ypsilanti Community Utility Authority (YCUA) for the design and replacement of water main from Michigan to Forest Street.

US-223 from Stoddard Road to US-127 & US-127 from Junction Road to US-12, Lenawee County, Michigan
Roundabout Design Engineer responsible for the design of a roundabout at US-127 and US-223. The roundabout will replace a channelized intersection where US-127 splits from the combined US-127/US-223 corridor. The roundabout is being implemented to improve safety and reduce crashes at this high-speed intersection.

3 Roundabouts at 4 Mile-Hammond, Keystone-Cass, Keystone-River, Grand Traverse County, Michigan
Lead Roadway Engineer responsible for the design of the three roundabouts for this locally let project. This project is being implemented to improve traffic flow and safety on the main bypass routes around Traverse City. Each modern roundabout design included complex horizontal and vertical geometry, easement acquisition, utility relocations, staged construction, maintenance of traffic, storm sewer design, sidewalk/pathway design. Keystone-Cass also included MDOT Office of Rail coordination and permitting for a new crossing on one leg of the roundabout.

West Freeland Road and River Road Roundabout, Saginaw County, Michigan
Lead Roadway Engineer responsible for the design of the roundabout for this MDOT LAP project. Project involved reconstructing a skewed four-way stop control intersection as a modern roundabout to relieve traffic congestion and improve safety. This was a single lane roundabout that was built while maintaining traffic on the dominant road (Freeland) with a temporary pavement flyby lane servicing alternating directions via temp signals. The roundabout is designed to handle the oversize farm equipment that frequently uses the intersection. Project also included storm sewer design, sidewalk, utility coordination and relocation, property acquisition.

North Road and Torrey Road Roundabout, Fenton, Michigan
Roundabout Design Engineer responsible for the geometry for this single-lane, modern roundabout adjacent to the US-23 NB exit ramp to North and Torrey Roads that leads into downtown Fenton. The project was initiated to reduce speeds, improve traffic flow, enhance pedestrian access, accommodate large trucks, and manage access to businesses.

Bridge Replacement and Preventative Maintenance, Washtenaw County, MI
Lead Roadway Engineer responsible for the major elements of road design, including the development of vertical and horizontal alignment, and geometrics for this project to replace Dennison Road over Saline River and provide repair to the Mast and Bridge Roads over Huron River. The existing three span structure on Dennison Road will be replaced with a single span concrete bulb-tee beam bridge on concrete abutments with deep foundations. Work on Dennison and Bridge will be completed under a detour. In addition, there is a historical site at the Dennison Road site which will require an archaeologist to perform field investigation to determine if there will be impacts to the site. Project deliverable for this project funded through the Local Bridge Program include construction plans, special provisions and construction cost estimates.

Geddes Road and Ridge Road Roundabout, Washtenaw County, Michigan
Project Engineer responsible for all aspects of road/roundabout design and plan development. The project included the reconstruction of the intersection from a 4-way stop to a modern, single-lane roundabout adjacent to a charter school. The project included Rodel Analysis, right-of-way constraints and property acquisitions; significant utility coordination; pedestrian, and bicycle safety improvements; streetscape enhancements; street lighting improvements; storm sewer design and a three-sided box culvert; permanent signing and pavement markings.

Adam Rychwalski, PE

STRUCTURAL ENGINEER (BRIDGES)

Education
- Bachelor of Science in Civil Engineering, Michigan Technological University, 2005
- Bachelor of Science in Business Administration, Michigan Technological University, 2005

Professional Registration(s)
Professional Engineer
- MI, 2009, # 57235

Experience
With OHM since 2005
All experience with OHM

Professional Certification(s)
- NHI Safety Inspection of In-Service Bridges
- NHI Fracture Critical Inspection Techniques for Steel Bridges
- NHI Bridge Inspection Refresher Training
- MDOT Field Proficiency Exam Completion

Background

Adam is a part of the OHM Structures Group, and is involved in all aspects of bridge, culvert, boardwalk and retaining wall design, repair, and analysis. He has performed numerous bi-annual bridge inspections, detailed bridge inspections, bridge scoping reports and bridge design. He uses various software for bridge analysis, hydraulic modeling, design, and plan preparation. He has experience in delivering projects for local municipalities and counties utilizing various project contract styles. Adam is well versed in the permit process through EGLE, MDOT, and County agencies.

Select Relevant Experience

Fuller Street Culvert under AMTRAK Rail, Ann Arbor, Michigan

Structural Engineer for removal and replacement of the existing concrete culvert and manhole structures adjacent to Fuller Street and beneath the Amtrak rail in the City of Ann Arbor, Michigan. This was an emergency project with funding partnered between the City of Ann Arbor and the MDOT Office of Rail. This project included a 36-hour full shut down of the Amtrak rail line to complete the removal of the failed manhole and various drainage culverts within the slope and beneath the Amtrak rail. The contractor began by staging all the necessary project materials along the Amtrak right-of-way to facilitate protecting the failed slope and riverbank during the drainage replacement. Amtrak safety and construction crews were coordinated with throughout the project duration to complete track removal and replacements, along with a continuous maintenance of a safe work zone. The new culvert run consisted of two 96-inch diameter structures with 48-inch concrete pipe tapped into the existing stone/block manhole at Fuller Street and terminating with a new rip rap outlet to the Huron River. The slope adjacent to Fuller Street was reconstructed and stabilized with restoration and the entire work site including track ballast, the hall road, and vegetation was improved. Strict policy was adhered to with regards on site safety briefings provided by Amtrak personnel. Materials testing needs amongst QC and QA parties and coordination by the OHM Advisors project team was a key factor to the timely re-installation of the track and reopening of the rail line. This project was a coordinated effort between two adjacent Amtrak projects also beneath the same rail line.

Prospect Road Pathway, Washtenaw County, Michigan

Structural Design Engineer for the engineering design, plan preparation, and contract administration and construction engineering services for construction of an ADA compliant 10-foot-wide asphalt pathway and 14-foot-wide timber boardwalk. The project also included fire hydrant relocation, water main exploratory excavation, franchised utility coordination, and site restoration. The constructed pathway completes a gap in the non-motorized transportation network along the east side of Prospect Road between Berkshire Road and Geddes Road and is approximately 1,900 LF.

East Huron River Service Drive Over Swift Run Culvert Replacement and Hydraulic Analysis, Washtenaw County, Michigan

Project Engineer for the replacement of the existing culvert under East Huron River Service Drive over the Swift Run Drain. The existing culvert was failing and causing erosion in the immediate area. A CMP culvert was designed to replace the existing culvert to convey the flow.

Select Relevant Experience Continued

The proposed culvert is significantly larger than the existing culvert due to the flows in the drain. The project included a full hydraulic analysis, construction plans, special provisions, utility coordinate, construction cost estimate and bidding documents as well as the construction administration and engineering.

Bridge Replacement and Preventative Maintenance, Washtenaw County, MI

Project Engineer for this project to replace Dennison Road over Saline River and provide repair to the Mast and Bridge Roads over Huron River. The existing three-span structure on Dennison Road was replaced with a single-span concrete bulb-tee beam bridge on concrete abutments with deep foundations. The work on Mast and Bridge Roads included deck patching, sidewalk repairs, epoxy overlay, guardrail replacement and substructure repairs. Work on Dennison and Bridge was completed under a detour, while work on Mast will be completed part-width utilize temporary traffic signals. In addition, there is a historical site at the Dennison Road site which required an archaeologist to perform field investigation to determine potential impacts to the site. Project deliverable for this project funded through the Local Bridge Program include construction plans, special provisions, and construction cost estimates.

Eleven Mile Road Rehabilitation, Middlebelt Road to Inkster Road, Farmington Hills, Michigan

Culvert Engineer for one mile of cold milling and HMA resurfacing, pavement widening for a continuous 3-lane section, new bike lanes, new curb and gutter, ADA-compliant sidewalk ramps, enclosed drainage, signing, pavement markings, traffic signal modernization at the Skye Drive intersection, and maintenance of traffic. The project also included replacement of "The Ravine" culverts with a new 10-foot by 5-foot precast concrete box culvert under Eleven Mile Road through challenging utility situation and a new 77-inch by 121-inch concrete elliptical culvert under Beecham Road. .

Pickering Road Culvert Replacements, Lyon Township, Michigan

Project Engineer for the replacement of three culverts on Pickering Road due to existing culvert failures. Pickering Road is the only means of ingress and egress to a subdivision so work was completed with part-width construction. One culvert will be installed by directional drilling methods and two will be installed by open cut methods. Relocation of water main and sanitary sewer lines is also included in the project. Project deliverable were construction plans, special provision, utility coordination and construction cost estimate.

Wood Trail Culvert Replacement, Orion Township, Michigan

Project Engineer for the emergency culvert replacement of Wood Trail over the Paint Creek Tributary. During a period of exceptional heavy rain events the existing CMP culvert collapsed, and Wood Trail was forced to be closed. The collapse of the culvert caused enough water to back up that emergency pumps were installed get water across the roadway. OHM was in contact with local culvert suppliers to determine what size pipe they had in stock so that the replacement could happen as quickly as possible. After discussions with suppliers, RCOC and MDEQ it was decided that the existing CMP would be replaced with a round concrete culvert. The existing culvert that failed is immediately adjacent to and abuts a stone arch culvert that goes under the MDNR Pollyanne Trail Pathway. The pathway was also closed due the culvert failure. A further complication was the number of buried public and private utilities. The culvert was opened four months after it was closed.

Wixom Road Bridge Replacement, Wixom Township, Michigan

Project Engineer for the bridge replacement of Wixom Road over the Huron River. The existing twin CMP culverts were in poor condition and in need of replacement. The existing culverts were replaced with a 60' bulb tee bridge founded on concrete abutments supported on H-piles. The existing structure is within the Proud Lake State Recreation Park and the design of the structure included enough head room to accommodate for kayak and canoe traffic. The roadway cross section was widened slightly to increase shoulder width. The project site is a known area for the threatened Eastern Mississauga rattlesnake and several species of mussels. The project included provisions to deal with all the threatened species. Project deliverables included construction plans, special provision and cost estimate for a letting through the MDOT LAP system.

Phil Maly

CONSTRUCTION MANAGER

Education
- Associate of Applied Science in Civil Engineering Technology, Schoolcraft College, 1976
- Certification

Experience
With OHM since 2018
39 Years prior experience

Professional Certification(s)
- MDOT, HMA Paving Operations
- EGLE, Storm Water Management - Construction Site
- EGLE, SESC Part 91
- MSTT, Trenchless Technology
- Symposium AHA, First Aid / CPR/ AED
- OSHA, Confined Space Entry
- ISCO, Heat Fusion Techniques

Background

Phil has over 40 years of experience involving construction engineering, construction management, and surveying. Phil began as a survey party chief for Ayres, Lewis, Norris and May (ALNM) in 1978. He completed topographic, boundary and construction staking for bridge projects, dams, water and wastewater facilities, sanitary sewers, water mains and roads. In 1998, Phil transferred into the construction services group as a field client representative, managing construction inspection staff and municipal construction oversight needs.

Phil assumed the role of Interim Utilities Director for Pittsfield Township from 2003-2005. As Interim Director, he managed a 12-man utility staff, managed customer billing for water and sewer, oversaw system repairs and emergencies including the Northeast power blackout of 2003. He also coordinated the repair of all equipment, nine sewer pump stations, two-water booster stations and an elevated water tank.

From 2006-2018, Phil performed as Field Services Department Manager at Stantec (through acquisition of ALNM) which involved managing and coordinating all survey and construction observation duties. During this time, Phil's responsibilities expanded to cover projects for the oil and gas industries.

Select Relevant Experience

Manchester Street Rehabilitation Ann Arbor Michigan
Field Client Representative; As part of Ann Arbor As-Needed Field Services Contract, Phil managed and coordinated inspection and survey layout for the rehabilitation of residential street.

N. Maple Road Reconstruction Ann Arbor, Michigan
Field Client Representative; Managed and coordinated inspection and survey layout for the replacement of Maple Road, north of Jackson Road as the result of a water main break.

East Huron River Service Drive Over Swift Run Culvert Replacement and Hydraulic Analysis, Washtenaw County, Michigan
Field Client Representative for this project where OHM completed design and construction services for a culvert replacement. This project featured challenges with a resident who needed to be relocated during construction which put an emphasis on timing and scheduling during construction. OHM was able to design and permit this project as well as oversee the project from a construction standpoint which all occurred on time and under budget.

South University Pavement and Utility Improvements, Ann Arbor, Michigan
Field Client Representative; Coordinated and managed inspection/field engineering effort for a joint project between Ann Arbor City and the University of Michigan AEC. Over saw and verified the accuracy of construction components, required testing, ADA compliance of concrete ramps and sidewalks and all underground sanitary, water main, storm sewer, electric, steam, communication and some gas. Aided in the resolution utility conflicts and design conflicts. Coordinated traffic control adjustments, parking adjustments and pedestrian movement as

Select Relevant Experience Continued

necessary in the work zone. Assured material conformance to the specifications, conducted a HMA pre-paving meeting and coordinated all HMA paving activities. Provided on site staking as necessary to supplement construction as needed. Provided inspection as necessary to accommodate time off for the on-site OHM field engineer. Worked with business, delivery, mail and school personnel as needed to keep local activity flowing during construction. Provided on site technical support for GPS of infrastructure, record drawing review, punch list creation and follow up, attended punch list walkthroughs in the field. Observed all CDC, University and City guidelines with respect to Covid 19 throughout the project.

Washtenaw Ave CDBG Sidewalk Gap, Ypsilanti, Michigan
Field Client Representative; Managed the construction layout, construction observation and construction engineering for the construction of new concrete walk, rehabilitation of existing walk, commercial entrance drive re-construction, commercial parking lot re-construction, new bus stop and signaled pedestrian crossings over Washtenaw Avenue from Golfside Road east to the Ypsilanti City limits. Conducted pre-con and progress meetings, consulted and advised the county and MDOT during construction. Reviewed shop drawings and material certifications provided by the contractor, resolved field conflicts, evaluated and implemented design changes and coordinated and assisted with resident and business communications and complaints. Assisted the county in the review and processing of payments and change orders, performed preliminary and final punch list walkthroughs and facilitated closeout with the County and MDOT.

Field Services Contract, Northville, Michigan
Field Client Representative for all field services related to capital improvement projects (CIPs) and site development projects within the Township. This includes contract administration of CIPs, and construction management of projects related to residential, commercial, and industrial developments, including grading, utility, and road construction. In addition, this effort requires supervision and oversight of OHM on-site inspectors, training of staff, coordination with Township staff, and communication with contractors and the owner.

Field Services Contract, Pittsfield Township, Michigan
Previously served as the Field Client Representative for all field services related to capital improvement projects (CIPs) and site development projects within the Township. This included contract administration of CIPs, and construction management of projects related to residential, commercial, and industrial developments, including grading, utility, and road construction. In addition, this effort required supervision and oversight of OHM on-site inspectors, training of staff, coordination with Township staff, and communication with contractors and the owner.

Field Services Contract, Ann Arbor Township, Michigan
Previously served as the Field Client Representative for all field services related to capital improvement projects (CIPs) and site development projects within the Township. This included contract administration of CIPs, and construction management of projects related to residential, commercial, and industrial developments, including grading, utility, and road construction. In addition, this effort required supervision and oversight of OHM on-site inspectors, training of staff, coordination with Township staff, and communication with contractors and the owner.

Macon Road Bridge Replacement and Hydraulic Analysis Washtenaw County, Michigan
Field Services Manager for the replacement of the existing bridge on Macon Road over the Cammett-Luckhardt Drain. The existing bridge was in poor condition and was closed to traffic, and the existing drain had excessive sedimentation build up. A culvert was designed to replace the existing bridge to convey the flow and the drain was cleaned out. The project included a full hydraulic analysis, including flow determination on these drains. OHM was responsible for the construction plans, estimate, and bidding documents as well as the construction administration and engineering.

Fraser Payne, PE

CONSTRUCTION ENGINEER

Education
- Bachelor of Science in Civil Engineering, Canterbury University (New Zealand), 2010

Professional Registration(s)
Professional Engineer
- MI, 2021, # 6201310582

Experience
With OHM since 2020
8 Years prior experience

Professional Certification(s)
- EGLE, SESC Stormwater Operator (C-20481)
- EGLE, Storm Water Management - Construction Site
- Bridge Deck Construction/ Rehab Inspection & Bridge Paint
- OSHA, 30-Hour Construction Safety and Health
- MDOT, Prevailing Wage Training
- MDOT, Aggregate Technician, Level 1
- Natl. Clay Pipe Institute, Pilot Tube Method
- MDOT, Certified Office Technician
- Michigan Certified, HMA Local Agency Sampling
- EGLE, SESC Plan Review & Design
- OSHA, Confined Space Entry Training
- Materials Acceptance Process
- Geotechnical Construction Inspection Training

Background

As a Project Engineer and Construction Manager, Fraser has a diverse background in infrastructure and construction management experience. Fraser has proven experience on successful projects including roads, bridges, utilities, highway sections and rail lines. Fraser places high importance on team unification among client, consultant, and contractor.

His wide range of project experience has helped him gain a unique perspective in solving complex problems with multiple construction solutions. Fraser is responsible for interpreting engineering drawings, authorizing changes from the approved plans, communicating changes to clients and regulatory agencies, construction oversight, recording plans and administrating construction contract terms. Over the last few years, Fraser has become specialized in underground utility construction.

Clients include Michigan Department of Transportation Local Agency Program, Great Lakes Water Authority, City of Romulus, Washtenaw County, and Ypsilanti Community Utility Authority in addition to other site and municipal clients.

Select Relevant Experience

Fuller Street Culvert under AMTRAK Rail, Ann Arbor, Michigan
Construction Technician for an emergency stormwater 96-inch culvert replacement on Fuller Street and beneath the Amtrak rail in the City of Ann Arbor, Michigan. This was an emergency project with funding partnered between the City of Ann Arbor and the MDOT Office of Rail. This project included a 36-hour full shut down of the Amtrak rail line to complete the removal of the failed manhole and various drainage culverts within the slope and beneath the Amtrak rail.

Trunkline Water Infrastructure Improvements (M-17/US-12) Ypsilanti, Michigan
Construction Engineer / Field Client Representative; Fraser managed the replacement of Ypsilanti Community Utilities Authority (YCUA) water service leads replacement within the City of Ypsilanti ahead of Michigan Department of Transportation (MDOT) planned rehabilitation of the road. The project spanned across the City for approximately four miles of state-owned trunklines. Fraser prepared work plans for replacement of public and private side lead identified as lead or galvanized in compliance with the EPAs Lead and Copper Rule (LCR). Sanitary sewer mains were also repaired. The project was divided into four phases to maintain traffic, with construction starting in March 2022 and ending in September 2023. The project included coordination with the City, business owners, and residents, and required complex maintenance of traffic and staging as traffic was planned to be maintained during the work.

Field Services Client Representative, Ypsilanti, Michigan
Field Client Representative for the City of Ypsilanti responsible for managing all field services related to capital improvement projects (CIPs) and site development projects within the City of Ypsilanti. This encompasses contract administration of CIPs and construction

Select Relevant Experience Continued

management of projects related to residential, commercial, and industrial developments, including grading, utility, and road construction. Additionally, this role requires Fraser to provide supervision and oversight for OHM on-site inspectors, train staff members, coordinate with the City/Township, and maintain clear communication with contractors and the owner.

West Cross Reconstruction Ypsilanti, Michigan
Lead Construction Technician for the West Cross Street water main replacement in the City of Ypsilanti, Washtenaw County. The project consisted of a half-mile of hot mix asphalt full depth reconstruction; concrete curb, gutter, sidewalk and ramps; aggregate base; drainage; signals and pavement markings. This was an MDOT Local Agency project for the Ypsilanti Communities Utilities Authority (YCUA) . This project included full reconstruction of the existing asphalt roadway, including a roadway diet initiative to accommodate a safer approach to pedestrian access along the project corridor. During construction, the project team represented and coordinated with YCUA to modernize the underground infrastructure, including placement of a new water main, residential and commercial water services, and abandonment of the existing water main. The project included upgrading the existing ADA infrastructure through the placement of new curb and gutter, sidewalks, ramps, and also pedestrian signals and a rapid flashing beacon school crossing. The permanent pavement markings and signage was designed to diet the roadway lessening vehicular speeds and accommodating new bike lanes. The project included two categories with funding being from federal, state, and local revenues.

2020 Sidewalk Program- Van Born Road, Washington to 4th Street, Romulus, Michigan
Construction Engineer on full construction engineering, inspection, survey and testing services for the City of Romulus on the 2020 Sidewalk Van Born Road project. This project constructed 2,000 feet of concrete sidewalk along the road. The sidewalk was constructed within 120 feet of Van Born Road (Wayne County) ROW. The intersections consisted of ADA-compliant sidewalk ramps and crosswalks.

Huron River Drive Pathway Romulus, Michigan
OHM led all major facets of the projects construction engineering, construction administration, materials testing and inspection on the HMA pedestrian pathway connecting Northline Road Pathway to Downtown Romulus for the City of Romulus and Michigan Department of Transportation. The pathway was along Huron River Drive, from Northline Road under the I-275 overpass to Grant Street. The project addressed storm drainage immediately under the overpass of I-275 and raised the pathway parallel to Huron River Drive. A concrete barrier/retaining wall was constructed under the overpass to compensate for a grade differential between the pathway and the road and a wire fence was installed on top of the barrier to serve as protection for pedestrians. Riprap was installed in between the two overpasses of I-275 to aid in erosion control. ADA pedestrian ramps were constructed along the pathway as it crossed over side streets. The project included multiple pay item categories with funding coming from State and local revenues.

Cross Street Water Infrastructure Improvements Ypsilanti,. Michigan
Project Engineer on the Cross Street Water Infrastructure Improvements project. Ypsilanti Community Utilities Authority (YCUA) required surgical upgrades to the water main along the street. Fraser was part of the design team that prepared design plans and bidding documents for the project. He then transitioned to the construction team and navigated the implementation of the water services and the federal Lead and Copper Rule (LCR). The LCR required simultaneous replacement of both the public- and private-side water services. The Cross Street project was in a downtown area that included multi-unit residences, Eastern Michigan University (EMU), and a business corridor that required coordination throughout the project with the City of Ypsilanti, business owners, MDOT, EMU, and residents. The MDOT required maintenance of traffic and staging was particularly complex for the work as traffic is planned to be maintained during construction.

Andy Schripsema, PS, PE

SURVEY MANAGER

Education
- Bachelor of Science in Land Surveying, Michigan Technological University, 2000
- Bachelor of Science in Civil Engineering, Michigan Technological University, 2000

Professional Registration(s)
Professional Engineer
- MI, 2005, #52605

Professional Surveyor
- MI, 2008, #55483

Experience
With OHM since 2007
7 years prior experience

Professional Certification(s)
- Confined Space Entry Training per 29CFR 1910.146, 2011
- Integrated Distance Learning Environment (FAA IDLE) Level 3 Training for FAA Advisory Circulars AC 150/5300-16A, AC 150/5300-17C, AC 150/5300-18B, Certification #FAAIDLE20141023-307, 2014

Background

Andy has been involved in all parts of road and bridge projects from design through construction. Even when performing office functions, Mr. Schripsema knows what the field crews needs to perform efficiently. Mr. Schripsema's experience includes performing calculations for construction staking as well as providing construction staking. He can provide revised grading plans for specific areas and easily compute and present earthwork quantities. Andy understands the need to respond immediately to any request on construction projects. As Office Support, Andy provides office calculations as well as generates any reports/documentation requested. He is proficient in Microstation Power GEOPAK and other software.

Select Relevant Experience

Huron Street Reconstruction & Water Main Improvements, Milford, Michigan
Lead Surveyor; Mill and overlay on four side streets north of East Huron Street. OHM completed all utility work at the River Street intersection, and later paved River Street. Work also included completing the approach to the water treatment plant.

Riopelle Streetscape; I-75 to Division Street, Detroit, Michigan
Lead Surveyor; Responsible for establishing horizontal and vertical control, the design survey, and right-of-way establishment required for the engineering of 3 blocks of streetscaping on Riopelle St. An Unmanned Aerial Vehicle (UAV) with a high-definition camera was also used to create orthorectified imagery of the corridor. The goal of this project is to help bolster the transformation of the Riopelle Streetcorridor between I-75 Service Drive and Division Streetfrom a wholesale packaging and market environment to a walkable retail and entertainment area. Goals of the project were to improve, safety, aesthetics, and economic development in the area. The project incorporated creative design elements including a curbless road, colored concrete, scored sidewalks, overhead string lighting, landscaping, and other street amenities. The major items of work include sidewalk improvements, HMA paving, street lighting, and landscaping.

Bandemer-Barton Trail and Tunnel Project, Washtenaw County, Michigan
Lead Surveyor; Responsible for the design survey through this environmentally sensitive park in Ann Arbor. The Bandemer-Barton Trail and Tunnel will be another segment of the Border 2 Border Trail as well as a part of the Iron Belle Trail. This project will provide a safe crossing at the railroad and path through a nature preserve area to link up with Huron River Drive. Considerations for this study include coordination with the railroad, the canoe livery, the adjacent water utility, Ann Arbor Parks and Recreation, and the public to provide a safe and aesthetically pleasing path with minimal environmental impacts.

Maple Road at Middlebelt Road Roundabout, Oakland County, Michigan
Lead Surveyor; Reconstruction of the intersection of Maple Road and Middlebelt Road as a modern multi-lane roundabout and the replacement of the culvert carrying the Rouge River under Maple Road. This project includes a profile study to determine the extent of vertical curve corrections needed. MSE walls, guardrail, MDEQ permitting, ROW acquisitions, and utility coordination are all included in this project.

Select Relevant Experience Continued

Evergreen Road Reconstruction; 11 Mile Road to 13 Mile Road, Southfield, Michigan
Project Surveyor; 2.09 miles of a mix of differing road repairs from full concrete reconstruction, 1.5-inch HMA overlay, crush and shape with five inches of HMA resurfacing, and concrete pavement repairs. This project involved establishing horizontal and vertical control, full design survey, right-of-way establishment and construction staking for the length of the project.

Evergreen Road Reconstruction; 9 Mile Road to NB NW Hwy, Southfield, Michigan
Project Surveyor; one-mile of concrete reconstruction project that included pavement removal, aggregate base, storm sewer, drainage upgrades, water main installation and upgrades, concrete pavement with integral curb, ramps, guardrail and signal upgrades on Evergreen Road from 9 Mile Road to northbound Northwestern Service Drive. This project involved establishing horizontal and vertical control, full design survey, right-of-way establishment and construction staking for the length of this project. Coordination with the inspector and contractor was critical on this project due to the complex nature of the staging in order to maintain traffic.

Harris Road Green Infrastructure Improvements, Washtenaw County, Michigan
Project Surveyor; Design survey and construction staking of Harris Road from US-12 (Michigan Avenue) to Holmes Road in Ypsilanti Township. The existing pavement was removed and replaced with full depth asphalt cross section with bike lanes along with the addition of curb and gutter and ADA ramp upgrades throughout the project limits. Drainage improvements and upgrades were designed with focus being on proposed bio-swales and rain gardens to enhance green opportunities. OHM Advisors worked with the Ypsilanti Community Utility Authority (YCUA) for the design and replacement of water main from Michigan to Forest Street.

Baker Road Intersections Reconstruction, Washtenaw County, Michigan
Project Surveyor; MDOT LAP project. This project involves reconstructing two intersections (one stop control, one signal) each as modern roundabouts. The project is 0.30 miles in length and includes the addition of sidewalk, drainage improvements, green infrastructure, and street lighting.

Zeeb Road Non-Motorized Shared Use Pathway Phase II, Scio Township, Michigan
Lead Surveyor; Design survey and construction staking for this project consisting of a constructing an 8-foot wide shared use asphalt path that extended Scio Community Alliance Church north to Dexter-Ann Arbor Road. This 1300' pathway included 630-feet of boardwalk that will span wetland areas. The boardwalk is founded on helical piles with timber stringer, decking and railing.

Nixon / Green / DhuVarren Roundabout & Nixon Road Corridor Study, Ann Arbor, Michigan
Project Surveyor; Responsible for the design survey and construction staking for the reconstruction for this MDOT LAP project. The existing intersection was a 4-way stop control, with the minor street having offset approaches. To improve safety and efficiency, the intersection was reconstructed as a modern roundabout. The project involves the reconstruction of 0.78 miles of roadway with HMA pavement, storm sewer, stormwater improvements, sidewalk, and street lighting.

Briar Hill Subdivision Road Rehabilitation Special Assessment District (SAD) , Farmington Hills, Michigan
Project Surveyor; Design and engineering related to the reconstruction of local roads within the Briar Hill Subdivision located west of Orchard Lake Road and north of 10 Mile Road, as part of a Special Assessment District. This road has significant pavement deterioration and was in serious need of reconstruction for the local residents. OHM Advisors was responsible for the topographic survey, design and engineering efforts related to full cross section reconstruction and drainage treatment improvements where applicable to improve the functionality of the roadway system.

SECTION B: PAST INVOLVEMENT WITH SIMILAR PROJECTS

B.1 Similar General Engineering Work

B.2 Our Recent Work with the City of Ann Arbor

B.3 Similar Work in the Area

General Engineering Services

SUPERIOR TWP., MI

OHM Advisors provides general consulting engineering services, since 1962, to the Charter Township of Superior, located in Washtenaw County, MI. Within their Utilities Services District, the Township obtains water from and discharges wastewater to the Ypsilanti Community Utilities Authority (YCUA) servicing the southern portion of the Township only. Eighty percent of the township is rural, and the community is preserving those rural characteristics.

Our team has worked closely with the Township to develop master plans for water and sewer that meet the short-term needs for development, but also are consistent with the vision of the Township and its long-term needs. The recently completed Water System Master Plan includes components of a Water System Reliability Study, General Plan, and Asset Management Plan (AMP) as required by EGLE to be updated every five years.

The OHM Advisors team has prepared detailed design plans and specifications, assisted with project bidding, and performed contract administration and construction observation for Township capital improvement projects. These projects have included water and sanitary system improvements within the Utilities District, as well as road, sidewalk, and pathway projects as part of our general services. OHM Advisors also performs site plan review, construction observation for private sites, development of special assessment districts, special studies as needed, GIS development, IT services, and traffic consulting. We attend and participate regularly in Board of Trustees and Planning Commission meetings as the Township Engineer.

COMPLETION
Design
1962 - Ongoing

CLIENT INFORMATION
Superior Township
Ken Schwartz,
Supervisor
3040 N Prospect Road
Ypsilanti, MI 48198
734.482.6099

COST
$400,000 - $600,000

SERVICES PROVIDED
Municipal Engineering
GIS Services
Planning
Drinking Water Engineering
Construction Engineering
Traffic Engineering

OHM STAFF
G. Tsakoff, C. Elenbaas,
C. Slotten

General Engineering Services

FARMINGTON HILLS, MI

OHM Advisors has provided a multitude of professional services to the City of Farmington Hills for general engineering support and various capital improvement projects for over 30 years.

Since 2014, these services have been structured around support for the City's robust capital improvement program, including replacement or rehabilitation of major and local City roadways, water main, sanitary sewer, as well as road and utility system planning.

This work is currently being performed under an ongoing General Engineering Services Contract for the City, and includes some of the following efforts:

- Yearly Local Road HMA Paving Rehabilitation Planning and Contract Documents
- Yearly as-needed Construction Inspection Support Services for Site Plan Development
- Yearly PASER Rating Support As-needed
- 2018 Water Main and Sanitary Sewer Master Plan (in conjunction with OCWRC)
- Greencastle Subdivision Water Main Replacement
- 13 Mile Road Replacement from Drake Road to Farmington Road
- Nine Mile Road Rehabilitation from Hawthorn Street to City Limit
- Quaker Valley Lane Water Main and Sanitary Sewer Extension
- Richland Gardens Subdivision Local Road Replacement
- Briar Hill Subdivision Local Road Replacement
- Pleasant Valley & Old Homestead East Local Road Replacement

COMPLETION
1992 - Ongoing

CLIENT INFORMATION
City of Farmington Hills

Karen Modora, PE
Director of Public Services

31555 Eleven Mile Road
Farmington Hills, MI 48336

248.871.2530

COST
$500,000

SERVICES PROVIDED
Municipal Engineering
Asset Management
Construction Engineering

OHM STAFF
G. Tsakoff, C. Elenbaas,
M. McNamara

General Engineering Services

AUBURN HILLS, MI

OHM Advisors provides general consulting engineering services to the City of Auburn Hills, located in Oakland County. Auburn Hills has a population of approximately 20,200 people with significant residential growth anticipated over the next five years. The City is home to several major corporations, including the headquarters of Chrysler, Volkswagen, Meemic, Molex, Jabil, Borg Warner and as a result, has a significant daytime workforce population estimated at 60,000. Auburn Hills is also home to one of the region's largest retail centers, the Great Lakes Crossing Mall and Oakland University with a student population of over 17,000.

OHM Advisors has served continuously as City engineers in Auburn Hills for over 50 years, including its time as Pontiac Township. In this capacity, we have been the City's trusted advisor on all matters related to its infrastructure and growth. Our team's role includes all municipal engineering functions from initial review of site plans to final inspection of all utility and road construction. OHM Advisors engineers have master-planned and designed improvements to the City's water supply and sanitary sewer collection systems; designed all road and drainage improvements including I-75 and I-59 interchange ramps, and major roads; and all local road construction and re-construction. Our team has performed water, sewer, and paving master plans. Annually, OHM Advisors supervises the City's road re-surfacing and major maintenance programs.

OHM Advisors recently completed roadway reconstruction and improvements along Auburn Road and North Squirrel Road within Downtown Auburn Hills. The work focused on improving the road surface, increased safety for motorists and pedestrians, traffic calming, aesthetics, and reducing driver uncertainty with lane configurations. The design also included reconstruction of sidewalk ramps and crosswalks to current ADA standards.

OHM Advisors also performs general engineering services which include site plan review, construction observation, pavement maintenance programs, site design, GIS development, Phase II stormwater compliance, flow metering, IT services, and traffic consulting. Our team attends all City Council meetings and select Planning Commission and Downtown Development Authority meetings, as well as administrative staff meetings.

COMPLETION
1968 - Ongoing

CLIENT INFORMATION
City of Auburn Hills

Tom Tanghe,
City Manager

1827 N. Squirrel Road
Auburn Hills, MI 48326

248.370.9440

COST
$1,000,000

SERVICES PROVIDED
Municipal Engineering
GIS Services
Planning
Site Design
Construction Engineering
Transportation Engineering
Traffic Engineering
Bridge Engineering
Stormwater Engineering

General Engineering Services

SOUTHFIELD, MI

Since 1993, OHM Advisors has been one of two firms providing engineering consulting services to the City of Southfield. During this period, our team has designed numerous road reconstruction projects, updated the City's Water System Master Plan, and provided Southfield with an innovative design for a $1.1M project to reconstruct a large portion of the Southfield Civic Center parking lot. Our team's work has not been limited to design only but has included survey, staking, construction inspection and contract administration.

The Water System Master Plan study results have led the City to take on a new and fresh look at what was thought to be a large and expensive approach to water line replacement. Our team's conclusions and advice have now allowed Southfield to look at considerable cost savings and to move into a true asset management approach for water line replacement and system enhancements. This has led to development of expanded asset management analysis for sanitary sewer, storm facilities and roads. Our team has been authorized to proceed with asset management planning for most of the City's infrastructure needs.

One unique challenge of the Water System Master Plan update was the establishment of a collaborative team between the City, our engineers, and the source water providers, the Southeastern Oakland County Water Authority (SOCWA). SOCWA provided all the boundary conditions for the approximately 10 connections within the City's distribution system. Close collaboration and planning continued throughout the project when recommending changes in the City which may influence the SOCWA system and vice versa.

Another unique aspect of this project was the development and utilization of a unique water main infrastructure prioritization matrix. This matrix takes into account not only hydraulic information, such as flow rate and pressure variations, but also operational information including water main break rates, water main age, material and soil condition in order to develop a capital improvements project priority list. This list is also complemented with risk management factors such as 'consequence of failure' calculations. In the end, a comprehensive water master plan was developed, which also included trenchless technology recommendations for improving water infrastructure system.

COMPLETION
1993 - Ongoing

CLIENT INFORMATION
City of Southfield

Leigh Shultz, PE
City Engineer

26000 Evergreen Road
PO Box 2055
Southfield, MI 48037-2055

248.796.4812

COST
$200,000 - $500,000

SERVICES PROVIDED
Municipal Engineering
Asset Management
Construction Engineering
Planning
Survey
GIS Services

OHM Advisors clients with 50,000+ population or 50,000+ population served	Population or Service Area Population	Traffic Engineering Services	Roundabout Design / Review	Non-Motorized Facilities	Capital Improvement Planning	Other Funding/Grant Administration	Utility Master Plan	Sewer Inflow Analysis	Development Plan Review
Ann Arbor, MI	121,536	•	•	•		•			
Battle Creek, MI	52,347	•		•	•	•		•	
Canton Township, MI	90,173	•			•	•	•	•	•
Dearborn	98,153				•	•	•	•	
Detroit, MI	672,795								
Farmington Hills, MI	82,111		•			•			•
Kalamazoo, MI	74,262								
Livonia, MI	100,545					•	•	•	
Novi, MI	55,224	•		•	•	•	•	•	
Rochester Hills, MI	68,825	•	•	•		•			•
Royal Oak, MI	57,326	•		•			•	•	
Saginaw, MI	51,508	•			•	•	•		
Southfield, MI	78,296					•	•	•	
Troy, MI	79,481	•		•		•			•
Westland, MI	86,602	•		•		•	•	•	•
Ypsilanti, MI	22,362	•		•	•	•	•		•
Ypsilanti Township, MI	53,362	•		•		•	•		•
Ann Arbor Transportation Authority, MI	204,530	•		•		•			
Detroit Water & Sewerage Department	680,000				•		•	•	
Great Lakes Water Authority	4,000,000				•		•		
Huron-Clinton Metro Parks, MI	4,600,000			•		•			
Kalamazoo Co. Road Commission	260,263								
Livingston Community Water Authority, MI	185,000				•		•		
Livingston Co. Road Commission, MI	185,000	•	•			•			
Michigan Department of Transportation	8,885,212	•				•			
Oakland Co. Water Resources Commissioner, MI	1,232,000					•			
Road Commission for Oakland Co., MI	1,232,000	•	•			•			
Saginaw Co. Road Commission, MI	198,000	•	•		•				
Tennessee Department of Transportation	6,403,353								
Washtenaw Co. Parks, MI	322,895			•					
Washtenaw Co. Road Commission, MI	354,000	•	•	•		•			
Washtenaw Co. Water Resources Commissioner, MI	354,000					•			
Wayne Co. Department of Public Services, MI	1,775,000	•		•		•			
Ypsilanti Community Utilities Authority, MI	100,000				•	•	•	•	

Bridge Inspections or Scoping	Bridge Design / Rehabilitation	Construction Engineering Services	DWRF/SRF Project Plan	GPS/GIS Mapping	Utility Design	Utility Appurtenance Design or Study	Road Design	Community Planning & Parks	Asset Management	Pavement Management	Treatment Facility Services	Right-of-Way / Easement Acquisition	Large Diameter Pipe Design (>16")	Phase II Storm Water Compliance	Footing Drain Disconnection Program	Municipal Facility Site Design	Survey Services (Topographic & Construction)	Other Services
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Fuller Street Culvert under AMTRAK Rail

ANN ARBOR, MICHIGAN

This was an emergency project with a 36-hour full shut down of the Amtrak rail line to complete the removal and replacement of a failed manhole and various drainage culverts within the slope and beneath the Amtrak rail. The structures are located adjacent to Fuller Street and beneath the Amtrak rail within the City of Ann Arbor, Michigan. OHM Advisors provided engineering design, survey and full construction engineering services. Amtrak safety and construction crews were coordinated with throughout the project duration to complete track removal and replacements, along with a continuous maintenance of a safe work zone. Strict policy was adhered to with regards on site safety briefings provided by Amtrak personnel.

The contractor began by staging all the necessary project materials along the Amtrak right-of-way to facilitate protecting the failed slope and riverbank during the drainage replacement. The new culvert run consisted of two 96-inch diameter structures with 48-inch concrete pipe tapped into the existing stone/block manhole at Fuller Street and terminating with a new rip rap outlet to the Huron River. The slope adjacent to Fuller Street was reconstructed and stabilized with restoration and the entire work site including track ballast, the haul road, and vegetation was improved. Materials testing needs amongst QC and QA parties and coordination by the OHM Advisors project team was a key factor to the timely re-installation of the track and reopening of the rail line.

This project was also a coordinated effort between two adjacent Amtrak projects also beneath the same rail line. Funding partnered between the City of Ann Arbor and the MDOT Office of Rail.

COMPLETION
Design
05.2021
Construction
5.2021

CLIENT INFORMATION
City of Ann Arbor
Troy Baughman
301 E. Huron St
Ann Arbor, MI 48104
734.794.6430 x43798

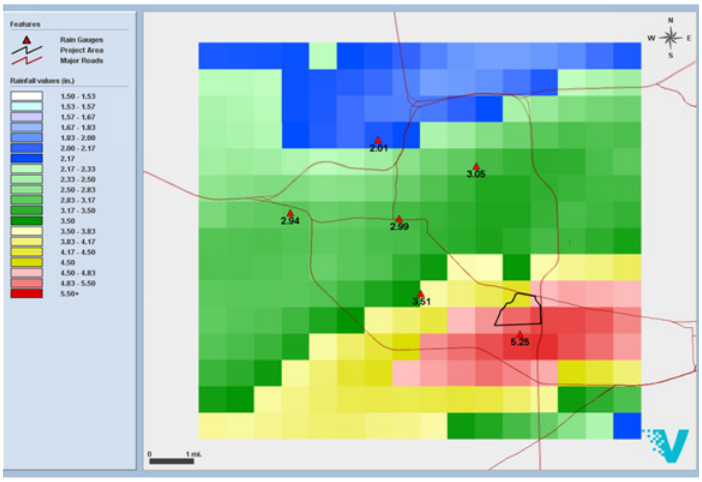
COST
Design
$35,750
Construction
$455,769

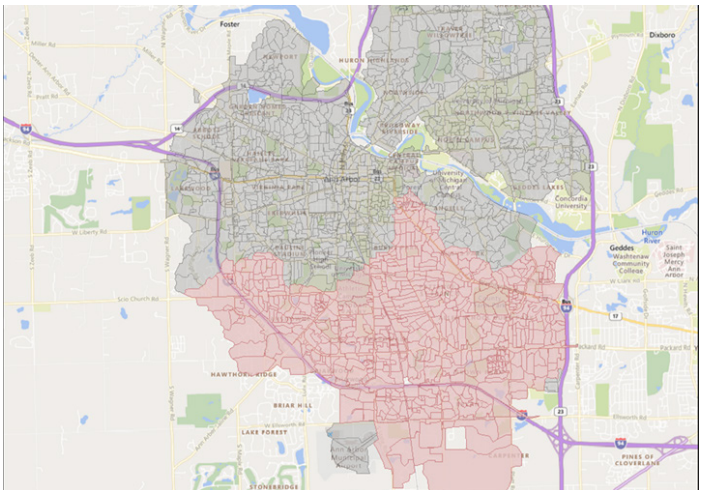
SERVICES PROVIDED
Construction Administration
Construction Engineering
Structural Engineering
Survey

OHM STAFF
G. Tsakoff, F. Payne, A. Rychwalski

June 25, 2021 Storm Event Analysis

ANN ARBOR, MICHIGAN





A large rain event occurred on the evening of June 25, 2021 into the early morning hours of June 26, 2021 resulting in numerous reports of flooding and basement backups throughout Southeast Michigan, including portions of the City of Ann Arbor. The rain was so significant that states of disaster were declared at the local, state, and federal levels. OHM was retained by the City to perform an engineering analysis to better understand the cause of the basement backups and flooding, and to provide recommendations on what could be done to minimize the potential for similar occurrences in the future.

The Pittsfield Village neighborhood was one of the most impacted areas within the City of Ann Arbor. As a part of this project, OHM conducted an interview and field visit with the Pittsfield Village staff to better understand their experiences during the rain event. A public engagement meeting was then held with the residents of the project area to introduce them to the project and project team as well as to learn more about their experiences during the rain event. OHM also conducted a resident survey within the project area to further learn about homeowners' experiences. Maps were created to summarize the survey results.

OHM analyzed the data from the local sanitary sewer flow meters and rain gauges that were in place during the storm. The rain data was used to determine the magnitude of the storm event as well as to understand the spatial variability of rainfall throughout the City. The flow and rain data were used to update the stormwater and sanitary sewer hydraulic models such that they reflected the system conditions during the rain event. Stormwater and sanitary sewer hydraulic modeling was then performed to determine whether these systems performed as expected during the rain event. The models were also used to identify locations for potential improvements. As a result of these analyses, several recommendations were developed for implementation by the City, the residents, and the Pittsfield Village staff to minimize the risk of flooding and basement backups in the future. A second public engagement meeting was held to present the findings and recommendations from the study to the residents.

The City of Ann Arbor plans to proceed with the proposed near-term recommendations from the study. The long-term recommendations will be incorporated into the City's capital improvement plan.

COMPLETION
Study
08.2021 - 04.2022

CLIENT INFORMATION
City of Ann Arbor

Troy Baughman,
Project Manager

301 E. Huron St.
Ann Arbor, MI 48104

734-794-6430 ext. 43798

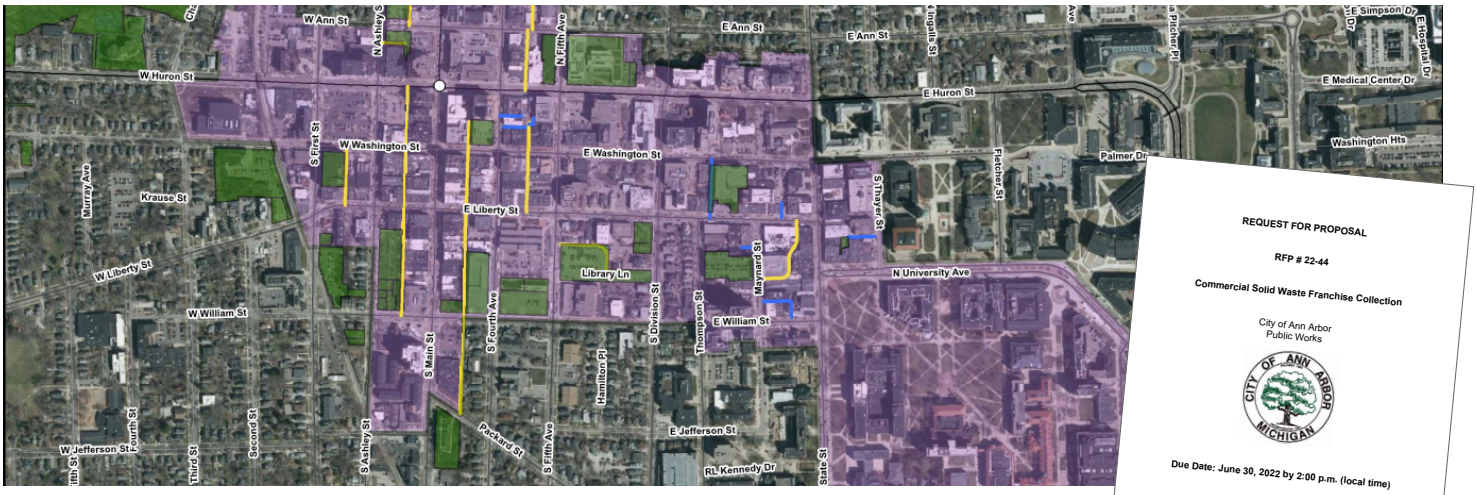
COST
Study
$57,040

SERVICES PROVIDED
Community Engagement
Stormwater Engineering
Wastewater Engineering

OHM STAFF
M. Johnson, R. Czachorski

Solid Waste Department Work Plan and RFP Development Assistance

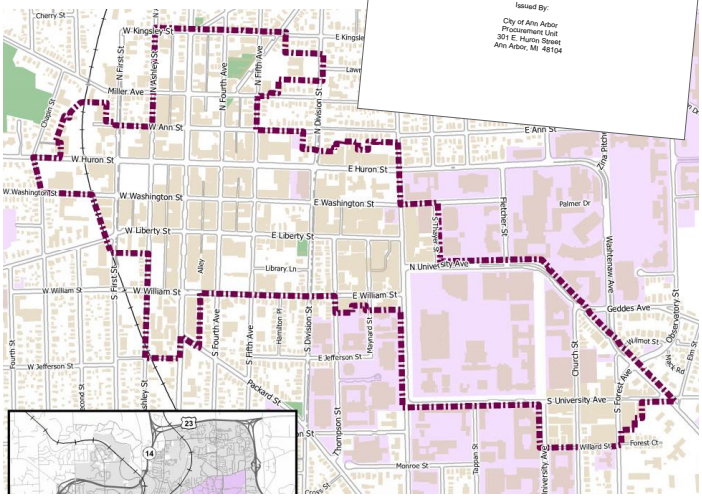
ANN ARBOR, MICHIGAN



The City of Ann Arbor's solid waste programs have evolved over many years as materials management strategies have grown and developed, particularly in the areas of recycling and compost/organics. As these programs have evolved, the collections of the various solid waste materials (trash, recyclables, and compost/organics) have become increasingly complex with City staff and multiple contracted providers performing various aspects of these collections. In 2021, the City contracted with OHM to assist them in preparing adjustments to some of these collection services.

The City, with OHM Advisors' assistance, and discussions with its recycling collections contractor Recycle Ann Arbor (RAA), developed and implemented adjustments to the collection of recyclable materials from most multi-family sites in the City. A key aspect of these adjustments was the shifting away from using 300-gallon "totes" that had been used for several years but had become problematic for both the City and RAA as well as their customers.

OHM also assisted the City in developing a Request for Proposal for their Commercial Solid Waste Collections Franchise prior to the expiration of their existing franchise contract. The RFP incorporated the City's Zero Waste Goals to the greatest extent possible and included extensive and detailed requirements for proposers for their proposals, such as standards for the collection services, container management, billing, customer service, reporting and communication with the City, franchise transition and recurring assessment plans, performance standards, and specific requirements for services in the downtown area.



COMPLETION
Design
3.2021 - 6.2022

COST
Design
$51,373

CLIENT INFORMATION
City of Ann Arbor

Sarah Mason
Resource Recovery Manager

4251 Stone School Road
Ann Arbor, MI 48108

734.794.6350

SERVICES PROVIDED
Municipal Engineering

OHM STAFF
C. Slotten, K. Selter

PASER Condition Rating Services & Asset Management Planning Assistance

ANN ARBOR, MICHIGAN

OHM provides PASER data collection services for the City of Ann Arbor in accordance with the Transportation Asset Management Council (TAMC) requirements for municipal road agencies. Data is collected utilizing the Roadsoft software and associated Laptop Data Collector (LDC) module. OHM conducts extensive QA/QC on the data prior to delivery back to the City. The contract is for data collection every other year through and including 2025.

OHM also assists the City with the evaluation of the data, pavement condition forecasting, and capital improvement planning. These services were included as an amendment to the original data collection contract.

COMPLETION
Design
7.2021 - 12.2025

CLIENT INFORMATION
City of Ann Arbor

Nick Hutchinson,
City Engineer

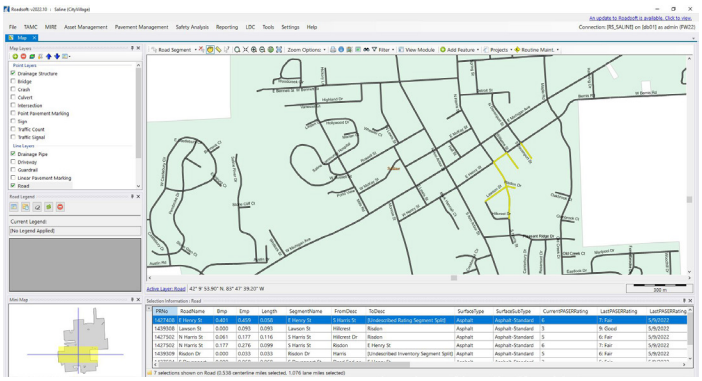
301 E Huron, 4th Floor
Ann Arbor, MI 48104

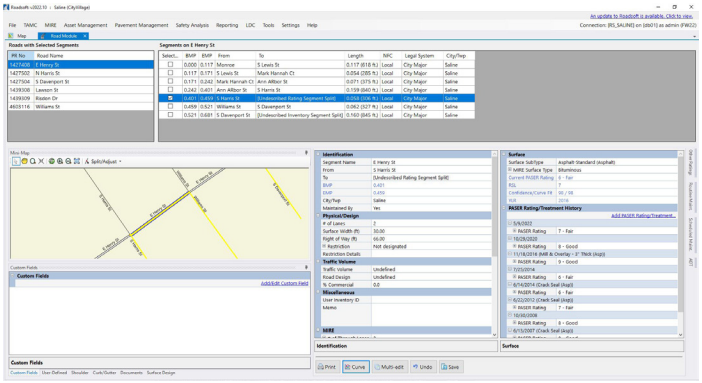
734.794.6000

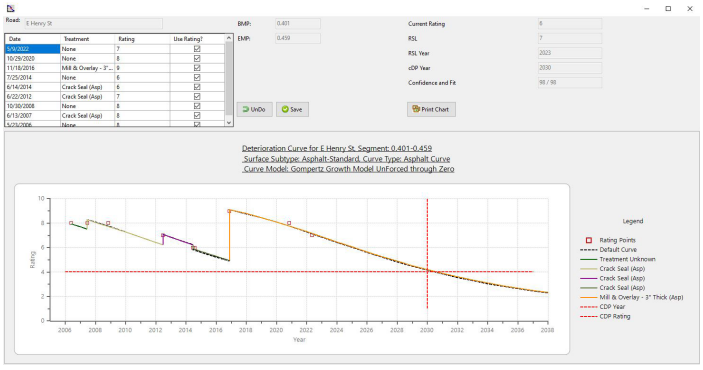
COST
Design
$75,000

SERVICES PROVIDED
Planning

OHM STAFF
M. McNamara, T. Lentner







Allen Creek Flood Control

ANN ARBOR, MICHIGAN

OHM Advisors teamed with Bergman Associates (Prime firm) to design the largest flood control project in Ann Arbor's history, a $9 million project to install an emergency flood weir on the north side of downtown Ann Arbor. During the study phase of this project OHM and Bergman assisted the City with securing over $6 million in grant funding from various sources, including FEMA, MDOT, SEMCOG, and MDNR.

The project included the installation of a weir and culvert under an existing MDOT/Amtrak rail, draining a heavily urbanized 5.5 square mile watershed. The 100-year floodplain depth in the vicinity of the project, previously 9-10 feet deep, was reduced to a maximum of 3 feet; vastly reducing flood risk in the area and reducing flood insurance premiums for dozens of property owners near the project.

The investment in flood control was leveraged with a key pedestrian connection. In addition to the flood control culvert, a pedestrian tunnel was constructed under the railroad, safely connecting downtown Ann Arbor with the B2B Trail.

This work required careful coordination with adjacent property owners and MDOT (railroad owner). The culvert and pedestrian tunnel installation were installed during a 36-hour around-the-clock construction session, during which the railroad was temporarily closed and the culvert/tunnel sections were dropped into place. The railroad was replaced in time for Amtrak service to resume the next day.

OHM's key role on the project was modeling and designing the hydraulic components of the project, including the weir, culvert, nearby flood control walls, and other drainage components. OHM also secured necessary permits (EGLE) and worked with FEMA to secure a Letter of Map Revision (LOMR) to officially revise the floodplain. OHM also provided topographic survey and prepared all necessary easements.

COMPLETION

Study
10.2012 - 04.2013

Design
01.2017 - 06.2019

CE + Construction
04.2020 - 11.2020

COST

Study
$50,000

Design
$600,000

CE + Construction
$9,000,000

CLIENT INFORMATION

Bergman Associates for City of Ann Arbor

Jeremy Hedden,
Project Manager (Bergman)

7050 W. Saginaw Hwy. #200
Lansing, MI 48917

517.827.8684

SERVICES PROVIDED

Community Engagement
Stormwater Engineering
Survey

OHM STAFF

G. Kacvinsky

Landfill Scale Contract Administration/ Construction Engineering

ANN ARBOR, MICHIGAN

OHM Advisors was contracted by the City of Ann Arbor Public Works Unit to provide contract administration and construction engineering services for a project designed by others.

The proposed scale installed at the location of the former landfill in Ann Arbor is from an entrance/exit to Platt Road, south of Ellsworth Road, and will now serve as a scale for three separate City solid waste facilities. These include waste transfer, materials recovery, and compost. The City will also use this scale for weighing materials such as sand, salt, gravel, and aggregate that may be used as part of ongoing City maintenance operations.

OHM Advisors provided the following:

- Reviewed shop drawing submittals for relevant project materials.
- Coordinated with the City Public Works Unit and Contractor's Superintendent throughout the project.
- Coordinated bi-weekly progress meetings with the City and Contractor during the course of the project. Meetings were held in the field due to the nature of the project scope.
- Made recommendations for payment from the City to the contractor, based on approved quantities.
- Provided construction staking services for site improvements and site changes including field re-design of the entrance/exit lanes to accommodate 70' trucks.
- Provided a field measured drawing of as-built conduit and changes from the proposed plans. GPS coordinates were obtained by OHM Advisors in the field for this purpose.
- Performed daily construction observation/inspection of the site work by the contractor.
- Provided spot check oversight of the installation of the communications and electrical system for the gated entrance in coordination with the City IT Department.
- Provided field engineering support as required to the daily inspector for field issues that arose, and for communication with the City.
- Provided daily inspection reports consistent with a format agreed upon by the City and OHM.
- Performed project walkthrough for punch list purposes, and provided follow-up inspection with the contractor to verify that all items were completed for final payment.
- Through a geotechnical subconsultant, provide material testing where necessary to verify backfill compaction and pavement quality control.

COMPLETION

CE
4.2020 - 12.2020

Construction
5.2020 - 11.2020

CLIENT INFORMATION
City of Ann Arbor

Molly Maciejewski,
Public Works Unit Manager

4251 Stone School Rd
Ann Arbor, MI 48108

734.794.6350

COST

Construction
$1,900,000

SERVICES PROVIDED
Construction Administration
Construction Engineering

OHM STAFF
G. Tsakoff, P. Maly,
A. Schripsema. A. Rychwalksi,
C. Elenbaas[1]

[1] as City of Ann Arbor employee

Ann Arbor Streetlight Inventory

ANN ARBOR, MICHIGAN

The City of Ann Arbor partnered with OHM Advisors to evaluate the condition of its network of more than 2,100 streetlights throughout the city. Our team created a customized rating system to efficiently quantify both the overall condition of the assets, and the condition of the streetlights' individual components. OHM Advisors utilized Trimble TerraFlex & ESRI's ArcGIS Online to create a custom data collection form and tracking tool, which was used by our field staff on a tablet. Using these tools, our field team performed an extensive evaluation on nearly 1,500 community streetlights and took over 8,500 photographs of the assets and their internal components.

With data collection complete, we evaluated the ratings of the inventoried assets and rated the remaining, non-inventoried streetlights based on those inventoried nearby. Using data-driven criteria based on industry standards, we calculated the remaining life for the city's luminaires, poles, foundations and wiring, and provided a comprehensive assessment report that guided the City in its planning for future streetlight repair and replacement.

COMPLETION
Design
01.2017 - 06.2017

CLIENT INFORMATION
City of Ann Arbor
Cyrus Naheedy, PE,
Transportation Engineer
301 E. Huron Street, 4th Floor
Ann Arbor, MI 48104
734.794.6410 x43645

COST
Design
$143,296

SERVICES PROVIDED
GIS Services
Municipal Engineering

OHM STAFF
G. Tsakoff, K. Selter, S. Knepper, C. Elenbaas[1]

[1] as City of Ann Arbor employee

Ann Arbor WWTP Tertiary Clearwells Improvements

ANN ARBOR, MICHIGAN

The City of Ann Arbor's project goal was to meet the NPDES dissolved oxygen (DO) requirement and rehabilitate or improve the deteriorated structural and process elements within the tertiary filter clearwells. The structure is over 40 years old and the City observed inconsistencies in the DO levels at the WWTP effluent.

OHM Advisors identified that the purpose of the clearwells had changed over the years. The clearwell air piping and diffusers are integral elements to maintain adequate dissolved oxygen (DO) in the plant effluent. The original design also used the existing diffuser arrangement, along with the masonry partition wall, to mix chlorine solution into the Tertiary Effluent prior to discharge to the Chlorine Contact Tank. Plant Effluent is now disinfected with UV light, so chlorine solution addition and mixing are no longer necessary.

OHM proposed to study and design the clearwell improvements system to provide a more energy efficient and less costly approach focusing on the redesign of the aeration system and the needed oxygen transfer.

The project commenced with confined space entries into each of the clearwells to assess the structural and process elements including:

- Concrete walls, columns and ceiling, and the concrete block baffle walls.
- Quantify units for any repair or rehabilitation of the concrete such as crack repairs or spalling concrete.
- Access required for demolition and construction.
- Other equipment within the clear wells such as piping, gates, coatings and pressure relief valves.

The alternatives analysis and preliminary design included:

- Creating a DO sampling plan for WWTP staff to take additional measurements to develop the DO sag curve. This information was used to develop aeration equipment criteria.
- A discussion of the range of potential baffle wall materials identifying cost, ease of installation and longevity concerns.
- Aeration diffusers and potential alternate installation locations that could increase efficiency or improve access for maintenance.
- Coordination with WWTP staff for blower operations and monitoring of the DO levels.

The final design included:

- Geotechnical investigations to determine the presence of ground water. Dewatering flows were estimated for the removal and replacement of the pressure relief valves in the base slab.
- Structural analysis of the impact of varying heights of groundwater on the clearwell structure and base slab.
- Details of structural repairs performed on a unit price basis.
- Enlargement of access ways for construction activities.
- Details of process equipment.
- Coordination of WWTP operations and construction activities.

COMPLETION

Design
02.2020 - 03.2021

Construction
10.2021 - 12.2022

COST

Design
$133,000

Construction
$1,335,000

CLIENT INFORMATION
City of Ann Arbor

Anne Warrow, PE,
WWTP Engineer

49 Old Dixboro Rd
Ann Arbor, MI 48105

734.794.6450

SERVICES PROVIDED
Construction Administration
Wastewater Engineering

OHM STAFF
J. Drinan

Stormwater & Wastewater AMP

COMPLETION
Design
2016 - 2019

CLIENT INFORMATION
City of Ann Arbor

Jennifer Lawson
Systems Planning Unit

301 E. Huron Street
Ann Arbor, MI 48104

COST
Grant Budget
$1,170,000

SERVICES PROVIDED
Asset Inventory
Condition Assessment
Remaining Life Determination
Life Cycle Cost Analysis
Level of Service Assessment
System Criticality Assessment
O&M Optimization
CIP Development
AMP Development

OHM STAFF
M. Ulasir, S. Knepper,
C. Elenbaas[1]

[1] as City of Ann Arbor employee

30” PCCP Emergency Leak Response

COMPLETION
Field Assistance
2022

CLIENT INFORMATION
City of Ann Arbor

Troy Baughman
Systems Planning Unit

301 E. Huron Street
Ann Arbor, MI 48104

COST
Field Assistance
$16,000

SERVICES PROVIDED
Emergency Field Response
Condition Assessment

OHM STAFF
C. Elenbaas

Northside Interceptor Condition Assessment

COMPLETION
Assessment
09.2017 - 11.2017

CLIENT INFORMATION
City of Ann Arbor

Paul Matthews,
Public Works Unit Area

4251 Stone School Road
Ann Arbor, MI 48108

COST
Assessment
$53,000

SERVICES PROVIDED
Pipeline Condition Assessment
Manhole Condition Assessment
Surveying Drone

OHM STAFF
G. Tsakoff, K. Selter,
C. Elenbaas[1]

[1] as City of Ann Arbor employee

2021 Streetlight Replacement and Painting

COMPLETION
Design
2021
Construction
2022-2023

CLIENT INFORMATION
City of Ann Arbor

Cyrus Naheedy
Transpportation Engineer

301 E. Huron Street
Ann Arbor, MI 48104

COST
Design
$135,000
Construction
$1,179,000

SERVICES PROVIDED
Engineering Design
Electrical Engineering
Contract Administration
Construction Engineering

OHM STAFF
G. Tsakoff, C. Slotten, K. Selter, M. Cousins, P. Maly, C. Elenbaas[1]

[1] as subcontractor at other firm

Recent General Modeling Assistance

COMPLETION
Design
2021-2023

CLIENT INFORMATION
City of Ann Arbor
Troy Baughman
Systems Planning Unit

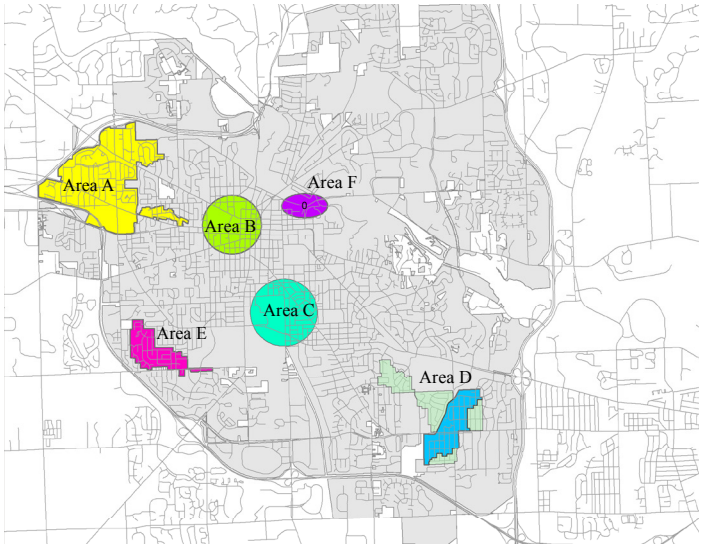
301 E. Huron Street
Ann Arbor, MI 48104

COST
Design
$27,000

SERVICES PROVIDED
Hydraulic Modeling
Capacity Assessment
Alternative Evaluation
Preliminary Engineering

OHM STAFF
M. Johnson, R. Czachorksi

(Dover Ct. Flooding, 1630 Waltham Flooding, Austin Avenue Sanitary Study, Etc.)



Arbor Hills Booster Station Demolition

COMPLETION
Design
05.2020 – 09.2020
Construction
12.2020 – 09.2021

CLIENT INFORMATION
City of Ann Arbor

Troy Baughman
Systems Planning Unit

301 E. Huron Street
Ann Arbor, MI 48104

COST
Design
$18,200
Construction
$13,500

SERVICES PROVIDED
Site Design
Contract Administration
Construction Engineering

OHM STAFF
G. Tsakoff, K. Selter

Novi Sanitary Sewer Pipe & Manhole Rehabilitation

NOVI, MICHIGAN

In 2018, OHM Advisors assisted the City of Novi with an analysis of its sanitary sewer system as a part of the Stormwater, Asset Management, and Wastewater (SAW) Grant provided by the Department of Environment, Great Lakes, and Energy (EGLE). The analysis included televising a majority of the sanitary sewer pipes and about half of the manholes within the study area. The study area included GPS locating and condition assessment of approximately 450,000 feet of 6"-18" sanitary sewer and 1,300 structures throughout the City.

The condition of the pipes and manholes was assessed through review of the inspection videos and record drawings. Based on in-depth condition assessment and deterioration forecasting, a phased capital improvement plan was created containing rehabilitation recommendations and estimated costs for both sanitary sewer pipe and manholes identified as needing repair. The most urgent areas to rehabilitate were included in this initial phase.

With the capital improvement plan in place, OHM Advisors assisted the City of Novi with the preparation of contract documents for bidding and providing full-time construction engineering, administration and observation services in order to complete the recommended rehabilitation for Phase 1.

The rehabilitation project included a combination of the following major work items for sewers and structures in both greenbelt areas and within paved surfaces.

Manholes:

- 180 structures - minor/major point repairs, partial & full depth rebuilds, and adjustments
- 390 vft of structure lining
- 350 gallons of structure and pipe connection grouting

Sewer:

- 90 feet of 8"-10" open cut point repairs over multiple locations
- 125 each of 8"-12" pipe joint grouting
- 85 each of 8"-12" sewer spot liners
- 8,200 feet 8"-12" full-length CIPP liners
- Miscellaneous lateral connection grouting and repair

COMPLETION

Design
05.2019 - 12.2019

Construction
09.2020 - 12.2020

CLIENT INFORMATION
City of Novi

Ben Croy,
Water & Sewer Manager

45175 W. Ten Mile Road
Novi, MI 48375-3024

248.735.5635

COST

Design
$41,550

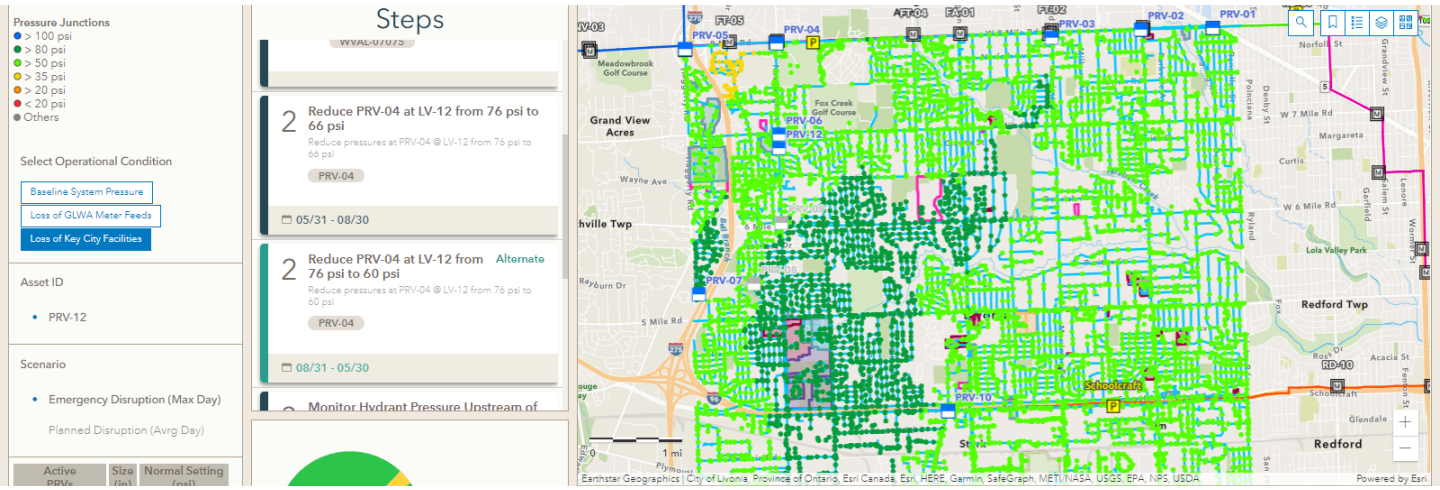
Construction
$1,100,000

SERVICES PROVIDED
Wastewater Engineering

OHM STAFF
G. Tsakoff, M. Johnson

Enhanced Emergency Response Plan

LIVONIA, MICHIGAN



The City of Livonia, Michigan has experienced more severe water system failures with the normal aging of their assets, resulting in chaos for the City operators, administrators, and residents. The City sought improved protocols to reduce the impact of these emergencies. The City took advantage of the America's Water Infrastructure Act (AWIA) EPA requirements, calling on OHM to assist in the development of an enhanced Emergency Response Plan.

Emergency scenarios were developed with the City, including the loss of master meter feeds, loss of key City facilities, and the loss of key Great Lakes Water Authority (GLWA) facilities that would impact the City's system. A hydraulic analysis for each of these scenarios was completed using Innovyze's InfoWater software. The impacts of these scenarios were analyzed and the recommended system changes to counteract the asset failures were documented.

Our experts in water resources and geographic information system (GIS) mapping took an innovative approach to documenting the protocol for the numerous scenarios that were modeled. Instead of a typical paper report and hundreds of maps, OHM utilized ArcGIS Dashboard to create an interactive environment the City could use to help guide them in an emergency scenario. The interactive dashboard displays the City's water system including water main, valves, hydrants, vertical facilities, critical users, and GLWA's facilities. The City can select which scenario they would like to view and step-by-step guidance for that scenario will appear along with the resulting impacts to system pressure. The step-by-step guidance provides details on which system changes need to be made to counteract the failure. Each step that is related to a City asset will display the respective asset's location in the field. The final step identifies the critical customers impacted by the system changes; the system provides the option to generate an automated email populated with the critical customers' contact information and appropriate text warning the customers of potential service disruptions.

COMPLETION
Design
3.2021 - 12.2021

CLIENT INFORMATION
City of Livonia

Jacob Rushlow, PE,
Asst. Director of Public Works

12973 Farmington Road
Livonia, MI 48150

734.466.2606

COST
Design
$33,500

SERVICES PROVIDED
Asset Management
Drinking Water Engineering
GIS Services
Planning

OHM STAFF
S. Knepper

Novi DPW Asset Data Collection

NOVI, MICHIGAN

Like many municipalities across the region, the City of Novi (City) developed their Utilities Geographic Information System (GIS) based off digitized as-built record drawings and GPS data from unknown or undocumented sources. Over the years, City staff has utilized available as-built plans to update the existing GIS for these infrastructure systems, but most of the assets have not been accurately located using high-accuracy GNSS (Global Navigation Satellite Systems). With the City starting to rely heavily on the GIS for Capitol Improvement Planning, DPW Maintenance Programs, and general inventory, it is imperative that the Utility Networks in GIS are updated with accurate attribute information and accurate spatial information, as well as key metadata tagged on each feature.

In the Summer of 2020, we started collecting location and attribution information on the City's Water Distribution, Sanitary Sewer, and Stormwater Sewer. We were eager to get started on this project as we have completed many large-scale projects of this nature in the region over the last couple of years.

Based on the existing GIS database obtained from the City, we estimated that approximately 42,500 assets needed to be surveyed over a 31 square mile area. Attributes included rim elevation for all assets, pipe diameter, invert, and pipe direction for the sanitary and stormwater. Assets to be surveyed included hydrants, water system valves, residential service valves, stormwater manholes and inlets, culverts, and sanitary sewer manholes and lift stations.

Using ArcGIS Online, Esri Mobile Mapping Applications, and Eos Positioning Systems Arrow Gold Receivers; our project team of field technicians and GIS experts were able to complete the massive data collection project in just over a year. Starting in June 2020, our GIS team developed a method to track progress, document missing features, collect high-accuracy GNSS locations (2-cm horizontal and vertical accuracy with the Eos Arrow Gold), attribute a wide variety of features efficiently, and collaborate with the Client. Using ArcGIS Online Dashboards, we were able to stay informed with what was happening in the field and keep the Client up to date as well with a custom Dashboard designed for them to check-in on our progress. At any given time, six teams of two technicians were deployed in the field. Using the latest GIS

technology and field data collection methods, our technicians were able to stay on task and organized.

With the project now complete and all data delivered, City GIS staff is updating the networks with high-accuracy GNSS feature location and asset attribution. Once complete, users of the City's GIS will be confident in the completeness and accuracy of the City owned systems.

COMPLETION
Design
07.2020 - 06.2021

CLIENT INFORMATION
City of Novi

Ben Croy,
City Engineer

45175 W 10 Mile Rd,
Novi, MI 48375

248-735-5640
bcroy@cityofnovi.org

COST
Design
$500,000

SERVICES PROVIDED
GIS Services

OHM STAFF
M. Cousins

Prospect Road Pathway

WASHTENAW COUNTY, MICHIGAN

OHM Advisors (OHM) was contracted by the Charter Township of Superior and Washtenaw County Road Commission to provide engineering design, plan preparation, easement legal description preparation, and contract administration and construction engineering services for construction of an ADA compliant 10-foot-wide asphalt pathway and 14-foot-wide timber boardwalk. The project also included fire hydrant relocation, water main exploratory excavation, franchised utility coordination, and site restoration. The constructed pathway completes a gap in the non-motorized transportation network along the east side of Prospect Road between Berkshire Road and Geddes Road and is approximately 1,900 LF.

The pathway is routed within public road right-of-way or acquired easements and included crossing one storm sewer drain. Coordination with a senior living center was required to ensure access for residents could be maintained to the facility. In addition, the water main was shut down to relocate fire hydrants to provide an appropriate clear zone for the pathway and the Contractor was able to accommodate a night shut down as requested by the community, so that there would be less disruption to service. Wetlands were delineated as part of this project and a boardwalk was proposed to avoid impact to these adjacent natural features.

The project was awarded funding through the SEMCOG TAP grant program and was advertised through the MDOT bid letting system. As the local Act 51 agency, the WCRC supported the project and construction services were administered through the County office. Coordination with various MDOT offices to follow LAP program requirements was also necessary and included approvals from NEPA and SHPO.

COMPLETION

Design
4.2019 - 2.2021

Construction
7.2021 - 7.2022

CLIENT INFORMATION

Washtenaw County Road Commission

Aaron Berkholz, PE,
Engineer

555 N. Zeeb Road
Ann Arbor, MI 48103

734.327.6648

Superior Township

Ken Schwartz
Township Supervisor

734.482.6099

COST

Design
$75,000

Construction
$778,000

SERVICES PROVIDED

Construction Administration
Construction Engineering
Survey
Transportation Engineering

OHM STAFF

K. Selter, A. Rychwalski

Pepper Pike Stream Stabilization

WASHTENAW COUNTY, MICHIGAN

OHM Advisors provided design and CACE services for the Washtenaw County Water Resources Commissioner (WCWRC) to restore a 1,000-foot reach of Pepper Pike Stream in Ann Arbor, part of the Millers Creek watershed. This project was deemed necessary due to excessive erosion in the drainage channel and was included in the WCWRC's recent State Revolving Fund Project Plan.

The preliminary design phase consisted of gathering detailed information for the reference reach to establish appropriate criteria for the proposed Pepper Pike channel design. The information gathering included a detailed survey of the reference reach, detailed hydraulic modeling of the existing Pepper Pike channel conditions, and the evaluation of multiple stream cross section alternatives to determine the most appropriate design to satisfy the Michigan Department of Environment, Great Lakes and Energy's natural stream design criteria as well as controlling flow velocities in order to provide a sustainable design.

The final design and construction included the relocation of the stream channel to restore floodplain access for the stream and improve access in other areas. Native vegetation was also established to improve the riparian corridor for wildlife habitat.

OHM's services also included topographic survey, tree survey, wetlands evaluation, preparation of easement documents, EGLE/USACE joint permit application, and the development of final plans and specifications for bidding, including the development of an opinion of probable construction cost, and CACE services. Project bidding occurred in May 2019 and construction was completed in the fall of 2020. OHM is providing five years of post-restoration monitoring assessments and reporting for WRC.

The project, as designed, will enhance public safety, improve water quality and wildlife habitat.

COMPLETION

Design
7.2018 - 7.2019

Construction
4.2020 - 11.2020

CLIENT INFORMATION
Washtenaw County Water Resources Commissioner

Harry Sheehan,
Chief Deputy Commissioner

705 N. Zeeb Road
Ann Arbor, MI 48103

734.222.6851

COST

Design
$154,000

Construction
$600,000

SERVICES PROVIDED
Construction Engineering
Ecological Services
Funding
Survey

OHM STAFF
G. Kacvinsky, S. Huddas

Farmington Hills Temporary Pump Station

FARMINGTON HILLS, MICHIGAN

As a subcontractor to HDR for the Great Lakes Water Authority (GLWA) Linear System Integrity Program, OHM Advisors provided emergency design, hydraulic analysis, permitting and startup for the installation of a 1,600 gpm temporary water booster station in the City of Farmington Hills.

To increase overall system resiliency and manage risk of pipe failure, GLWA and its member partners executed a water system pipeline renewal project for the existing 48-inch and 54-inch 14-mile-long Prestressed Concrete Cylinder Pipe (PCCP) transmission main along the borders of the City of Farmington Hills and West Bloomfield Township.

The rehabilitation process required elimination of three primary water feeds to City of Farmington Hills for over two months, resulting in the inability to meet pressure requirements. OHM led the efforts to design a temporary pump station that reversed normal flow patterns and allowed the City to supply water from one of their alternate GLWA feeds. The pump station was designed with three diesel direct-drive centrifugal pumps and a control system that could be monitored by the Oakland County Water Resource Commissioner (WRC).

Due to availability issues associated with the unique project requirements, OHM coordinated the use of pumps typically designed for large scale dewatering. Additional challenges included addressing rare permitting requirements, cold weather installation and addressing surge concerns due to the high velocities required within the existing piping system.

COMPLETION

Design
5.2022 - 12.2022

Construction
12.2022 - 4.2023

CLIENT INFORMATION
City of Farmington Hills

Karen Modora, PE
Director of Public Services

31555 Eleven Mile Road
Farmington Hills, MI 48336

248.871.2530

COST

Design
$68,700

Construction
$400,000

SERVICES PROVIDED
Drinking Water Engineering

OHM STAFF
C. Elenbaas

Riopelle Streetscape; I-75 to Division Street

DETROIT, MICHIGAN

Under the City of Detroit's 5-year Program Management Contract which began in 2018 and strives to improve and transform several of the city's prominent roadways, OHM was tasked with designing improvements to the Riopelle Streetscape to transform this roadway into an asset for the City. Located in Eastern Market, the desire was to transform the street — which had previously serviced industrial and support services, ranging from storage warehouses to meat processing facilities — into an engaging public space. Over the past decade, the market area had started to convert from industrial to commercial and residential use and this trend was in full swing on Riopelle Street.

The project entailed reconstruction of all sidewalks with decorative paved walkways and new compliant ADA ramps. The southern two blocks of the project were designed to provide a flex-street, which features a narrow roadway with flush curbs and sidewalk to allow the street to transform into a pedestrian plaza during social events held by the local businesses and Eastern Market. On-street parking was delineated with new parking stall markings and decorative sidewalk bumpouts at the intersections. New decorative street lights and overhead festoon lighting were installed to provide a festive lighting plan for the flex street. At the northern end of the project, the roadway improvements included revising the Shed No. 3 parking lot to provide aesthetic and landscape features to improve the look and feel of the area consistent with other improvements undertaken along Russel Street and Market Street within Eastern Market.

COMPLETION
Design
6.2018 - 3.2019

CLIENT INFORMATION
WSP for City of Detroit

Benjamin Stupka,
Sr. Transportation Planner

500 Griswold St, Ste 2600
Detroit, MI 48226

313.963.2814

COST
Design
$119,000

SERVICES PROVIDED
Electrical Engineering
Landscape Architecture
Survey
Traffic Engineering
Transportation Engineering

OHM STAFF
S. Huddas, A. Schripsema

Charlevoix New Public Services Facility

CHARLEVOIX, MICHIGAN

The City of Charlevoix desired a new facility to house both the Electrical and Public Works Departments at the location of the current Electrical Department site within the city. The initial conceptual design and site selection was previously performed by Northwest Design Group, and OHM was later awarded the design work necessary for bidding and construction documents. The existing building at the site was recommended to be removed and replaced with a new larger facility to serve both departments.

The new site plan included space for heated and cold storage buildings, parking areas, salt storage, and outdoor storage. The new buildings included office areas, maintenance and work spaces and vehicle storage. Many green initiatives were incorporated into the site and building designs, including water conserving measures, building automation, increased insulation, increased stormwater detention, and green vehicle parking/charging station locations. The City was very interested in designing with LEED principles in mind, and OHM was able to offer a multitude of energy saving solutions and products that met the City's goals.

COMPLETION

Design
1.2018 - 9.2019

Construction
10.2019 - 12.2020

CLIENT INFORMATION

City of Charlevoix

Mark Heydlauff,
City Manager

210 State Street
Charlevoix, MI 49720

231.547.3270

COST

Design
$526,700

Construction
$10,852,000

SERVICES PROVIDED

Architecture
Construction Administration
Electrical Engineering
Mechanical Engineering
Municipal Engineering
Plumbing Design
Site Design
Structural Engineering

OHM STAFF

C. Ozog, A. Porath, S. Tabacsko

Baker Road Intersections Reconstruction

WASHTENAW COUNTY, MICHIGAN

The Washtenaw County Road Commission, in cooperation with the City of Dexter and Scio Township, planned to reconstruct the Baker Road intersections at Shield Road and Dan Hoey Road as single-lane roundabouts. WCRC and the City of Dexter performed a Baker Road Intersection Improvement Study that was completed by OHM in June 2016. These intersections serve as a gateway to downtown Dexter, provide direct access to Dexter High School and five other school facilities, and feed several residential, commercial, and industrial destinations.

This project involved reconstructing two intersections (one with stop control, one with signal) each as modern roundabouts. The project is 0.30 miles in length and included the addition of sidewalk, drainage improvements, green infrastructure, and streetlighting. This project also included stormwater management and utility coordination.

The switch to roundabouts helped improve traffic flow while enhancing safety in a growing area that consists of numerous schools and an industrial park. OHM Advisors worked with the WCRC to ensure the right-of-way/easement acquisition and utility relocation did not delay the project, and worked with the schools and stakeholders to understand their hot button issues and project constraints.

COMPLETION

Design
04.2017 - 12.2017

Construction
03.2018 - 09.2018

CLIENT INFORMATION
Washtenaw County Road Commission

Matt MacDonell, PE
Director of Engineering

555 N. Zeeb Rd.
Ann Arbor, MI 48103

734.327.6688

COST

Design
$159,973

Construction
$1,370,000

SERVICES PROVIDED
Stormwater Engineering
Traffic Engineering
Transportation Engineering

OHM STAFF
A. Schripsema, B. Ardanowski

Briarwood Ponds Retrofit Study

WASHTENAW COUNTY, MICHIGAN

OHM Advisors worked with the Washtenaw County Water Resources Commissioner (WCWRC) to evaluate retrofits to four large detention ponds along the perimeter of the Briarwood Mall in Ann Arbor, Michigan. The existing ponds serve a drainage area of 1.2 square miles at the headwaters of the Mallet's Creek watershed, but they are underutilized during storm events.

Our project team revealed that there is over 1.4 million cubic feet of unused storage volume in the detention ponds, with the potential to decrease peak flows for various storm events, even up to the 100-year storm. The existing ponds were designed and built decades ago, and the outlet structures were not originally designed to address water quality or downstream channel protection; instead, most flows pass through the existing detention ponds with minimal detention storage or peak flow control.

The OHM team evaluated the detention ponds using the City of Ann Arbor's SWMM-based model and determined that the outlets could be modified to drastically reduce peak flows for frequent events, such as the first flush (1-inch), one-year, and two-year storms. This would help to provide extended detention and further enhance stormwater quality in the Mallet's Creek watershed.

The recommended retrofits will, if implemented, fully utilize the existing storage volume in the ponds and reduce the bankfull (two-year) peak flow by nearly 60 percent and the 100-year peak flow by nearly 25%.

COMPLETION
Design
Study 2.2018 - 3.2019

CLIENT INFORMATION
Washtenaw County Water Resources Commissioner

Harry Sheehan,
Chief Deputy Commissioner

705 N. Zeeb Road
Ann Arbor, MI 48103

734.222.6851

COST
Design
Study $39,500

SERVICES PROVIDED
Community Engagement
Stormwater Engineering

OHM STAFF
G. Kacvinsky

SECTION C: PROPOSED WORK PLAN

C.1 Our Understanding & Approach

The City's Public Works and Systems Planning Units strive to provide residents with high quality services that generally go unnoticed in daily life. These groups are responsible for the critical infrastructure that many take for granted including roads, water distribution, stormwater conveyance, sanitary collection, solid waste, and the urban forest. Whether it's a planned project, or a sudden emergent need, the City requires a consultant under this contract to provide a unique set of skills and expertise, as well as diversity amongst its technical disciplines, with an absolute commitment to teamwork, sharing, and responsiveness.

OHM Advisors is uniquely suited for this contract because we provide a diverse, highly qualified, and motivated team of engineers, architects, and planners, all under an organizational structure and culture which promotes innovation, efficiency, and exceptional service to our clients. This allows OHM Advisors to build longstanding relationships with our clients, as partners in their ongoing efforts to provide a high level of public service to their community. We look forward to following this model of success and continuing our positive relationship with the City of Ann Arbor Public Works and Systems Planning Units. The following sections describe how OHM Advisors intends to provide the professional services described in the RFP.

Scope of Services

There is a wide array of professional services that may be required as part of this contract with the City as noted in Section II of the RFP, all which OHM Advisors is qualified and extremely experienced in providing to our municipal clients. These services include civil engineering, environmental engineering, mechanical & electrical engineering, structural engineering, surveying, building architecture, landscape architecture, and planning for municipal related infrastructure and facilities. The type of efforts that may be required from these disciplines include project management, engineering and alternatives analysis, hydraulic modeling, condition assessments, traffic studies, preliminary/final design, technical specifications, cost estimates, permitting assistance, capital improvement planning, topographic and boundary surveys, easement documents, contract and construction administration, and field services related to constructed improvements. Our ability to meet the City's needs in these service areas is described in detail below:

- **Engineering and architectural services** provided by OHM Advisors under this contact may span all our relevant disciplines to support the City's needs. This includes municipal and civil engineering, environmental and water resources engineering, mechanical and electrical engineering, transportation and structural engineering, and traffic engineering, as well as building facility architecture and landscape architecture services.
- OHM Advisors may help City staff **respond to utility infrastructure emergencies**. Our flexible team lives near the City and is available to assist with responding to the unexpected. The engineering and construction staff identified in this proposal have been involved in numerous unique projects that required quick, but well decisioned response across Southeast Michigan.
- OHM Advisors may **provide condition assessment** of the various assets maintained by the City. This includes coordinating and reviewing sewer inspection data, collecting water asset data, analysis of street trees, developing a detention pond inspection program, or organizing data for management within the City's GIS systems.
- OHM Advisors may **complete topographic surveys** as part of this contact. Survey base drawings would be prepared in the most current version of the City's template utilizing AutoCAD Civil 3D 2023 (or the saved version requested by City). Topographic surveys would include a complete base drawing with all necessary surface features and utility information required for detailed design of a specific capital improvement. Other potential survey tasks could be boundary surveys, title searches, easement sketches and descriptions, and construction staking.
- OHM Advisors may **prepare bidding documents and construction plans** during this contract, to include necessary permitting through relevant agencies, analysis of design alternatives, specifications, and cost estimating as part of the design phase effort.
- OHM Advisors may **prepare reports and/or studies** across various disciplines during this contact, such as hydraulic network analysis, stormwater/wastewater collection system modeling, floodplain mapping assistance, pavement analysis, traffic modeling and studies, solid waste reports and studies, and facility condition assessments.
- OHM Advisors may **prepare capital improvement plans** during this contract, as required by the City Capital Improvement Program and EGLE. Services would include assisting in the establishment of project scope, preparation of cost estimates, and construction schedules.

- OHM Advisors may **provide construction administration and observation services** during the installation of capital improvements. These services would include items such as coordinating and/or attending pre-construction meetings, full-time field observation, shop drawing review, progress reports, daily inspection reports, coordination and/or supervision of material testing performed by others, recommendations for progress payment, final inspections and measurements, review of change order documents, and record set plan preparation.

Project Approach

Although this contract could result in various project tasks across multiple disciplines of engineering and consulting services, OHM Advisors is committed to providing a project approach that will put the right people in place for any specific task, which will help to promote quality and efficiency. The following items detail our approach to support the City:

- Always **visit the project site or facility** to review the possible constraints or advantages as it relates to the proposed improvements. Utilize this knowledge to plan out the early stages of the project in the most effective manner possible.
- **Provide analysis and/or preliminary engineering and design** to a level that allows for the most efficient path to move the project forward. This preliminary engineering phase should also allow for further evaluation and consideration of alternatives, before proceeding too far into the project budget and schedule. This may include evaluating or considering preliminary routes for utilities, various methodologies for utility rehabilitation, various installation techniques for utility replacement or new installation, or providing various sketch plans for an architectural renovation or a park improvement. Alternatives analysis would include not only economic considerations, but also the City's Environmental Commitment. It is expected that innovative products and solutions would be vetted at the preliminary engineering stage to honor this commitment.
- **Provide topographic survey** at stages of the project that are logical, and efficiently utilize the project budget while accounting for schedule constraints. This may be relevant to a utility project where several routes may be considered, or the overall budget of the project is of concern to the City. Alternatives such as GIS, drone mapping, LiDAR, and aerial background can be utilized for preliminary design and engineering applications prior to final alignments or options being selected.
- **Provide project specifications** that are technically sound, detailed, and accurate, to address all aspects of the project improvements. In addition, provide pay items and methods of payment that are consistent with the intent of the construction plans for the project, and include pay items and quantities for all potential work that may be necessary by the Contractor. This ultimately reduces the potential for contractor change orders and delays during the construction phase of the project, and results in a final project cost that is within the budget provided during the design stage.
- **Tap the expertise of OHM Advisors' key personnel** to provide advice on complex situations during the preliminary design stage. For example, projects may require quick feedback on sewer system capacity, traffic impacts, floodplain issues, or structural considerations. Our technical experts, who all have broad knowledge of the City's systems through previous projects, are available to help guide the planning and design process.
- **Provide regular and consistent project status updates** to the City. OHM Advisors will work with the City from the onset to determine the desired frequency of status updates. These could be memorandums, in-person meetings, video conferences, or phone calls or emails. Depending on the number of projects and the City staff involved, multiple approaches may be appropriate. We plan to customize the communication procedure for each project to ensure the City gets the information in the format and schedule that is most appropriate for each project/project manager. We understand different projects and different project managers can have different expectations for preferred communication and can accommodate that.

These are only a few examples of our approach to certain aspects of capital improvement projects that may be encountered during this contract with the City. The importance of a well thought out project approach is that it allows for the design and construction process to move efficiently from beginning to end, while providing a high-quality product that is on schedule and within budget. This is of utmost importance to OHM Advisors and will be the primary focus of the OHM Advisors' Project Manager during this contract.

Management

As mentioned above, OHM Advisors emphasizes Project Management as it relates to client satisfaction on each individual project. This is the cornerstone of our commitment

to our clients. We accomplish this by providing quality and efficiency through a consistent point of contact acting as a lead Project Manager through the duration of the contract, working with a team of discipline leads, technical experts, and support staff. The Project Manager for this contract, Chris Elenbaas, will be the main point of contact with the City at all times, regardless of the type of project effort required as part of the contract. Chris has over 18 years of industry experience, and over 5 years of client and project management experience across all aspects of municipal engineering, planning, and consulting services. Chris will be joined by Assistant Project Manager, Cresson Slotten, who brings over 35 years of industry experience across all aspects of municipal engineering and planning services. George Tsakoff, will act as the Principal in Charge and Authorized Negotiator for this contract and will coordinate with the project management team to ensure project execution and the City's satisfaction.

Chris and Cresson will ensure a consistent delivery of services to the City as it relates to technical sufficiency, accuracy of project intent with scope, project schedule, and overall budget. Once the City initiates a project through a work order under this contract, the management team will meet with the City to review the project scope and ensure that there is a mutual understanding of the major goals and objectives. They will provide a written summary of the work plan and fee to the City to a level of detail that clearly outlines the scope of services necessary to accomplish the goals of the project. In addition, OHM Advisors will provide a schedule to execute the project through necessary phases that may include analysis, studies, sketch plans, preliminary engineering, final engineering and design, bidding assistance, and construction phase efforts. The specific tasks may vary based on the type of project, but this methodology provides an overview of how the project will evolve from beginning to end.

OHM Advisors understands that these types of blanket contracts often result in varying tasks across many disciplines. Because of this, the responsiveness of the consultant team and the ability to quickly address the City's requests are of critical importance. OHM Advisors is committed to providing a level of redundancy within our project team to efficiently address work tasks that are necessary as part of this contract.

The Client and Consultant Relationship

The client/consultant relationship is built upon OHM Advisors' philosophy on the importance of exceptional project management, and the single point of contact across work tasks. The strength of this relationship between the Project Manager and the City is extremely important because it allows the City to have confidence that there is a consistent point of contact that will not vary across professional disciplines during a project or task. Furthermore, there is a commitment from the OHM Advisors Project Manager to execute the project from beginning to end, in a manner that is familiar to the City. This process ultimately builds a high level of trust between the client and consultant, as well as a high level of satisfaction for both parties through highly successful projects. It is our goal to approach a project with the City as one team, always working towards the common goal for Advancement of the Community.

Delivery of Services

As a specific project or task evolves through the necessary phases of work, OHM Advisors will provide deliverables to the City at all critical stages of the project. OHM Advisors anticipates that many deliverables will be in electronic format when provided to the City, with hard copies of documents provided upon request. The following table is a brief summary of deliverables that may be provided to the City for a certain type of work effort or project.

Type of Deliverable	Format of Document	Delivery Frequency/ Timing
Topographic Survey	AutoCAD Civil 3D 2023 utilizing City provided template	At completion of survey
Meeting Notes	PDF	Within 48 hours following every status/ progress meeting
Studies and Reports	PDF; modeling software utilized by City	Draft, Final Draft, Final
Capital Improvement Plan	PDF	Draft, Final Draft, Final
Construction Plans	AutoCAD Civil 3D 2023 utilizing City standards and templates	30%, 80%, Bid Set (or as requested by City for a specific project) Record Set Drawings
Construction Observation Reports	PDF	Weekly or as requested

Flexible Approach to Providing On-Site Engineering Support

OHM Advisors is excited for the opportunity to continue our professional relationship with the City of Ann Arbor and provide engineering support to both the Public Works Unit and Systems Planning Unit. **We are committed to assisting in whatever manner is best for the City staff involved**, including with an "on-site engineer" role for both units. We understand that this role may or may not involve having an engineer working from City Facilities. With the proliferation of remote coordination, OHM can be flexible in how we cater our services to the City, including for staff that may work remotely themselves.

This contract is about maintaining physical infrastructure in the City, so proximity and in-person coordination will remain key, and OHM Advisors brings an office located on the west side of Ann Arbor in Scio Township, less than a 15-minute drive to either the Wheeler Center or City Hall. Multiple staff identified in the project team reside in the City and both project managers are long-time Washtenaw County residents that can respond quickly.

OHM Advisors is also accustomed to remotely coordinating daily via Teams, Zoom, and other collaboration software. Whether it's creating a Bluebeam Session for document review, a virtual meeting, or more routine collaboration such as email, we plan to utilize these tools to remotely coordinate on both capital projects and for the "on-site engineer" role.

We are uniquely positioned to provide engineering support to the City because of our inherent culture of teamwork, staff redundancy across our disciplines, breadth, and depth of expertise in key service areas, and our dedication to clients. OHM Advisors proposes a team approach to satisfying the on-site engineering support, by identifying a lead engineer at the Project Engineer level with previous City project experience, with support from junior and/or mid-level engineer(s), either working on-site at City offices or remotely from our Ann Arbor and Livonia office locations.

For the lead on-site engineer role, we are proposing that Mackenzie Johnson serve as the lead engineer for both the Public Works and Systems Planning Units. The intent is for Mackenzie to provide the bulk of the daily as-needed engineering support that may be required for each Unit. She will be supported by our diverse team of professionals, many with a long history of working with the City. Depending on the required task, more senior or junior staff will supplement to meet project and budget needs.

Quality Assurance & Quality Control

Quality is a fundamental project goal of OHM Advisors. Project quality begins with a team commitment to produce the best possible work product consistent with our clients' goals and expectations. Sound project management and effective communication are critical components. OHM Advisors commitment to excellence is what we strive for and is demonstrated as part of our comprehensive QA/QC program. These methods include:

Project Reviews and Accountability | QA/QC reviews will be performed at critical points in the project, including during the preliminary engineering stage to ensure quality from the early stages. Time for project reviews is included in the project schedule at the beginning of a project. Reviews are tracked and documented. Each team member is required to certify completion of their review.

Results | The results of a strong QA/QC program benefit our team and our clients. Our clients benefit from on-time, within-budget projects. During the bidding phase, contractors recognize the thoroughness of our documents, and as a result, their bids are tight. During the construction phase, change orders are generally few and small relative to overall project cost. All parties benefit by completing work according to planned compensation and by avoiding error and omissions claims and unhappy clients as well as public stakeholders.

Procedures | Our QA/QC program provides rigorous reviews at critical points in the project to ensure the work is done correctly. Experienced staff participate in peer review of all critical decisions. In addition to our technical departments, our graphics and office services support staff maintain standards specific to their respective areas and participate in reviews.

SECTION D: FEE PROPOSAL

D.1 Our Costs (*Under Separate Cover*)

SECTION E: AUTHORIZED NEGOTIATOR

E.1 Your Principal in Charge

With 25 years' experience, George provides leadership for many of OHM Advisors municipal partners in southeast Michigan while overseeing a talented group of technical project managers across our southeast Michigan offices (including Ann Arbor and Livonia). As Principal in Charge / Authorized Negotiator, George's main role is to ensure that the City of Ann Arbor is provided with the highest degree of professional service on all projects we have with the City. George will contact the City occasionally throughout the duration of a project to ensure the City's expectations are being met. He is ultimately responsible for client satisfaction and project execution at the highest level.

George A. Tsakoff, PE
Principal in Charge / Authorized Negotiator
34000 Plymouth Road
Livonia, MI 48150

e george.tsakoff@ohm-advisors.com
c (734) 495-9568
o (734) 466-4439

SECTION F: REQUIRED FORMS / ATTACHMENTS

F.1 Legal Status of Offeror

F.2 Non-Discrimination Form

F.3 Living Wage Compliance Form

F.4 Conflict of Interest Form

F.5 W-9

ATTACHMENT A
LEGAL STATUS OF OFFEROR

(The Respondent shall fill out the provision and strike out the remaining ones.)

The Respondent is:

- A corporation organized and doing business under the laws of the state of Michigan, for whom George Tsakoff bearing the office title of Principal, whose signature is affixed to this proposal, is authorized to execute contracts on behalf of respondent.*

  *If not incorporated in Michigan, please attach the corporation's Certificate of Authority

- A limited liability company doing business under the laws of the State of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

- A partnership organized under the laws of the State of _____ and filed with the County of _____ , whose members are (attach list including street and mailing address for each.)

- An individual, whose signature with address, is affixed to this RFP.

Respondent has examined the basic requirements of this RFP and its scope of services, including all Addendum (if applicable) and hereby agrees to offer the services as specified in the RFP.

George A. Tsakoff
_____ Date: 03/30/2023
Signature

(Print) Name George Tsakoff Title Principal

Firm: Orchard, Hiltz & McCliment, Inc. (dba OHM Advisors)

Address: 355 South Zeeb Road, Suite A, Ann Arbor, MI 48103

Contact Phone c (734) 495-9568
o (734) 466-4439 Fax (734) 522-6427

Email george.tsakoff@ohm-advisors.com

ATTACHMENT B
CITY OF ANN ARBOR DECLARATION OF COMPLIANCE

Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

(a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy.

(b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.

(c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.

(d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

Orchard, Hiltz & McCliment, Inc. (dba OHM Advisors)
Company Name

George A. Tsakoff 03/30/2023
Signature of Authorized Representative Date

George Tsakoff, Principal
Print Name and Title

355 South Zeeb Road, Suite A, Ann Arbor, MI 48103
Address, City, State, Zip

c (734) 495-9568
o (734) 466-4439 george.tsakoff@ohm-advisors.com
Phone/Email address

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

Revised 3/31/15 Rev. 0 NDO-2

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ATTACHMENT C
CITY OF ANN ARBOR
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than $10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than $10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than $10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here [___] *No. of employees__*

The Contractor or Grantee agrees:

(a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as $14.82/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than $16.52/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

Check the applicable box below which applies to your workforce

[___] Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits

[X] Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

(b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.

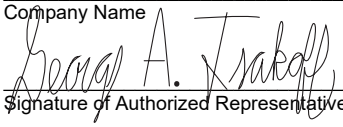
(c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.

(d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

(e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

Orchard, Hiltz & McCliment, Inc.
(dba OHM Advisors)
Company Name



Signature of Authorized Representative

03/30/2023
Date

George Tsakoff, Principal
Print Name and Title

355 South Zeeb Road, Suite A
Street Address

Ann Arbor, MI 48103
City, State, Zip

c (734) 495-9568
o (734) 466-4439 george.tsakoff@ohm-advisors.com
Phone/Email address

City of Ann Arbor Procurement Office, 734/794-6500, procurement@a2gov.org Rev. 3/10/22

ATTACHMENT D

VENDOR CONFLICT OF INTEREST DISCLOSURE FORM

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	( ) Relationship to employee _____ ( ) Interest in vendor's company ( ) Other (please describe in box below)
OHM Advisors has no conflicts of interest.	

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:

Orchard, Hiltz & McCliment, Inc. (dba OHM Advisors)		c (734) 495-9568 o (734) 466-4439
Vendor Name		**Vendor Phone Number**
George A. Tsakoff	03/30/2023	George Tsakoff, Principal
Signature of Vendor Authorized Representative	**Date**	**Printed Name of Vendor Authorized Representative**

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, procurement@a2gov.org

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ **Go to *www.irs.gov/FormW9* for instructions and the latest information.**

Give Form to the requester. Do not send to the IRS.

Print or type. See **Specific Instructions** on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

Orchard, Hiltz & McCliment. Inc.

2 Business name/disregarded entity name, if different from above

OHM Advisors

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☑ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

34000 Plymouth Rd

Requester's name and address (optional)

6 City, state, and ZIP code

Livonia, MI 48150

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN,* later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–		–				

or

Employer identification number

3	8	–	1	6	9	1	3	2	3

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person ▶** *Mark McComb* | **Date ▶**

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

Cat. No. 10231X

Form **W-9** (Rev. 10-2018)