



## **WORK STATEMENT NO. 4**

**Date:** December 4, 2020

**Project:** S. Main Street Water Main Replacement and Resurfacing Project  
Huron Street to E. William Streets; City File No. 2020-038

This is a Work Statement issued under the terms and conditions of the Professional Services Agreement for Civil Engineering and Survey Services, dated February 6, 2020, between the City of Ann Arbor (City) and Wade-Trim Associated, Inc. ("Contractor").

### **Scope of Services:**

General Conditions:

Delivery of Services under this Work Statement shall be performed in accordance with the terms and conditions stated in the above referenced Professional Services Agreement and its Exhibits and as further specified below.

Statement Specifications:

A. Work to be performed/Deliverables:

See Attachment A.

B. No Extra Work or Change which expands or alters the general scope of this Work Statement shall be made unless in pursuance of a written order by the City. All changes shall be executed under the conditions of the original Work Statement.

C. Services Delivery Schedule:

See Attachment A

D. Compensation:

See Attachment B.

E. Contractor may be requested to provide proof of continuing insurance coverage as specified in the original contract between the parties as a condition of award of this Work Statement.

**CONTRACTOR**

By: \_\_\_\_\_

Shawn W. Keough

Its: Senior Vice-president

**CITY OF ANN ARBOR**

By: \_\_\_\_\_

Tom Crawford, City Administrator

Approved as to substance

\_\_\_\_\_  
Craig A. Hupy, P.E.

Public Services Area Administrator

Approved as to form and content

\_\_\_\_\_  
Stephen K. Postema, City Attorney

**CITY OF ANN ARBOR  
S. MAIN STREET WATER MAIN & RESURFACING PROJECT**

**Summary Scope of Services and Schedule**

**PROJECT OVERVIEW**

**South Main Street (Huron Street to E. William Street)**

South Main Street from Huron to E. William Street will have a new 12-inch water main installed and then be resurfaced with accompanying repair work to existing storm sewer inlets and other related work. The project is expected to be constructed in calendar year 2022. The existing pavement cross section is anticipated to be a composite section with asphalt existing on top of concrete. However, a field review of the project limits has revealed that at least one section of an existing brick pavement overlaid with HMA also exists. It is anticipated that the portion of the roadway that needs to be removed for the water main placement will be replaced with concrete pavement and then overlaid with a to-be-determined thickness of asphalt. However, during the design process it may be determined that it is appropriate that a pavement cross section consisting of MDOT 21-AA aggregate base course and hot-mix asphalt may be replaced for cost-saving, construction duration, or other similar reasons. For the remaining road surface not disrupted by the water main construction process, it is anticipated to remove the existing asphalt surface down to the existing concrete, perform any required concrete joint repairs per MDOT Details 7 & 8, repair any existing damaged concrete pavement slabs, and place hot-mix asphalt on top of the repaired and existing concrete. It is expected based on the field review that the existing concrete curb and gutter will stay largely in place with spot repairs being performed where the curb is found to be in disrepair. All storm sewer drop inlets will be replaced with 2-foot diameter inlet structures within the project limits along with the immediate adjacent curb and gutter to perform installation.

North Main Street and Huron Street are MDOT-controlled roadways requiring the appropriate permitting and coordination with the Brighton Transportation Service Center (TSC). It is anticipated that the project limits will extend north, through the Huron Street/N. Main Street intersection, with the water main design and construction in order to limit the need for future disturbance to this highly travelled and important roadway intersection. It is understood that the societal costs associated with future traffic control, pedestrian impacts, and construction are significant and unnecessary. Similarly, given the same reasoning, the project limits are also expected to extend easterly and westerly through the Washington, Liberty, and E. William Streets intersection.

The project limits are within the downtown and in the Downtown Development Authority's (DDA) district. Currently, there are no anticipated funds set aside and the project's scope of work does not include any anticipated streetscape improvements by the DDA. Given the density of businesses within the project limits and numerous utility service connections, significant and extensive coordination with the utility providers, DDA, and local businesses is required. Detailed vehicle and pedestrian maintenance of traffic plans are required. There is also a proposed mixed-use development at the southeast corner of E. William and S. Main Street that will likely be under

construction during calendar year 2022 and may require coordination on construction activities and maintenance of traffic.

There is also a design effort in place for installing conduit for future fiber-optic data transmission, communication, and traffic management purposes from E. William Street to Washington Avenue. While this installation could be complete prior to this project's 2022 construction, it has been stated that there may be opportunities to construct portions of this conduit system as part of this project's construction. Consequently, coordination will be required with the appropriate City Staff to determine what work may be included within this project and how best to facilitate the conduit and fiber-optic conduit installation project to avoid unnecessary conflict(s) and delays.

Note: The above utility design scope of work assumes no additional storm water best management practices will be included in project.

Currently, the City has set aside approximately \$930,000 for the water main portion and \$445,000 for the road resurfacing in its current version of its Capital Improvements Plan.

Wade-Trim will provide design engineering and support services to the City's Senior Project Manager, Michael G. Nearing, P.E., utilizing the current Engineering As-Needed contract.

## **Scope of Services and Tentative Schedule based on field visits and meetings with City staff.**

### **SURVEY & MAPPING**

#### **Project Planning (10%)**

1. Wade Trim (Consultant) will perform a thorough review of the City's GIS and provided historical documents for underground utilities and objects that may be important to survey in the field. The Consultant will coordinate with the City and enter buildings to obtain field measurements on known or probable building vaults under sidewalks within the project limits if it is determined that there is a potential conflict with our design route, on an as needed basis. The Consultant will also work with this information to accurately show dimensions and locations of vaults and utilities.
2. The Consultant will provide a Topographical Survey along S. Main Street within the project limits from approximately 250' north of Huron Street to approximately 250' south of E. William Street (approximately 1,900 lineal feet), and along side-streets east and west for approximately 100 lineal feet from S. Main Street. Survey field work will establish horizontal and vertical control, based upon Michigan State Plane Coordinates and City of Ann Arbor vertical datum (NAVD88).
3. The Consultant will set control for this project utilizing the city's established Primary Control Points located in the project area. Mobile lidar will be used to collect topographical data along the corridor to establish elevations and contours and collect all structures, visible utility lines, catch basins, manholes, hydrants, water valves, meter pits, buildings, driveways, parking areas, fences, ditches and drains, street trees, shrubs, and planter boxes, building Fire Department Connections (FDC), Sensus puck traffic sensors, building outlines and entrances, and any utility markings that are in place as a result of Miss-Dig efforts (ahead of the agreed upon survey dates). Supplemental topographical data will be collected for utility structures (rims and inverts) and for quality control efforts.
4. Using Miss-Dig data, City records, supplemental field investigations, and the topographical survey, the Consultant will perform an extensive effort to researching and verifying existing utility,

structure, and City provided historical information along the corridor to accurately represent existing conditions to the extent possible with the information available.

5. The Consultant will pick up the existing elevations required at each sidewalk ramp to confirm ADA compliance and redesign and reconstruct any ramps that are found to be out of compliance. The Consultant will also confirm the accuracy of these elevations with a field visit using a digital level.
6. As a part of the survey effort, the Consultant will work to identify the exact pipe configurations at all manholes and work with the City staff to identify repairs based on their existing condition. The Consultant will review the televised sanitary and storm sewer information provided by the City and include any repairs completed as a part of this project, or provide a listing of the areas to be repaired as part of a separate effort.
7. The survey will extend beyond the corridor boundaries as outlined by the City of Ann Arbor Topographic Survey Requirements.
8. The Consultant will identify any lead or galvanized water service leads based on City records.
9. Data Processing of all features obtained during the topographical survey is included in the scope of services for this project.
10. The Consultant shall obtain and utilize existing Right-of-way information and property ownership records provided by the City. This information shall be depicted on the project plans as appropriate and necessary.
11. Schedule and chair a Utility Coordination meeting with all private utility owners prior to beginning design activities.

#### Geometric Review (30%)

1. The Consultant shall review recorded plats, surveys and legal descriptions for the parcels along the corridor. Using this information along with any property lines and monuments found by our field crew, we will depict the right-of-way in our base file.
2. It is not anticipated that any title work for private properties will be required for this project. If during subsequent design activities it is determined that obtaining easements or grading permits is necessary, we will coordinate with the City of Ann Arbor to obtain any title work. Creating legal descriptions for easements or temporary grading permits will be considered extra work for the purposes of this agreement. The Consultant will request basic tax roll descriptions and as-built plans along the corridor. All recorded easements identified in the title work will be displayed in the base CAD file. The Consultant will coordinate with City Survey staff and City Attorney's Office as necessary.

#### General Plan Review (60%)

1. The Consultant will provide staking of new water main along the corridor to assist in the field review of the proposed features, or to determine if conflicts exist between the proposed design and existing conditions, if requested.

### **UTILITY DESIGN OVERVIEW**

The following key tasks will be completed related to the water main and any other utility design effort:

#### 10% Project Planning Phase

1. Develop Design Criteria
  - Review/confirm sizing (upsizing) of all new water main on S. Main Street and the side streets within the project limits with the City;
  - Review water service leads and replacement criteria if non-copper service leads exist.

- Discuss need for any further storm sewer work other than inlet replacement
- 2. Request and receive record drawings of existing water main, sanitary and storm sewer.
- 3. All known abandoned utilities will be identified on design drawings.
- 4. Review/Identify Storm Sewer/Drainage outlets along corridor.
- 5. Review City standards for water main, storm and sanitary sewer improvements.
- 6. Coordinate with City staff and identify intersection locations where communication/traffic conduit exist or may be required.
- 7. Coordinate with City staff to determine the need for lining or replacement of storm and sanitary sewers within the project limits should repairs be determined to be necessary.
- 8. The Consultant shall schedule and chair a Utility Review Meeting with the City to Ann Arbor to review and approve all needed utility improvements as part of the project.

### 30% Geometric Review Phase

1. The Consultant shall develop preliminary water main alignment(s) which shall include the following tasks:
  - Prepare draft horizontal and vertical water main alignments
  - Prepare preliminary hydrant and valve locations meeting City coverage and spacing requirements (250' hydrant radius, 400' hose lay, and 100' from FDC)
  - Identify potential utility and other (vault, streetscape, etc.) conflicts
  - Coordinate proposed water main design, anticipated construction sequence(s), water main shutdowns, and water outages with existing businesses and any new anticipated developments
  - Confirm utility conflicts and contact franchise utility companies (i.e. send relocation letters, if necessary)
  - Schedule and chair a Utility Coordination Meeting to discuss the project, any anticipated relocation needs, and any future utility upgrades that are necessary to avoid future street cuts or are necessary to provide the desired level of service in the future
2. Identify Necessary Permits (i.e. Act 399 Water System Permit, SESC Permit, MDOT ROW permit etc.)
  - Identify any lead or galvanized steel water service leads. Plan for the complete replacement of non-copper water service leads to a point inside of the building(s) to comply with the most-current State of Michigan regulations regarding this issue;
3. Irrigation leads for planter boxes shall be accounted for and included within the project's design.
  - Irrigation leads may require back flow prevention, water meters, and/or other safety precautions to protect the City's water distribution system. The Consultant shall coordinate with Public Works staff to ensure an appropriate outcome.
4. Prepare draft cost estimate commensurate with the level of project development
5. Prepare a list of needed Detailed Specifications to be incorporated into the project contract documents
6. Public Engagement and applicable support as necessary
7. Determine the viability of directional drilling as a construction method for sections of the water main to be replaced
8. Incorporate communication/traffic conduit placement at intersections, if needed or requested
9. Schedule and chair a plan review meeting with the City to discuss and approve the design direction of the project

#### 60% General Plan Review Phase

The Consultant shall refine and further develop water main alignment(s) as part of the project which shall include the following tasks:

1. Refine water main alignments based on feedback from the City from the previous phases of the project
2. Prepare a complete set of draft Detailed Specifications (technical specifications)
3. Schedule and Chair a Utility Coordination meeting based on the design as presently prepared
4. Refine and update the preliminary list of pay items and quantities
5. Update cost estimate
6. Prepare and submit Draft Permit Applications  
Identify and provide any supporting documents for permit applications
7. Schedule and chair a Plan Review meeting with the City to approve the design direction of the project

#### 90% Preliminary Contract Review Phase

The Consultant shall continue to refine, further develop, and detail the proposed water main alignment(s) and overall design as part of the project which shall include the following tasks:

1. Finalize utility relocation schedules and plans with franchise utilities
2. Finalize Water Main plan and profiles
3. Update and finalize the list of pay items and quantities
4. Finalize the Detailed Specifications
5. Prepare Permit Applications and provide to the City for submittal to appropriate oversight agencies
6. Update construction cost estimate
7. Schedule and chair a plan review meeting with the City discuss all needed final plan and specification revisions

#### 100% Contract Review Phase

1. Finalize the project plans based on comments from City final review
2. Finalize contract documents and coordinate with City
3. Prepare final cost estimate
4. Review final bid package with City

### **ROADWAY DESIGN OVERVIEW**

The following tasks will be completed by the Consultant related to the Roadway Design component of this project:

#### 10% Project Planning Phase

1. Develop Design Criteria
  - It is expected that the existing horizontal and vertical alignments of the existing roadways will be utilized in the design of the roadway. However, subtle refinements to the alignments may be made in order to improve roadway drainage or ADA-accessibility
  - Establish road cross-sectional requirements
  - Determine if the existing mid-block pedestrian crossings will remain in the same location, or if additional crossings are desired

- Review existing road profile for potential drainage issues and revise as necessary (and possible) to correct as discussed above
- 2. Layout Roadway Horizontal Alignment and Conceptual Plan Graphics
  - Coordinate Horizontal Alignment with existing topography
  - Develop conceptual plan layout
    - Layout road and sidewalk elements to determine impacts to surrounding features and/or properties based upon the roadway or utility construction
  - If necessary, provide layout for new pedestrian crossing locations
- 3. Develop Preliminary Traffic Control Concepts
  - Determine pedestrian traffic control alternatives and recommendation(s) based on the preferred water main construction and roadway alternatives. The contract documents shall include provisions for the installation of plywood bridges or other unique measures to ensure patron access to businesses. Pedestrian traffic and business access must be maintained throughout the project limits at all times
  - The maintenance of vehicular traffic through the construction work zone shall be studied and alternatives analyzed for consideration
- 4. Determine soil boring needs and locations
  - Review prior soil borings and determine if supplemental borings are required.
  - It is anticipated that additional soil borings on S. Main Street will be required to evaluate the underlying soil conditions and existing HMA and concrete pavement thicknesses and conditions.
  - For new soil borings, the Consultant shall field mark the proposed locations and establish coordinate locations of each
  - The City will procure a geotechnical consultant separate from this scope of services
- 5. Send out utility information request letters to each of the utility providers to supplement the previous efforts performed by the City regarding this matter. This shall include, but not be limited to;
  - Follow-up on previous Miss-Dig Online design tickets (as needed)
  - Research, verify and display utility information in survey file
  - Develop preliminary utility conflicts list based on potential impacts

### 30% Geometric Review Phase

1. The Consultant shall prepare AutoCAD Plans to 30% completion level. This shall include, but not be limited to the following tasks:
  - Develop “front end” plan sheets (City template drawings - title sheet, note sheet, survey control sheet, etc.)
  - Develop preliminary roadway typical sections
  - Prepare and Develop 30% design:
    - Develop preliminary removal, construction, and profile sheets
    - Preliminary horizontal and vertical roadway alignments;
    - Review proposed design against existing ROW;
    - Develop preliminary traffic control plans
    - Review preliminary construction signing and marking
    - Provide a preliminary construction cost estimate
    - Develop proposed pavement design based upon the results of the geotechnical investigation and in coordination with the City’s Project Manager

- Identify and account for existing brick pavers under pavement. It is anticipated that replacement will not be required for exposed bricks that were once covered with asphalt.
- Develop preliminary mid-block crosswalk plans (if necessary)
- 2. Utility Coordination
  - Add additional utility information that is received
  - Coordinate all elements of the roadway design with the water main replacement component of the project
  - Refine and update the utility conflicts list
  - Schedule and chair a Utility Coordination meeting with all utility providers on project and determine additional information necessary for utilities that are in conflict. It is expected that this task will be worked in parallel with the same task as established within the water main design component of the project
- 3. Develop ROW/Easement Plans for Grading Permits or Acquisition (if applicable)
- 4. Schedule and chair a Plan Review meeting with the City to discuss and approve the proposed roadway geometry, pavement cross-section(s), maintenance of traffic schemes, and all other necessary elements of the proposed roadway design.
- 5. Prepare a list of needed Detailed Specifications to be incorporated into the project contract documents

#### 60% General Plan Review Phase

The Consultant shall refine and further develop the roadway design component of the project which shall include the following tasks:

1. AutoCAD layout in 60% phase:
  - Refined horizontal and vertical alignments based on feedback from Ann Arbor and public engagement meetings
  - Refine and further develop “front end” sheets
  - Create roadway alignment sheets
  - Refine and further develop roadway plan sheets, adding quantities, plan detailing, and coordinating the road design with the utility design.
  - Develop preliminary grading for intersections, as needed
  - Develop roadway design cross sections
  - Refine traffic control plans and create a Traffic Management Plan (TMP), including temporary pedestrian and bicycle maintenance of traffic plans
  - Refine and further develop construction signing and pavement marking plans
  - Develop SESC Plans and submit for review and permit approval
  - Refine mid-block cross walk plans (if necessary)
2. Develop preliminary construction sequencing concepts for the project for review by the City and affected business owners
3. Refine and update the preliminary list of pay items and quantities
4. Refine and update the needed Detailed Specifications for the project
5. Calculate project quantities and develop preliminary cost estimate
6. Schedule and chair a preliminary plan review meeting with the City to approve the design direction of the project

### 90% Preliminary Contract Review Phase

The Consultant shall continue to refine and further develop and detail the roadway design and its interaction with the overall design as part of the project which shall include the following tasks:

1. CAD layout in 90% phase:
  - Finalize alignments based on feedback from the City including “front end” sheets, including typical sections
  - Finalize all remaining plan sheets with final quantities
  - Develop sidewalk ADA ramp details, as needed. This may include detailed grading sheets to ensure compliance with the ADA as well as refine mid-block crossing design (if necessary)
  - Finalize intersection grading plans
  - Finalize traffic control plans
  - Finalize construction signing and pavement marking plans
2. Finalize construction sequencing concepts
3. Schedule and chair a Plan Review meeting with the City to discuss and approve the proposed roadway geometry, pavement cross-section(s), maintenance of traffic schemes, and all other necessary elements of the proposed roadway design.

### 100% Contract Review Phase

1. Finalize the project plans based on comments from City final review
2. Finalize contract documents and coordinate with City
3. Prepare final cost estimate
4. Review final bid package with City

## **PUBLIC ENGAGEMENT**

The City of Ann Arbor’s Project Manager, Michael G. Nearing, will lead the Public Engagement on this project. It is currently estimated that there will be at least three public meetings for this project. The Consultant has provided an estimate of hours required to support preparation materials and attending meetings as requested by Mr. Nearing.

### 10% Project Planning Phase

- Participate in developing Near Term Action Plan for conducting Public Engagement
- Identify relevant stakeholders using the City’s Stakeholder Analysis Worksheet and other sources
- Support Mr. Nearing on review of public meeting schedules and format
- Identify and document specific areas with photographs for use in demonstrating what we are leaving in place versus removal, at our public meetings.

### 30%, 60% & 90% Phases

- Generate graphics, photographs, and presentation-quality prints of project layout and utilities as requested by the City
- Provide graphics and write-ups for use on the project website and public engagement presentations as requested by Mr. Nearing
- Support Mr. Nearing on engagement with property owners and stakeholders by preparing for and attending individual meetings as requested
- Attend scheduled public engagement meetings to assist and support Mr. Nearing in presenting the project and assist in answering questions from the public

- Document and summarize (in digital, written, format) all feedback provided at the public engagement meetings for future project use and posting to project website
- Develop relevant and useful questions for feedback on Open City Hall (if requested)

### **CONSTRUCTION PHASE SERVICES**

No Construction Phase services are included in the scope of work.

### **EXCLUSIONS FROM THE SCOPE OF SERVICES**

- Irrigation Design, other than what has been included in the scope above, has not been included at this time
- Lighting Design has not been included at this time
- Traffic Signal Design (including crosswalks) has not been included at this time
- Comprehensive storm sewer/storm water management study or design has not been included at this time other than what has included at this time
- Formal tree survey including tagging and identifying species

### **PROJECT DURATION**

The City of Ann Arbor anticipates that the planning phase of this project will start in January 2021 and design completed by Spring 2022. The project is anticipated to be one project and construction would likely begin in early Spring 2023 with an August completion date (before University of Michigan Fall Semester begins) although the project schedule is not, and cannot, be finalized at this time.

### **TENTATIVE SCHEDULE**

The first design phase planning meeting with the Consultant was held on July 9, 2020. Consequently, the following tentative project schedule has been developed with input from the City:

10% Project Planning Phase – January 2021 – April 2021

30% Geometric Review Phase – April 2021 through June 2021

60% General Plan Review Phase – July 2021 through September 2021

90% Preliminary Contract Review Phase – October 2021 through December 2021

100% Contract Review Phase – January 2022 through March 2022

Project Bidding Period – Anticipated in October 2022

City Council Award of the construction contract – December 2022 (first meeting)

Construction (tentative) – March 2023 to August 2023



Engineering  
Sciences

Planning  
Surveying

Project: South Main Street Water Main Improvements

Client: City of Ann Arbor

Prepared By: Wade Trim (Vaughn Martin and Chris Wall)

Date: 11/3/2020

Rate Schedule Used: City of Ann Arbor - General Civil Engineering & Surveying Services Schedule 2019 to 2021 (from RFP #19-27)

EXHIBIT "B"

Project Cost  
Estimating Sheet

WT102-01

		Project Management			Road Improvements & General Plan Development														Water System Improvements							
CLASSIFICATION		Prof Eng IV	Prof Eng II		Prof Eng II	Engineer I	Eng Specialist II	Prof Eng II	Prof Eng III	CADD Tech V	Senior Professional	Surveyor I & II	Surveyor III	Survey Tech V	Prof Surveyor III	Engineer II	Prof Eng V		Prof Eng IV	Prof Eng II	Engineer II	CADD Tech V				
NAME		Vaughn Martin	Carmelle Tremblay		Brian Frisk	Phoebe Glazgo	Rob Marker	Bridget Bienkowski	Lori Pawlik	Marty Flanagan	Matt Stacey					Scott Bliss	Steven Meyer or Martin Hoemke	Chris Wall		Vaughn Martin	Carmelle Tremblay	Steven Meyer or Martin Hoemke	Marty Flanagan			TOTAL
ROLE		Project Manager	Assistant PM/Design		Lead Road Design	Road Designer	Specifications & Permitting	Maintenance of Traffic	Maintenance of Traffic	CADD	QA/QC	Two Person Survey Crew	One Person Survey Crew	Data Prc. & QAQC	Project Oversight QAQC	Designer	Client Rep & QA/QC		Project Manager	Asst PM & Design	Designer	CADD				
RATE		\$195	\$142		\$142	\$95	\$168	\$142	\$168	\$111	\$210	\$184	\$105	\$111	\$147	\$105	\$180		\$195	\$142	\$105	\$111				
TASKS		HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS		HOURS	HOURS	HOURS	HOURS			HOURS	
Project Management & Communication with Mike Nearing (assumes 2 hours per		120	30																						150	
		\$23,400.00	\$4,260.00																						\$27,660.00	
10% Project Planning Phase (16 weeks)																										
Project Meetings					4														8	8	4				24	
					\$568.00														\$1,560.00	\$1,136.00	\$420.00				\$3,684.00	
Survey & Mapping																									0	
																									\$0.00	
Verify/Set Control												10			3										13	
												\$1,840.00			\$441.00										\$2,281.00	
Mobile Lidar													50		3										53	
													\$5,250.00		\$441.00										\$5,691.00	
Supplemental Topography Pick-up												60			4										64	
												\$11,040.00			\$588.00										\$11,628.00	
Survey Data Processing														104	3										107	
														\$11,544.00	\$441.00										\$11,985.00	
Utility Research, Verification and Mapping		4													36										40	
		\$780.00													\$3,996.00										\$4,776.00	
Building Vault Investigation (as-needed)																			16	24			12		52	
																			\$3,120.00	\$3,408.00		\$1,332.00			\$7,860.00	
Existing Conditions Review (CCTV, ex MH conditions)																			4	4	12	4			24	
																			\$780.00	\$568.00	\$1,260.00	\$444.00			\$3,052.00	
Existing ADA Compliance Verification (desktop and field review)					8	8																			16	
					\$1,136.00	\$760.00																			\$1,896.00	
Lead/Galvanized Lead Identification																			2	4		4			10	
																			\$390.00	\$568.00		\$444.00			\$1,402.00	
Property & Right of Way (ROW)										12					8										20	
										\$1,332.00					\$888.00										\$2,220.00	
Geotechnical Coordination		2	2							4															8	
		\$390.00	\$284.00							\$444.00															\$1,118.00	
10% Utility Concept Plans																										
Existing Utility System Review																									0	
																			16	40	16	16			88	
																			\$3,120.00	\$5,680.00	\$1,680.00	\$1,776.00			\$12,256.00	
10% Road Concept Plans																										
Existing Conditions Refinement (ADA, Drainage, Pedestrian crossings)		4	4		4	8				4						2									4	
		\$780.00	\$568.00		\$568.00	\$760.00				\$444.00						\$210.00									\$720.00	
Establish Design Criteria		2	2		4					8						2			8	16	8	8			26	
		\$390.00	\$284.00		\$568.00					\$888.00						\$210.00			\$1,560.00	\$2,272.00	\$840.00	\$888.00			\$3,330.00	
Roadway Geometrics & Plan					8	8				8						2									58	
					\$1,136.00	\$760.00				\$888.00						\$210.00									\$7,900.00	
Preliminary Traffic Control Concept (Pedestrian & Vehicular)		4			2			8	8	10						2									26	
		\$780.00			\$284.00			\$1,136.00	\$1,344.00	\$1,110.00						\$210.00									\$2,994.00	
Utility Coordination & Meetings							4												8						34	
							\$672.00												\$1,560.00	\$1,136.00					\$4,864.00	
10% TOTALS		16	8		30	24	4	8	8	46	0	70	50	148	13	8	4		62	104	40	44			687	
		\$3,120.00	\$1,136.00		\$4,260.00	\$2,280.00	\$672.00	\$1,136.00	\$1,344.00	\$5,106.00	\$0.00	\$12,880.00	\$5,250.00	\$16,428.00	\$1,911.00	\$840.00	\$720.00		\$12,090.00	\$14,768.00	\$4,200.00	\$4,884.00			\$93,025.00	
30% Geometric Review Phase (12 Weeks)																										
Project Meetings					4														8	8	4				24	
					\$568.00														\$1,560.00	\$1,136.00	\$420.00				\$3,684.00	
Survey & Mapping																									0	
																									\$0.00	
Misc Survey & Mapping		4																							4	
		\$780.00																							\$780.00	
Property, Right of Way (ROW) & Easements					4					12					16										32	
					\$568.00					\$1,332.00					\$1,776.00										\$3,676.00	
30% Utility Plans																										
Preliminary Water Main Alignment																									0	
																									\$0.00	
Preliminary Construction Sequencing and Alternatives					4				4										8	60	24	20			112	
					\$568.00				\$672.00										\$1,560.00	\$8,520.00	\$2,520.00	\$2,220.00			\$14,820.00	
Utility Conflicts List																			12	8		8			36	
																			\$2,340.00	\$1,136.00		\$888.00			\$5,604.00	
30% Road Plans																			4	8	20				32	
																			\$780.00	\$1,136.00	\$2,100.00				\$4,016.00	
Typical Cross Sections																									0	
																									\$0.00	
Pavement Design		2			12	8				10	1					4									35	
					\$1,704.00	\$760.00				\$1,110.00	\$210.00					\$420.00									\$4,204.00	
Preliminary Mid-block Crosswalk Design (as-needed)		2			4	16										4									26	
		\$390.00			\$568.00	\$1,520.00							</													



Engineering Sciences    Planning Surveying

Project: South Main Street Water Main Improvements

Client: City of Ann Arbor

Prepared By: Wade Trim (Vaughn Martin and Chris Wall)  
Date: 11/3/2020

Rate Schedule Used: City of Ann Arbor - General Civil Engineering & Surveying Services Schedule 2019 to 2021 (from RFP #19-27)

Project Cost Estimating Sheet

WT102-01

		Project Management		Road Improvements & General Plan Development													Water System Improvements									
CLASSIFICATION		Prof Eng IV	Prof Eng II		Prof Eng II	Engineer I	Eng Specialist II	Prof Eng II	Prof Eng III	CADD Tech V	Senior Professional	Surveyor I & II	Surveyor III	Survey Tech V	Prof Surveyor III	Engineer II	Prof Eng V		Prof Eng IV	Prof Eng II	Engineer II	CADD Tech V				
NAME		Vaughn Martin	Carmelle Tremblay		Brian Frisk	Phoebe Glazgo	Rob Marker	Bridget Bienkowski	Lori Pawlik	Marty Flanagan	Matt Stacey				Scott Bliss	Steven Meyer or Martin Hoemke	Chris Wall		Vaughn Martin	Carmelle Tremblay	Steven Meyer or Martin Hoemke	Marty Flanagan			TOTAL	
ROLE		Project Manager	Assistant PM/Design		Lead Road Design	Road Designer	Specifications & Permitting	Maintenance of Traffic	Maintenance of Traffic	CADD	QA/QC	Two Person Survey Crew	One Person Survey Crew	Data Prc. & QAQC	Project Oversight QAQC	Designer	Client Rep & QA/QC		Project Manager	Asst PM & Design	Designer	CADD				
RATE		\$195	\$142		\$142	\$95	\$168	\$142	\$168	\$111	\$210	\$184	\$105	\$111	\$147	\$105	\$180		\$195	\$142	\$105	\$111				
TASKS		HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$		HOURS \$	HOURS \$	HOURS \$	HOURS \$			HOURS \$	
Preliminary Horizontal & Vertical Alignments					\$2,272.00	\$1,520.00				\$1,332.00	\$210.00					\$420.00									\$5,754.00	
Signing & Pavement Markings						12 \$1,140.00		8 \$1,136.00		4 \$444.00															24 \$2,720.00	
Preliminary Work Zone Traffic Control/TMP		4 \$780.00						12 \$1,704.00	12 \$2,016.00	8 \$888.00															36 \$5,388.00	
30% General Plans																									0 \$0.00	
Plan Sheet Development			8 \$1,136.00							20 \$2,220.00															28 \$3,356.00	
Typical Details					8 \$1,136.00					12 \$1,332.00	1 \$210.00								4 \$780.00	8 \$1,136.00	16 \$1,680.00	8 \$888.00			57 \$7,162.00	
QAQC		12 \$2,340.00	4 \$568.00				4 \$672.00			6 \$666.00	2 \$420.00							2 \$360.00							30 \$5,026.00	
Preliminary SESC						8 \$760.00				4 \$444.00															12 \$1,204.00	
Cost Estimate		4 \$780.00	4 \$568.00		2 \$284.00	4 \$380.00	4 \$672.00											1 \$180.00			4 \$568.00				23 \$3,432.00	
Specifications/Special Provisions List		2 \$390.00					8 \$1,344.00																		10 \$1,734.00	
Permitting		2 \$390.00	2 \$284.00							4 \$444.00															8 \$1,118.00	
Utility Coordination & Meetings		4 \$780.00	4 \$568.00		2 \$284.00	4 \$380.00																			14 \$2,012.00	
Public Engagement (Stakeholder Notifications & Communications)		6 \$1,170.00	6 \$852.00							18 \$1,998.00															30 \$4,020.00	
30% TOTALS		42 \$8,190.00	28 \$3,976.00		56 \$7,952.00	84 \$7,980.00	16 \$2,688.00	20 \$2,840.00	16 \$2,688.00	118 \$13,098.00	5 \$1,050.00	0 \$0.00	0 \$0.00	16 \$1,776.00	0 \$0.00	16 \$1,680.00	3 \$540.00		36 \$7,020.00	96 \$13,632.00	64 \$6,720.00	36 \$3,996.00			652 \$85,826.00	
60% General Plan Review Phase (12 Weeks)																										
Project Meetings					4 \$568.00														8 \$1,560.00	8 \$1,136.00	4 \$420.00				24 \$3,684.00	
Survey & Mapping																									0 \$0.00	
Preliminary Water Main Staking and Field Investigation												16 \$1,680.00													16 \$1,680.00	
60% Utility Plans																									0 \$0.00	
Water Main Design Development																			4 \$780.00	70 \$9,940.00	40 \$4,200.00	30 \$3,330.00			144 \$18,250.00	
60% Road Plans																									0 \$0.00	
Horizontal and Vertical Alignment Development		2 \$390.00	2 \$284.00		16 \$2,272.00	8 \$760.00				16 \$1,776.00	1 \$210.00					6 \$630.00									51 \$6,322.00	
Intersection Grading		2 \$390.00	2 \$284.00		16 \$2,272.00	16 \$1,520.00				4 \$444.00						6 \$630.00									46 \$5,540.00	
Typical Cross Section Design Development						8 \$760.00										6 \$630.00									14 \$1,390.00	
Mid-block Crossing Design Development		2 \$390.00	2 \$284.00			8 \$760.00			2 \$336.00																14 \$1,770.00	
Signing & Pavement Markings						4 \$380.00		12 \$1,704.00		8 \$888.00															24 \$2,972.00	
Work Zone Traffic Control Plans/TMP		2 \$390.00	2 \$284.00			4 \$380.00			12 \$2,016.00	8 \$888.00															28 \$3,958.00	
60% General Plans																									0 \$0.00	
Plan Sheet Development		4 \$780.00	4 \$568.00							20 \$2,220.00															28 \$3,568.00	
Typical Details		2 \$390.00	8 \$1,136.00		2 \$284.00					12 \$1,332.00	1 \$210.00														25 \$3,352.00	
QAQC		12 \$2,340.00	4 \$568.00				4 \$672.00			6 \$666.00								2 \$360.00	2 \$390.00	4 \$568.00					34 \$5,564.00	
SESC Plan Submittal						6 \$570.00																			6 \$570.00	
Construction Sequencing		4 \$780.00	4 \$568.00				4 \$672.00		4 \$672.00									2 \$360.00							18 \$3,052.00	
Cost Estimate		4 \$780.00	4 \$568.00		2 \$284.00		8 \$1,344.00													4 \$568.00					22 \$3,544.00	
Specifications/Special Provisions		4 \$780.00	4 \$568.00			2 \$190.00	16 \$2,688.00													4 \$568.00	4 \$420.00				34 \$5,214.00	
Draft Permit Applications						8 \$760.00				4 \$444.00									2 \$390.00	8 \$1,136.00		4 \$444.00			26 \$3,174.00	
Utility Coordination & Meetings		6 \$1,170.00			6 \$852.00																				12 \$2,022.00	
60% TOTALS		44 \$8,580.00	36 \$5,112.00		46 \$6,532.00	64 \$6,080.00	32 \$5,376.00	12 \$1,704.00	18 \$3,024.00	78 \$8,658.00	2 \$420.00	0 \$0.00	16 \$1,680.00	0 \$0.00	0 \$0.00	18 \$1,890.00	4 \$720.00		16 \$3,120.00	98 \$13,916.00	48 \$5,040.00	34 \$3,774.00			566 \$75,626.00	



Engineering  
Sciences

Planning  
Surveying

Project: South Main Street Water Main Improvements

Client: City of Ann Arbor

Prepared By: Wade Trim (Vaughn Martin and Chris Wall)  
Date: 11/3/2020

Rate Schedule Used: City of Ann Arbor - General Civil Engineering & Surveying Services Schedule 2019 to 2021 (from RFP #19-27)

Project Cost  
Estimating Sheet

WT102-01

		Project Management			Road Improvements & General Plan Development													Water System Improvements							
CLASSIFICATION		Prof Eng IV	Prof Eng II		Prof Eng II	Engineer I	Eng Specialist II	Prof Eng II	Prof Eng III	CADD Tech V	Senior Professional	Surveyor I & II	Surveyor III	Survey Tech V	Prof Surveyor III	Engineer II	Prof Eng V	Prof Eng IV	Prof Eng II	Engineer II	CADD Tech V				
NAME		Vaughn Martin	Carmelle Tremblay		Brian Frisk	Phoebe Glazgo	Rob Marker	Bridget Bienkowski	Lori Pawlik	Marty Flanagan	Matt Stacey				Scott Bliss	Steven Meyer or Martin Hoemke	Chris Wall	Vaughn Martin	Carmelle Tremblay	Steven Meyer or Martin Hoemke	Marty Flanagan			TOTAL	
ROLE		Project Manager	Assistant PM/Design		Lead Road Design	Road Designer	Specifications & Permitting	Maintenance of Traffic	Maintenance of Traffic	CADD	QA/QC	Two Person Survey Crew	One Person Survey Crew	Data Prc. & QAQC	Project Oversight QAQC	Designer	Client Rep & QA/QC	Project Manager	Asst PM & Design	Designer	CADD				
RATE		\$195	\$142		\$142	\$95	\$168	\$142	\$168	\$111	\$210	\$184	\$105	\$111	\$147	\$105	\$180	\$195	\$142	\$105	\$111				
TASKS		HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$	HOURS \$			HOURS \$	
90% Preliminary Contract Review Phase (12 Weeks)																									
Project Meetings					4 \$568.00													4 \$780.00	4 \$568.00	4 \$420.00				16 \$2,336.00	
90% Utility Plans																								0 \$0.00	
Utility Relocation Schedules																		4 \$780.00	16 \$2,272.00	16 \$1,680.00				36 \$4,732.00	
Finalize Water Main Plan and Profiles																		8 \$1,560.00	70 \$9,940.00	40 \$4,200.00	30 \$3,330.00			148 \$19,030.00	
90% Road Plans																								0 \$0.00	
Finalize Roadway Geometrics, Plan & Profiles		2 \$390.00	4 \$568.00		12 \$1,704.00	4 \$380.00				8 \$888.00	1 \$210.00					4 \$420.00								35 \$4,560.00	
ADA Ramp Detailed Grading		2			12 \$1,704.00	4 \$380.00				8 \$888.00						4 \$420.00								30 \$3,392.00	
Finalize Mid-Block Crossing Design (as-needed)						8 \$760.00				4 \$444.00														12 \$1,204.00	
Finalize Intersection Grading					12 \$1,704.00	4 \$380.00				4 \$444.00						4 \$420.00								24 \$2,948.00	
Finalize Signing & Pavement Markings						4 \$380.00		8 \$1,136.00	4 \$672.00	4 \$444.00														20 \$2,632.00	
Finalize Work Zone Traffic Control Plans		2 \$390.00				4 \$380.00		8 \$1,136.00	16 \$2,688.00	4 \$444.00														34 \$5,038.00	
90% General Plans																								0 \$0.00	
Finalize All Plan Sheets with Final Quantities					16 \$2,272.00	16 \$1,520.00	16 \$2,688.00	4 \$568.00		8 \$888.00									16 \$2,272.00	4 \$420.00	4 \$444.00			84 \$11,072.00	
QAQC		12 \$2,340.00	4 \$568.00				4 \$672.00			6 \$666.00							2 \$360.00							28 \$4,606.00	
Finalize Cost Estimate		4 \$780.00	4 \$568.00		2 \$284.00	8 \$760.00	8 \$1,344.00				1 \$210.00													27 \$3,946.00	
Finalize Specifications/Special Provisions		8 \$1,560.00	8 \$1,136.00		2 \$284.00		8 \$1,344.00																	26 \$4,324.00	
Final Permit Submittals						4 \$380.00				4 \$444.00														8 \$824.00	
Utility Coordination & Meetings		6 \$1,170.00	6 \$852.00			4 \$380.00																		16 \$2,402.00	
Public Engagement (Meetings)		4 \$780.00	6 \$852.00							16 \$1,776.00														26 \$3,408.00	
90% TOTALS		40 \$7,410.00	32 \$4,544.00		60 \$8,520.00	60 \$5,700.00	36 \$6,048.00	20 \$2,840.00	20 \$3,360.00	66 \$7,326.00	2 \$420.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	12 \$1,260.00	2 \$360.00	16 \$3,120.00	106 \$15,052.00	64 \$6,720.00	34 \$3,774.00			570 \$76,454.00	
100% Contract Review Phase (8 Weeks)																									
Project Meetings																		4 \$780.00	4 \$568.00	2 \$210.00				10 \$1,558.00	
Prepare Final Contract Plans		4 \$780.00			12 \$1,704.00	12 \$1,140.00		8 \$1,136.00	8 \$1,344.00	24 \$2,664.00	6 \$1,260.00					8 \$840.00		4 \$780.00	24 \$3,408.00		16 \$1,776.00			126 \$16,832.00	
Prepare Final Cost Estimate		4 \$780.00	4 \$568.00				4 \$672.00				2 \$420.00						2 \$360.00							16 \$2,800.00	
Prepare Final Specifications		16 \$3,120.00	8 \$1,136.00				16 \$2,688.00																	40 \$6,944.00	
QAQC		12 \$2,340.00	4 \$568.00				4 \$672.00			6 \$666.00							2 \$360.00							28 \$4,606.00	
Public Engagement		4 \$780.00	6 \$852.00							16 \$1,776.00										4 \$420.00				30 \$3,828.00	
FINAL TOTALS		40 \$7,800.00	22 \$3,124.00		12 \$1,704.00	12 \$1,140.00	24 \$4,032.00	8 \$1,136.00	8 \$1,344.00	46 \$5,106.00	8 \$1,680.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	8 \$840.00	4 \$720.00	8 \$1,560.00	28 \$3,976.00	6 \$630.00	16 \$1,776.00			250 \$36,568.00	
DESIGN PROJECT TOTALS		302 \$58,500.00	156 \$22,152.00		204 \$28,968.00	244 \$23,180.00	112 \$18,816.00	68 \$9,656.00	70 \$11,760.00	354 \$39,294.00	17 \$3,570.00	70 \$12,880.00	66 \$6,930.00	164 \$18,204.00	13 \$1,911.00	62 \$6,510.00	17 \$3,060.00	138 \$26,910.00	432 \$61,344.00	222 \$23,310.00	164 \$18,204.00			2,875 \$395,159.00	

\$265,391.00

\$129,768.00