February 10, 2021

Mr. Thomas J. Sheridan
Assistant City Manager
City of Hudson
1140 Terex Road
Hudson, Ohio 44236

Re: Proposal for Engineering Consulting Services
Central Adaptive Traffic Control System Improvement Project
City of Hudson

Dear Mr. Sheridan:

TMS Engineers wishes to be considered for engineering services pertaining to the City of Hudson "Central Adaptive Traffic Control System Improvement Project". Please find the following information you requested in your RFP dated January 12, 2021 including revised costs for adding the intersection of SR 303 and Hayden with fiber optic cable interconnect from Hayden to College as requested by City Council. The amended fee schedule is shown on page 8.

If you have any questions or need additional information, please do not hesitate to contact me.

Respectfully submitted;

Michael W. Schweickart, P.E., PTOE

TMS Engineers, Inc.

Company History

TMS Engineers, Inc. is a specialized transportation and traffic engineering consulting firm representing clients that include governmental agencies, civil engineering firms, planning consulting firms, attorneys, private development interests, and architectural firms. Our experience with public and private clients allows us to meet the needs of our clients by providing functional, cost-effective solutions to the unique problems of a project. Transportation Management Services was established in 2005 and in 2006, the company was incorporated under the laws of the State of Ohio becoming TMS Engineers, Inc.

The following entities will be responsible for surveying, engineering, consulting, design, specification development, probable cost of construction calculation, project supervision and any other service necessary to complete the project.

Consultant – TMS Engineers, Inc.
2112 Case Parkway South #7, Twinsburg, Ohio 44087 (330) 686-6402

- Work to be Performed.
    1. Project Management
    2. All Engineering Plan Development

Sub-Consultant - Bramhall Engineering & Surveying Company
801 Moore Road, Avon, Ohio 44011 (440) 934-7878
Mr. Aaron Appell, P.E.

- Work to be Performed.
    1. Topographic Survey
    2. Base Mapping

Sub-Consultant - Soils & Materials Engineers, Inc. (S&ME, Inc.)
8400 Sweet Valley Drive, Suite 4040, Valley View, Ohio 44125 (216) 901-1000
Mr. Kevin A. Harper

- Work to be Performed.
    1. Geotechnical Engineering Services
    2. Geotechnical Testing Laboratory
    3. Geotechnical Field Exploration Services
    4. Geotechnical Drilling Inspection Services

Sub-Consultant – Cardno, Inc.
8252 Darrow Road, Twinsburg Ohio 44087 (330) 486-0932
Mr. Joseph Welsh

- Work to be Performed.
    1. Subsurface Utility Location Services

Insurance

DesignPro Insurance Group 5991 Chandler Court, Suite A Westerville OH 43082	NAME: PHONE (A/C, No, Ext): (614) 426-9043 FAX (A/C, No): (614) 794-4961 E-MAIL ADDRESS: tracey.designproins@wichert.com
INSURED TMS Engineers Inc. 2112 Case Parkway South #7 Twinsburg OH 44087	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: Twin City Fire Insurance Company — 29459 INSURER B: Continental Casualty Company — 20443 INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** CL2082545845 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:			33 SBA AA9841	8/24/2020	8/24/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 1,000,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000
A	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			33 SBA AA9841	8/24/2020	8/24/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 2,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10,000			33 SBA AA9841	8/24/2020	8/24/2021	EACH OCCURRENCE AGGREGATE	$ 2,000,000 $ 2,000,000
A	~~WORKERS COMPENSATION~~ XXEMPLOYERS' LIABILITY Y/N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			33 SBA AA9841	8/24/2020	8/24/2021	PER STATUTE X OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
B	Professional Liability			MCH 276192355	8/24/2020	8/24/2021	Each Claim Aggregate	$1,000,000 $1,000,000

Ohio | Bureau of Workers' Compensation

30 W. Spring St.
Columbus, OH 43215

Certificate of Ohio Workers' Compensation

This certifies that the employer listed below participates in the Ohio State Insurance Fund as required by law. Therefore, the employer is entitled to the rights and benefits of the fund for the period specified. This certificate is only valid if premiums and assessments, including installments, are paid by the applicable due date. To verify coverage, visit www.bwc.ohio.gov, or call 1-800-644-6292.

This certificate must be conspicuously posted.

Policy number and employer
01465330

TMS ENGINEERS INC
2112 CASE PKWY UNIT NUMBER-7
TWINSBURG, OH 44087-4301

Period Specified Below
07/01/2020 to 07/01/2021

www.bwc.ohio.gov
Issued by: BWC

Stephanie McCloud

Administrator/CEO

You can reproduce this certificate as needed.

Related Project Experience

Project: City of Brunswick - City Wide Traffic Signal Synchro & Upgrade Project
Contact: Mr. Paul Barnett, P.E. - Service Director - (330)-225-9144 - pbarnett@brunswick.oh.us
City of Brunswick, 4095 Center Road, Brunswick, Ohio 44212

Description: This project was the modernization and synchronization of traffic signals at 28 intersections along the corridors of Center Road (SR 303), Pearl Road (USR 42), Grafton Road, Laurel Road, Carpenter Road, Boston Road, and other various locations. The project included the upgrade of traffic signal hardware including vehicular signal heads, mast arm signal supports, pedestrian signals, traffic controllers, vehicular detectors, pedestrian detectors, and emergency vehicle preemption. The project also included the installation of an adaptive centralized computer system and fiber optic communication cable.

Project: City of Westlake - City Wide Traffic Signal Project
Contact: Mr. Robert P. Kelly, P.E. - City Engineer - (440) 617-4145-bkelly@cityofwestlake.org
City of Westlake, 27700 Hilliard Boulevard, Westlake, Oh 44145

Description: This City-Wide Signal Project included the modernization and synchronization of traffic signals at fifty-three (53) intersections within the City of Westlake. The project included the design of mast arm signal supports at six (6) intersections along Hilliard Boulevard where the existing poles were replaced due to their design life. Mast arm supports were retained and reused at forty-seven (47) intersections after inspection and evaluations were performed to determine usability. Vehicle and pedestrian signals at forty-six (46) signalized intersections and the two (2) fire signals will be retrofitted to LED technology. Curb ramps at forty (40) intersections were upgraded to ADA standards. The project included installation and setup of an adaptive traffic responsive computer system with fiber optic communication cable.

Project: City of Strongsville - City Wide Traffic Signal Upgrade Project
Contact: Mr. Ken Mikula, P.E. - City Engineer - 440-580-3123 - (440) 238-5720 ext 2109
City of Strongsville, 16099 Foltz Parkway, Strongsville, OH 44149

Description: This project consists of the modernization and coordination of traffic signals at 57 locations along the corridors of Pearl Road (U.S. 42), Royalton Road (S.R. 82), Prospect Road (C.R. 237), Howe Road, and other various locations throughout the City. The project included upgrading signal hardware including vehicular signal heads, mast arm signal supports, pedestrian signals, controllers, detectors, and emergency vehicle detection. The project included an adaptive traffic responsive computer system with fiber optic communication cable.

This project coordinated the timing of traffic signals in five sub areas to provide efficient traffic flow, reduce congestion and add improvement in air quality for the region. The computerized signal system measures traffic volumes, congestion and speeds and makes automatic commands to implement signal timing adjustments.

Understanding of the Project

It is our understanding that the basic project consists of the analysis and design of a real-time Central Adaptive Traffic Signal System and the preparation of plans for the bidding of a contract by the City of Hudson for its construction and implementation. The project includes interconnecting/connecting 13 existing signalized intersections, whose locations are identified in the RFP, to a central computer server that will run a real-time adaptive signal application(s). In addition, seven (7) identified locations will have CCTV video surveillance cameras in order to monitor traffic conditions. The City's existing fiber network will be evaluated for connection to the signalized intersections. The use of Ethernet TCP/IP standards will be utilized in the design of the communications for the system. We will coordinate with the City's Velocity Broadband Team to specify preferred fiber termination specification for the signal system to the City's network.

The project includes adaptive signal control technology that adjusts signal timing to accommodate changing traffic patterns and ease traffic congestion. The adaptive signal control technology will continuously distribute green light time equitably for all traffic movements, improve travel time reliability by progressively moving vehicles through green lights, reduce congestion by creating smoother flow and prolong the effectiveness of existing traffic signal timing.

New sensors will be designed at each of the 13 signalized intersections to be utilized by adaptive signal control applications in conjunction with optimized signal timing. By receiving and processing data from the strategically placed sensors, the adaptive signal control will be designed to implement signal timing updates. The process will be designed to be repeated every few minutes to keep traffic flowing smoothly.

The adaptive control system will be designed to provide "automated traffic signal performance measures" as a means to improve on the traditional re-timing processes by providing continuous performance monitoring capability. Signal re-timing efforts can be based directly on actual performance without dependence on software modeling or expensive, manually collected data. The performance measures will consist of a high-resolution data-logging capability added to existing traffic signal infrastructure and data analysis techniques. This provides the City with the information needed to pro-actively identify and correct deficiencies. The City can then manage traffic signal maintenance and operations in support of safety, livability and mobility goals. The performance measures will support the validation of other technologies and operational strategies, such as emerging connected vehicle applications.

Finally, the adaptive control system will be designed to have a ten (10) year service life. The plans will designate that the City will have system licensing and software updates up to a 5-year period from the date of system installation and acceptance. Training for City staff commensurate with available staff will be specified in order for those individuals to effectively utilize the system run report, and diagnose system faults.

The implementation of a leading pedestrian interval will be evaluated for the 13 signalized intersections and implemented with the construction of the project. All intersections will be evaluated for pedestrian facilities including but not limited to revisions to existing crosswalk markings, ADA curb ramps if needed and pedestrian detection where needed or relocated. Intersections along SR 303 and SR 91 will be further evaluated for improved pedestrian safety at crosswalks. The signal sequence at SR 303/Atterbury will be evaluated to improve operations due to sight distance restriction caused by the existing alignment.

The existing signal equipment; i.e., mast arm poles, signals, controllers, etc. will be reused where possible. There are certain locations where the intersection has an older control cabinet that is undersized which may not be able to be re-utilized. This will be replaced and the concrete foundation on which it sits on will be enlarged to accommodate the new cabinet after consultation with the City.

We understand that the City of Hudson may desire, through this project, that the existing emergency vehicle preemption system either be upgraded or replaced. We will meet with emergency services personnel to further discuss the issues and incorporate plans to improve the City's preemption system.

The project work includes traffic control design services for the Owen Brown Street one-lane railroad underpass. The underpass will be signalized in accordance with the **Ohio Manual of Uniform Traffic Control Devices**, Chapter 4H, Traffic Control Signals for One-Lane, Two-Way Facilities. We will explore and recommend options for pedestrian and bicycle controls. These will be presented to the City and full traffic control plans will be developed with the options if approved.

The project work will include the review and analysis of the three (3) crosswalk signaling devices installed on the streets adjacent to Western Reserve Academy. ITS technology will be reviewed for installation that will detect approaching traffic and alert pedestrians. A complete set of construction plans for these devices will be included in the project.

The project work will also include services to answer any project related questions prior to the bidding process from interested contractors. We will attend a pre-bid meeting if required. We will prepare any required plan addenda if needed. We will assist in the analyzing of the bid results and will make a recommendation to the City of Hudson for awarding a contract to the successful bidder. We will also be available to the City of Hudson during construction for consulting purposes. We will also provide shop drawing review and recommendation. We will oversee final verification, adjustment, testing and acceptance by the City of Hudson for all project elements.

Project Manager and Key Staff Members

TMS Engineers, Inc.
***Project Manager* - Michael Schweickart, P.E., PTOE**

Michael Schweickart is a licensed professional engineer in the states of Ohio, Kentucky, Pennsylvania, West Virginia, and Indiana. He is also a certified Professional Traffic Operations Engineer by the Institute of Transportation Engineers.

Michael Schweickart has been involved in more than 500 traffic signal design and timing projects, adaptive signal technology projects, street improvement design projects, traffic impact studies, corridor planning studies, safety studies, system analyses and freeway interchange modification studies.

Michael Schweickart has acted as traffic engineer for several northeast Ohio communities including the cities of Avon, Fairfield, Green, Mayfield Heights, Summit County and Westlake. This experience has provided a unique look and understanding of traffic and transportation problems that cities encounter daily.

Traffic Engineer - Andrew Pierson, P.E.

Andrew received his BS in Civil Engineering from the University of Alaska, has over 24 years of experience working with Traffic in Ohio. Andrew has a close relationship with the Lake Erie Chapter of ITE, serving as Treasurer from 2007-2008, Vice President from 2009-2010, and President in 2011. Andrew specializes in the operation, programming and monitoring of signal systems and has provided this service to over 50 Ohio communities. He is currently setting up the adaptive system for Strongsville, Ohio.

Traffic Engineer - Andrew B. Comer, P.E.

Andy is a registered professional engineer with over 20 years of traffic engineering experience. Mr. Comer is a traffic engineer who has worked on many traffic engineering projects from previous employment in other engineering consulting firms and for Northeast Ohio Area Coordinating Agency (NOACA). As a previous employee of an MPO, Mr. Comer has gained considerable experience of the criteria from the Ohio Department of Transportation and the Federal Highway Administration.

Traffic Technician / Designer - Gerald Toth

Jerry is our lead design specialist at TMS Engineers, Inc., and is recognized as one of the top designers in Northeast Ohio. His expertise is in layout and design of traffic signal projects and adaptive traffic responsive interconnected type signal systems, per ODOT standards.

Schedule

TMS Engineers, Inc. maintains a full staff of technicians and engineers that can be assigned to the City of Hudson project and given the highest priority. TMS Engineers has currently three full time transportation engineers and one full time design engineer available to meet the needs for City. We are fully capable of handling all administrative, engineering and quality control tasks defined by the request for qualifications with the current staff. Field technicians will also be assigned in sufficient quantities to collect and provide the volume of data needed to effectively analyze any existing or proposed condition.

We believe that a staff of four (4) engineers and six (6) field technicians are sufficient to provide the services for this project based upon our recent experience. Therefore, we propose to use this combination for the City of Hudson project. Each and every member of the team is currently available to begin and complete this project.

We also believe that we can complete the project in time to bid September 1, 2021. The following schedule is anticipated for the project:

Begin Work	April 1, 2021
Preliminary Plan Submittal for Review	June 1, 2021
50% Final Plan Submission	July 1, 2021
90% Final Plan Submission	August 1, 2021
Final Plan Completion (100%)	August 15, 2021
Bid	September 1, 2021

Fee

The fee for this work was based on the scope of services and the overall RFP provided for the project. A fee schedule was developed which included the estimate of man-hours by employee category and task, raw hourly rates, actual overhead rate in accordance with ODOT policies and "fixed" fee (profit). The "fixed" fee was set at 11% for this project. An Excel spreadsheet was utilized based upon the Project Development Process of ODOT to develop a fair and reasonable fee for the project Scope of Services. See attached printout. A generic list of tasks was generated from items as outlined in the PDP process. The list was altered by adding additional activities as needed to comply with the City of Hudson Scope of Services.

The project fee is proposed as follows:

1. Basic Project Plan Preparation including survey & base mapping $224,134
2. If Authorized Extra – SUE services $15,000
3. If Authorized Extra – Soil boring, testing & report $10,750
4. As Requested By City Council – Addition of the intersection of SR 303/Hayden $24,000

Management Summary

TMS Engineers, Inc. is a specialty traffic engineering firm with immense experience in the design, set-up, programming and monitoring of advanced traffic management systems. TMS Engineers has performed this type of work for more clients than anyone else in northeast Ohio. Completed design to ongoing operation of comparable adaptive type systems has been accomplished by TMS Engineers for the Cities of Brunswick, Westlake and Strongsville. TMS Engineers has also setup and continues to monitor the adaptive signal system on Chagrin Boulevard for the Village of Woodmere. These project experiences make us uniquely qualified to provide engineering services to the City of Hudson for this project.

TMS Engineers is also intimately familiar with the conditions and needs of the City of Hudson. We provided preliminary engineering services to the City that identified the traffic control needs for this project and published these recommendations in an engineering document titled "Purpose & Needs Study, City Wide Adaptive Signals", dated May 21, 2019. TMS Engineers has been involved in numerous projects which have identified needs consistent with the Purpose & Needs Study in the City of Hudson. As an example, TMS Engineers prepared impact studies for the "First & Main" downtown area which is the center of where this new signal system will have great impact, provide congestion relief and improve safety. TMS Engineers has performed traffic studies in the area of the Western Reserve Academy. This area will be part of the engineering that will identify Intelligent Transportation System technologies that may be installed to assist drivers to recognize pedestrian activity on an automatic basis. TMS Engineers helped identify the needs for the Owen Brown underpass to improve pedestrian and bicycle safety. A traffic signal was recommended to be installed to separate differing modes of transportation in the tunnel. Recently, Michael Schweickart has been chosen to assist the City's Safety Committee and provide safety solutions for identified problem areas. This experience will greatly influence the design elements of the future Central Adaptive Traffic Control System. One example is the recommendation for the use of a "leading pedestrian interval" in the signal sequence which be applied to this project.

Michael Schweickart will lead the team at TMS Engineers and hand-picked subconsultants for this project. He will perform all QA/QC activities and manage the subconsultants. One of our senior engineers, Mr. Andrew Pierson will manage the project design and provide status reports on the design activities. Mr. Schweickart and Mr. Pierson will attend all meetings with the City and be responsible to report activity and progress for the project.

Finally, the team at TMS Engineers has successfully completed many other projects, both local and State funded, in which we exceeded expectations with our public relations experience, our control of project costs and our high plan quality. One of those projects similar in nature was the City of Aurora Citywide Signal Project which is a Federally funded project which required these aspects. References are available upon request. We are currently finishing another signal project for the City of Dover, Ohio. Final plans will be delivered next month. We *will be* ready for the City of Hudson.

Additional Information

Attached is a printout of our fee development spreadsheet to show estimated hours, staff hourly rates, overhead rates, net fee and sub-contractor costs. The sub-contractor costs are high-lighted in green.