

C. Proposed Work Plan

When the details contained in this proposal are summarized into a single project theme, we believe that the City is looking for the most cost effective and qualified contractor to perform this work. No other company's body of work in this industry can compare to ADS, whether it be in terms of experience, magnitude, or complexity. ADS pioneered the field of sewer flow monitoring and has been at its forefront for nearly four decades. For the past 25 years, the ADS staff have been integral part of some of Michigan's most important flow monitoring programs. We have built our relationship on trust, hard work, and responsiveness. We also bring the stability of being the equipment manufacturer for this project, which will allow our team to be more responsive to service requests, equipment repairs, and system upgrades. Below are some of the details on the approach our team would take should we be awarded this project.

C.1 - Area Velocity Flow Meter – Proposed Hardware

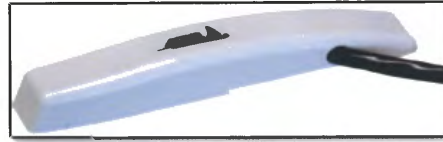


Peter Petroff, the founder of ADS, created the first solid-state electronic flow monitor in 1973. Since then, our flow monitors have been in a continual state of improvement. We have developed better depth sensors, velocity sensors, sensor strategies, software, field procedures and management procedures over the years. Our monitors have won more awards than any other sewer flow monitors including the Pollution Engineering Magazine 5-Star Award. **ADS also has the only open channel flow meters that have been verified for accuracy by the US Environmental Protection Agency.** ADS flow monitors are the most versatile and stable flow monitors available today for pipes ranging from 8" to 120" in diameter.

ADS is proposing the ADS Triton+ Flow Meter, our newest flow meter model, supplied as part of this project. The Triton+ is a multiple technology monitor that is flexible enough to collect data from almost every available sensor technology that is used in wastewater applications today. The meter is adaptable to a wide range of customer applications and budgets. It can be configured as an economical single sensor monitor or a dual sensor monitor as discussed. The Triton+ offers one of the industry's longest battery life (15 months) at 15-minute logging and has fewer parts for a more reliable system. This enables it's owner to lower their flow meter lifetime ownership costs and initial purchase price. The system provides the lowest power cost per data sample of any Intrinsically Safe flow monitor available on the market.

The ADS Triton+ can accommodate multiple sensor technologies and can monitor two (2) separate pipes with a single monitor and with the ability to capture depth and velocity data in both channels. Included in this proposal is the Peak Combo Sensor, this sensor combines one peak velocity sensor, one upward looking ultrasonic level sensor, and one pressure level transducer for surcharge or redundant measurement into one probe.

The ADS Peak Combo sensor is designed to operate in a wide range of conditions. Due to its very small profile, it reduces the chance of ragging especially in larger pipes. It is capable of measuring both shallow and deep water. It also has distinct advantages in measuring in less than ideal conditions due to ADS' utilization of low frequency, wide beam ultrasonic Doppler technology. The proposed system would give the County the ability to implement a redundant sensor strategy it two different channels with the same data logger.



Also included in this quote is our primary Ultrasonic level sensor, which is an above-water, down-looking sensor that uses two independent acoustic circuits to measure water depth. This non-contact, zero-drift sensing method results in a stable, accurate, and reliable flow depth calculation. Two independent ultrasonic transceivers allow for independent crosscheck, which provides built-in confidence and reliability. Advanced software filtering programed inside the flow meter helps compensate for adverse monitoring conditions, such as waves, foam, debris, etc.

One of the reasons ADS technology is selected to conduct and/or to supply equipment on so many flow monitoring projects is that the drift-free ultrasonic technology is the primary depth measurement while the pressure depth technology is used for redundancy and for measuring surcharge depth. Because both depths are measured in the same cross section of flow, ADS meters can automatically calibrate the pressure sensor to the zero-drift ultrasonic depth sensor and this calibration is automatically performed daily. **This is a critical difference between ADS technology and our competitor's technology.**

Not included in this proposal but available is our Surface Combo Sensor, a revolutionary new sensor featuring four technologies such as a non-contacting surface velocity, redundant ultrasonic depth, surcharge continuous wave velocity, and pressure depth. ADS also has a special Long Range Depth (LRD) sensor we can use if there is a need to monitor depths very accurately and up to the manhole rim level. We mention these sensors because they are available if needed or for future applications and fully compatible with the Triton+ system.

Internal modems come standard in the Triton+ system, and will include a SIM card and antenna to utilize the built in GPRS TCP/IP system which facilitates high-speed, low-cost, efficient digital communication with the monitoring equipment. ADS uses AT&T as our preferred wireless provider in Michigan. A variety of antennas styles are available such as flush mount, whip, Hirschmann and pedestal if reception is poor, and if an alternative antenna mounting option can be accommodated.

Although Intrinsic Safety may not have been outlined by our competitors, the ADS Triton+ flow meter has been certified under IECEx (International Electrotechnical Commission Explosion Proof) Intrinsic Safety (IS) standards for use in Zone 0/Class I, Div. 1, Groups C&D rated hazardous areas. The ADS

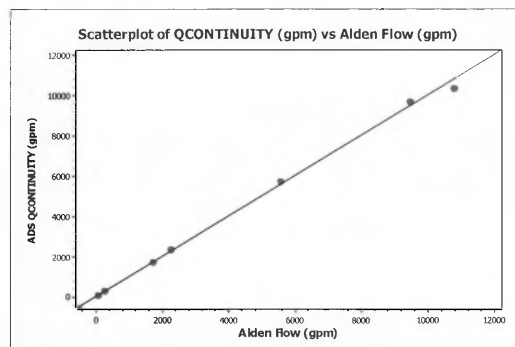


Triton+ GSM modem is certified for installation and operation in the hazardous area and draws its power from the Triton+ battery pack.

To build on the accuracy of our flow monitors, ADS has developed algorithms within the monitor to help reduce the occurrence of erroneous reading. This technology is called Monitor Level Intelligence (MLI™). MLI™ automatically adjusts to site conditions to extract accurate, reliable measurements. While all other Doppler manufacturers calibrate instruments, and establish sensor-reading algorithms at the factory, MLI™ is flow dependent.

MLI™ optimizes sensor performance and readings by continually learning the site-specific hydraulics and the changing dynamics of depth/velocity relationships. MLI™ uses built in intelligence to learn the hydraulics of the specific monitoring location. Once MLI understands the site hydraulics, it looks at previous and historical readings to insure consistency and repeatability and eliminates erroneous firings. This “smart” feature will be a benefit to the City by ensuring data reliability and system uptime, the most critical element of a flow monitoring program.

Judging the accuracy of flow metering equipment, procedures and manufacturer claims can be a difficult task. To help our customers have more faith in the quality of data that ADS provides, ADS subjected our flow metering technology and procedures to the US EPA’s Environmental Technology Verification (ETV) program to provide the industry and our customers an impartial and unbiased verification of ADS’ accuracy claims. Virtually every US flow monitoring manufacturer participated and signed off on the EPA’s lab and field test protocols, but ADS is the only firm to subject our technology and procedures to the EPA’s rigorous verification. The EPA ended the voluntary ETV program in 2013, however ADS continues to utilize the procedures and technology tests verified by other independent agency on our flow metering verifications. In 2014, the ADS TRITON+ monitor was tested in a 35” pipe at Alden Labs in Massachusetts. The testing was performed under different flow conditions with independent flow quantification and the TRITON+ provided excellent precision and accuracy. The chart below presents the test results.



ADS TRITON+

The new **ADS TRITON+**™ is a “Fit-for-Purpose” open channel flow monitor for use in sanitary, combined, and storm sewers. It is designed to be the most versatile flow monitoring system available for wastewater collection applications. It supports single pipe or dual pipe flow measurement installations and is certified to the highest level of Intrinsic Safety.

ADS TRITON+

This multiple technology flow monitor will power almost every available sensor technology that is used in wastewater applications today. It is the most versatile and cost-effective, multiple-technology flow monitor on the market. The **TRITON+** includes three multiple technology sensor options: a Peak Combo Sensor, a Surface Combo Sensor, and an Ultrasonic Level Sensor (see inside for technology and specifications). This array of monitoring technologies provides for unmatched flexibility in a fully integrated, fit-for-purpose monitoring platform.

The **TRITON+** platform adapts to a wide range of customer applications and budgets. It can be configured as an economical single sensor monitor or dual sensor monitor. It offers a longer battery life and fewer parts for a more reliable system. This provides a lower purchase price and a lower ownership cost over the life of the monitor. The **TRITON+** has the lowest operational cost per data sample of any Intrinsically Safe flow monitor available.



About ADS

A leading technology and service provider, ADS Environmental Services® has established the industry standard for open channel flow monitoring and has the only ETV-verified flow monitoring technology for wastewater collection systems. These battery-powered monitors are specially designed to operate with reliability, durability, and accuracy in sewer environments.

TRITON+ Features

- Versatile performance that is easy to install and operate
- Two sensor ports supporting 3 interchangeable sensors providing up to 6 sensor readings at a time
- Single or dual pipe/monitoring point measurement capabilities
- Multi-carrier cellular or serial communication to help optimize coverage and cost
- Industry-leading battery life with a 3G/4G UMTS/HSPA+ wireless connection providing up to 15 months at the standard 15-minute sample rate (*varies with sensor configuration*)
- External power and Modbus network connectivity option available with an ADS External Power and Communications Unit (ExpAC) and a 9-36 VDC power supply
- Analog and digital I/O expansion (4-20 mA and dry contacts) available with an ADS External I/O unit (XIO)
- Modbus protocols enabling RTUs to help simplify SCADA system integration
- Supports the delivery of CSV files to an FTP site at user-defined intervals
- Supports actuation of a water quality sampler for flow proportional or level-based operation
- Monitor-Level Intelligence (MLI®) enables the **TRITON+** to effectively operate over a wide range of hydraulic conditions
- Superior noise reduction design for maximizing acoustic signal detection from depth and velocity sensors
- Five software packages for accessing flow information: *Qstart*™ (configuration and activation); *Profile*® (data collection, analysis, and reporting); *IntelliServe*® (web-based alarming); *Slicer.com*® (I/I analysis); and *FlowView Portal*® (online data presentation and reporting)
- Intrinsically-Safe (IS) certification by IECEx for use in Zone 0/Class I, Division 1, Groups C & D, ATEX Zone 0, and CSA Class I, Zone 0, IIB
- Thick, seamless, high-impact, ABS plastic canister with aluminum end cap (meets IP68 standard)
- Innovative circuit board dome-enclosure protects and limits exposure of electronics when opening the canister to change the battery

To Learn more, visit www.adsenv.com/TRITON+

ADS ENVIRONMENTAL SERVICES®
A Division of ADS LLC

Multiple Technology Sensors

The **TRITON+** features three depths and two velocities with three sensor options. Each sensor provides multiple technologies for continuous running of comparisons.

Peak Combo Sensor CS4 - PN: 8K-CS4-05-35



Dimensions: 6.76 inches (172 mm) long x 1.23 inches (31 mm) wide x 0.83 inches (21 mm) high

This versatile and economical sensor includes three measurement technologies in a single housing: ADS-patented continuous wave peak velocity, uplooking ultrasonic depth, and pressure depth.

Continuous Wave Velocity

Range: -30 feet per second (-9.1 m/s) to +30 ft/sec (9.1 m/s)

Resolution: 0.01 feet per second (0.003 m/s)

Accuracy: +/- 0.2 feet per second (0.06 m/s) or 4% of actual peak velocity (whichever is greater) in flow velocities between -5 and 20 ft/sec (-1.52 and 6.10 m/s)

Uplooking Ultrasonic Depth

Performs with rotation of up to 15 degrees from the center of the invert; up to 30 degrees rotation with Silt Mount Adapter

Operating Range: 1.0 inch (25 mm) to 5 feet (152 cm)

Resolution: 0.01 inches (0.254 mm)

Accuracy: 0.5% of reading or 0.125 inches (3.2 mm), whichever is greater

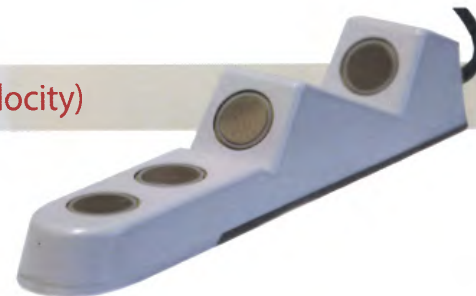
Pressure Depth

Range: 0-5 PSI up to 11.5 feet (3.5 m); 0-15 PSI up to 34.5 feet (10.5 m); or 0-30 PSI up to 69 feet (21.0 m)

Accuracy: +/-1.0% of full scale

Resolution: 0.01 inches (0.25 mm)

Surface Combo Sensor CS5 - PN: 8K-CS5-V2-05-30 (Surface Velocity)



Dimensions: 10.61 inches (269 mm) long x 2.03 inches (52 mm) wide x 2.45 inches (62 mm) high

This revolutionary new sensor features four technologies including surface velocity, ultrasonic depth, surcharge continuous wave velocity, and pressure depth.

Surface Velocity *

Minimum air range: 3 inches (76 mm) from the bottom of the rear, descended portion of the sensor

Maximum air range: 42 inches (107 cm)

Range: 1.00 to 15 feet per second (0.30 to 4.57 m/s)

Resolution: 0.01 feet per second (0.003 m/s)

Accuracy: +/-0.25 feet per second (0.08 m/s) or 5% of actual reading (whichever is greater) in flow velocities between 1.00 and 15 ft/sec (0.30 and 4.57 m/s)

*The flow conditions existing in some applications may prevent the surface velocity technology from being used.

Ultrasonic Depth

(Does not require electronic offsets)

Minimum dead band: 1.0 inches (25.4 mm) from the face of the sensor or 5% of the maximum range, whichever is greater

Maximum operating air range: 10 feet (3.05 m)

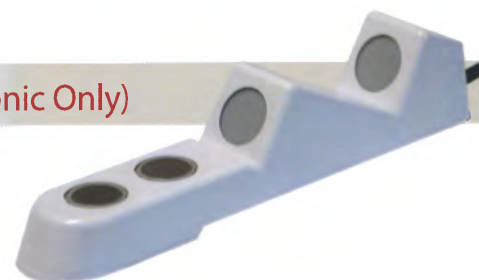
Resolution: 0.01 inches (0.25 mm)

Accuracy: +/- 0.125 inches (3.2 mm) with 0.0 inches (0 mm) drift, compensating for variations in air temperature

Surcharge Continuous Wave Velocity (Under submerged conditions, this technology provides the same accuracy and range as **Continuous Wave Velocity** for Peak Combo Sensors)

Surcharge Pressure Depth (Under submerged conditions, this technology provides the same accuracy and range as **Pressure Depth** for Peak Combo Sensors)

Ultrasonic Level Sensor CS5(d) - PN: 8K-CS5-D1-00-30 (Ultrasonic Only)



Dimensions: 10.61 inches (269 mm) long x 2.03 inches (52 mm) wide x 2.45 inches (62 mm) high

This non-intrusive, zero-drift sensing method results in a stable, accurate, and reliable flow depth calculation. Two independent ultrasonic transducers allow for independent cross-checking.

Ultrasonic Depth (See **Ultrasonic Depth Specifications Above**)

TRITON+ Specifications

Connectors

U.S. Military specification MIL-C 26482 series 1, for environmental sealing, with gold-plated contacts

Communications

- Hepta band UMTS/HSPA+ cellular wireless modem
- Direct connection to PC using an ADS USB serial cable

Monitor Interfaces

- Supports simultaneous interfaces with up to two combo sensors
- Supports optional Analog and Digital I/O with ADS XIO: two 4-20 mA inputs and outputs, two switch inputs and two relay outputs

Power

Internal - Battery life with a cellular modem:

- Over 15 months at a 15-minute sample rate*
- Over 6 months at a 5-minute sample rate*

External - Optional external power available with ADS External Power and Communications Unit (ExPAC) with an ADS- or customer-supplied 9-36 Volt DC power supply

* Rate based on collecting data once a day and varies according to sensor configuration and operating temperature

Operating and Storage Temperature

-4 degrees to 140 degrees F (-20 degrees to 60 degrees C)

Connectivity

- Modbus ASCII: Wireless; Wired using ExPac
- Modbus RTU: Wireless; Wired using ExPac
- Modbus TCP: Wireless only

Intrinsic Safety Certification

- Certified under the ATEX European Intrinsic Safety standards for Zone 0 rated hazardous areas
- Certified under IECEx (International Electro technical Commission Explosion Proof) Intrinsic Safety standards for use in Zone 0/Class I, Division 1, Groups C&D rated hazardous areas
- CSA Certified to CLASS 2258 03 - Process Control Equipment, Intrinsically Safe and Non-Incendive Systems - For Hazardous Locations, Ex ia IIB T3 (152 degrees C)

Other Certifications/Compliances

- FCC Part 15 and Part 68 compliant
- Carries the EU CE mark
- ROHS (lead-free) compliant
- Canada IC CS-03 compliant



ADS Flow Monitoring Software



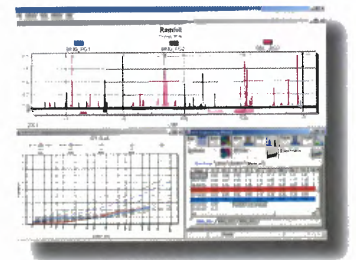
Qstart is desktop software providing field crews with a simple, easy-to-use tool for quickly activating and configuring ADS flow monitors. Qstart enables the user to collect and review the monitor's depth and velocity data in hydrograph and tabular views simultaneously.

FlowView Portal is web-hosted software providing robust report delivery, enabling the user to manage data, customize reports, and select viewing parameters. FlowView Portal has a virtually unlimited database for storing and accessing historical data, using data for comparison and trend analysis purposes, and sharing information electronically.

IntelliServe is web-hosted software providing real-time operational intelligence on the status of flow activity throughout the wastewater collection system. IntelliServe utilizes dynamic (or smart) alarming to inform clients about the occurrence of rain events, flow performance abnormalities, and data anomalies at the flow monitoring locations.

Slicer.com is web-hosted software providing a powerful set of engineering tools designed for both the consulting and municipal engineer. Slicer.com's inflow and infiltration tools examine wastewater collection system dry and wet weather flow data and provide rigorous performance measurements in one-tenth the time of other analysis tools.

Profile is desktop software providing the industry's best data analysis tools, from basic flow monitoring data to complex hydraulic analysis. Profile is intuitive software that saves time and improves data quality by compiling project data into one location for analysis and reporting.



FLOW MONITORING APPLICATIONS

- Billing
- Combined Sewer Overflows (CSOs)
- Spill Notification
- Inflow/Infiltration
- Stormwater Monitoring
- Model Calibration
- Capacity Analysis

C.2 - Professional Installation and Equipment Commissioning

Site Selection

Potential locations for flow meter sites were already determined City staff based on previous goals and as outlined in the RFP. We will consider and use any historic flow records, if available, to further understand the site hydraulics at each location. After site investigations are performed in the field, and after discussion those details with City personnel, final meter locations will be selected for installation. Typically, a suitable flow meter location has straight pipes, free of debris, flowing into the selected manhole to provide laminar flows.

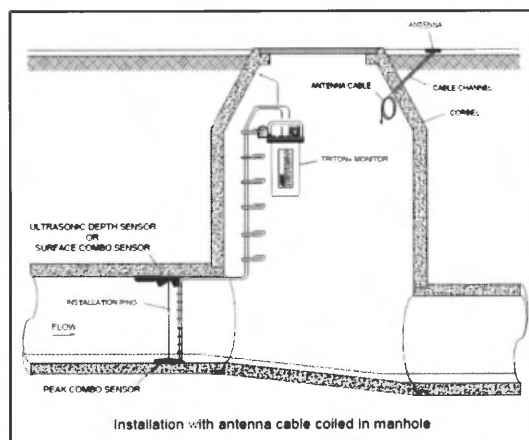
Site Inspections for Monitoring Suitability

Selecting suitable locations will be critical towards the overall success of the project. Our team has the experience to successfully identify locations that will provide the City with optimal meter up-time and valid data. For flow monitoring sites, manhole and pipe accessibility is evaluated along with flow characteristics. The following information is collected during a site investigation phase of a monitoring project:

- Channel cross section (round, elliptical, box, flume, etc)
- Channel slope and uniformity
- Inlet and outlet flow characteristics
- Laminar flow free of turbulence
- Silt/debris

Monitor Installation

Installation of flow monitoring equipment will begin once the site reports and locations have been approved by the City. ADS flow sensors are typically installed in the lines incoming to the monitored manhole. The monitor and sensor cables will be secured to the manhole walls and/or steps to allow ready access by ADS personnel and to minimize chances that debris would obstruct the sensors. Meters are then activated on a set sample rate (5-minutes) and data is immediately available for download or transfer to a 3rd party software, such as H2OMetrics.



Example of a typical ADS Flow Meter Installation

C.3 - Field Services on ADS Equipment

As part of a monthly maintenance or service agreement, ADS will perform preventive maintenance services on the twelve (12) ADS flow monitors. Andrew Rood, Project Manager, will be designated as the immediate contact for problems associated with maintenance and confirmation work. Tom Pientak, will be the active field manager, and will also be readily available for all service items for this project. The services required to maintain the hardware include the following:

Service Schedule: The field service shall accommodate normal operating hours of 8:00 a.m. to 4:00 p.m. Monday through Friday. Should ADS need to accommodate and/or coordinate service work outside of these operating hours, we will provide the City with advanced notification for any work outside of these hours. ADS will provide the City Representative with a schedule of maintenance based off bi-weekly data checks by our data analysts.

Diagnostics: Remote diagnostic evaluation of all equipment will be performed using the most current ADS procedures and programs from its facilities in Troy, MI. Our local office is staffed with our Project Manager, Field Managers, and Field Associates to ensure quick resolutions will be provided for the installed equipment.

Repair: Repair and preventative maintenance services are essential and necessary to keep the equipment operating in accordance with the manufacturer's design specifications. The types of services to be performed under this Agreement include but are not limited to the following:

- ✓ Routine testing and verification of proper operation by Data Analyst and Field Technicians
- ✓ Cleaning of any sensors installed at the monitoring locations (monthly/as needed)
- ✓ Communication link monitoring for the detection of failures (as needed)
- ✓ Confirmation of equipment performance as directed by a trained Data Analyst or as requested
- ✓ Sensor Replacement (a depth sensor shall be considered for replacement if the sensor undergoes troubleshooting by a field representative and is found to be damaged or out of its specified tolerance range); (a velocity sensor shall be considered for replacement if the sensor readings are a constant value or zero, indicating a loss of sensitivity and/or does not meet its specified tolerance when compared to a confirmation measurement).
- ✓ Battery replacement (When needed, ADS will monitor the battery voltages of any ADS equipment covered in this contract)
- ✓ Installing firmware updates
- ✓ Pressure sensor desiccant replacement (annually)

Warranty: All new products manufactured by ADS will be free from defects in material and workmanship for up to one (1) year following the date of shipment from ADS. Any unauthorized repair or replacement, use, installation or incorporation of unauthorized parts or accessories, including without limitation opening up a monitor, will void this product warranty. Any repaired or replaced part will be covered by this warranty for ninety (90) days from the date that such repaired or replaced product occurs. This warranty is available to the Client as the original purchaser of the product and only if it has been installed, operated, and maintained in accordance with ADS' standards. This warranty does not apply to damage by catastrophes of nature, fire, explosion, acts of God (including, but not limited to, lightning damage and power surges), accidents, improper use or service, damage during transportation, or other similar causes beyond ADS' control.

Response Time: ADS will investigate any perceived malfunction of the monitor, sensors, or communication equipment within three to five (3-5) business days of discovery of the malfunction. Furthermore, the equipment will be returned to a fully operational state within five to seven (5-7) business days after the malfunction is discovered.

Substitute Unit: If any equipment must be removed from the site for offsite repair within the 1-year warranty period, ADS will install a temporary substitute flow monitor to continue data gathering until the original meter is repaired and reinstalled or replaced at no additional charge. ADS will ensure that only identical monitoring units will be used on this project. This will ensure the highest consistency with the data should any offsite repairs be required.

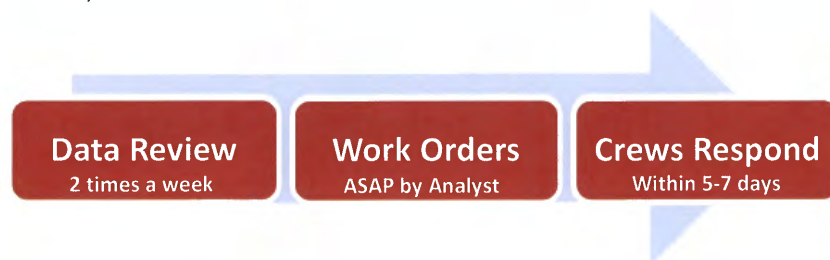
Monthly Service Reports: ADS can provide the City Representative with a monthly listing of all repair work, maintenance work and diagnostics performed, including any internal flow meter adjustments and firmware upgrades. These high quality reports can be produced quickly from our mobile tablet work order and paperless system.

Communications: ADS will provide communications services on a continuous basis and shall procure communications services as required. As part of this proposal, ADS has included in its cost all communication charges and/or fees as part of our service costs for wireless data transmission.

Parts and Supplies Inventory: All ADS Field Fleet Vehicles are equipped with all the necessary parts, supplies and materials for any required maintenance and repair of the ADS flow monitors and rain gauges. As directed by the city, ADS will carry sufficient inventory to promptly make repairs and avoid downtime. Out of warranty items that require repair/replacement will be quoted and discussed with the City before any work is performed.

Data Collection: A fully trained and certified ADS Data Analyst will first ensure the accuracy of the location information file (LIF) for each site and will assist in the creation of a site sheet. The analyst will collect data from each monitoring location on a bi-weekly basis. If the monitor does not collect successfully, the analyst will schedule immediate service for the site. This bi-weekly data check is included as part of our monthly maintenance schedule for the City.

Field Maintenance Schedule: The monitors and rain gauges will be collected for final processing at least two times per week via wireless communication. Data will be reviewed as it is collected and monitor maintenance and sensor cleaning will be performed by field crews on site within 5-7 days of an issue being discovered. In addition, independent manual readings of depth and velocity will be performed periodically to confirm the accuracy of the flow monitor in each specific site. Scheduled maintenance can vary from week to week depending on the type of maintenance or depending on the issues discovered by the analyst.



C.4 - Field Maintenance Procedures and Checklists for Flow Monitors

Data integrity and uptime is critical to the success of this flow monitoring project. Therefore, we take great pride in stressing the importance of our field maintenance procedures because we know that our processes lead to the most accurate and consistent data in the industry. ADS field crews repair ADS flow monitors using the most accurate and up-to-date manufacturing standards and using the most rigorous and demanding recording keeping standards. They follow ISO 9001 quality management systems to optimize readings and uptime as outlined above. All field personnel must pass field certification training before being assigned to a field crew. These training and operational procedures ensure that ADS data will be defensible under any special requirements of Consent Orders.

Procedures related to flow monitoring operations are maintained in an online document library that is accessible to all employees. There are over 190 documented procedures in the library. **Printed out, the ADS Field Services Manual for flow monitoring is 434 pages of detailed, illustrated instruction covering every aspect of monitoring, from hydraulics, to sensors, to equipment, software, management procedures and error handling.** Our procedures, our built-in redundancies, and our fail-safe mechanisms allow us to avoid most mistakes and to produce reliable, accurate information for our customers. If awarded this project, ADS can make many of these forms available to the Naperville Representative for further review.

Field Crews are also equipped with Digital Tablets to assist with paperless reporting and checklists. All field work is recorded on a “Daily Form” using a tablet or on paper. These Daily Forms provide snapshots of all the field work performed on each site in a workday. Also, due to the nature of this business, all crew members are fully trained in confined space entry. Confined Space Entry (CSE) forms are REQUIRED for all maintenance in which “manned entry” is required.

The form is titled "Daily Field Log Flow Monitoring" and includes fields for Project, Region, Office, Emp.#, Weather, Date, Day, Crew Leader, Vehicle #, Mileage, Start, and End. It features a table for Assistant #1 with columns for Emp#, Name, Start Time, and Finish Time. Below this is a detailed table with columns: Job #, Task #, Site Name/Location, Revers, Time, AirDOF, DOF, +/-, \$/lit, [Pk.Val], Start time, and Finish time. The form also includes three sections for "Work Performed / Comments" and "Equipment installed" with a V-Meter # field.

Example of the ADS Daily Field Log Checklist

The table is titled "Long Term Flow Monitor Service Field Crew Spare Parts Inventory" and includes a note: "Obtain the necessary parts for the Equipment and Monitor. Use before going into field. Take with you and return to ADS after use." The table has columns for Part Name, Part Number, and various inventory or tracking details. It lists various components like sensors, valves, and filters.

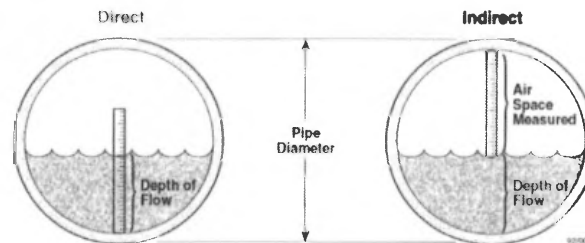
ADS has Advanced Checklists for all Hardware Maintenance

C.5 - Procedures for Confirmation and Flow Verification

Two field skills form the foundation for site quality control: performing depth of flow (DOF) measurements and performing site confirmations. DOF measurements are performed to verify the monitor's depth sensor measurements. Site confirmations are performed to verify the monitor's velocity sensor measurements and to calculate flow quantities.

To verify the accuracy of ADS flow depth sensors, manual flow depth measurements are performed independent of the monitor's depth sensors using a ruler to measure the flow depth. The resulting measurements are then compared to monitor's measurements to verify the sensor accuracy. There are two types of flow depth measurements: DOFs and air DOFs.

- DOF: This involves placing a ruler directly in the flow to measure the flow depth. This type of measurement is also called a direct measurement.
- Air DOF: This involves measuring the air space above the flow with a ruler to determine the flow depth. Flow depth is determined by subtracting the resulting measurement from the pipe height. Air DOFs often are taken from the face of the ultrasonic sensor or from the crown of the pipe. This type of measurement is also called an indirect or a range measurement.



Two types of flow depth measurements: DOFs and Air DOFs

Taking flow depth measurements requires skill in six areas in which all ADS Field Crews Members are trained and certified in including:

- Using the correct tools
- Positioning yourself correctly in the manhole
- Performing DOF and air DOF measurements
- Taking DOF measurements in the right location
- Measuring flow depth in varying flow conditions
- Measuring silt and debris

A site confirmation is a manual depth, velocity, or quantity measurement taken at a monitoring site to independently verify the accuracy of the monitor's sensors and to develop the various components of the flow equations used to quantify flow data. Site confirmations are the primary quality control procedure performed on a flow monitoring project. Every confirmation must include, at a minimum, a depth, velocity (except weirs), silt, and time/date. As described above, depth is the first part of a successful confirmation, velocity is the second. **ADS will perform confirmations at each location, as identified by our data analyst during their review process, and as part of our proposed work plan when needed.**

C.6 - QA/QC Process for Flow Data Gathering and Analysis

Our comprehensive Quality Assurance/Quality Control (QA/QC) Program is unmatched in the industry and will provide a consistent approach to quality to ensure that all products and deliverables meet project requirements. The program will address methodologies, work review, frequency and timing of review, review documentation and distribution, and approval/sign-off requirements. This ensures a data editing and processing “paper trail” to address any outside questions regarding data accuracy, overflow volume calculations, etc. ADS is ISO 9001 certified for manufacturing, field services, engineering, data analysis and management.

ADS follows careful monitoring procedures to direct the manufacture of state-of-the-art instrumentation and equipment. This kind of activity, coupled with ADS’s continuous efforts to improve field processes and methodologies, underscores the company’s commitment to provide high value/high quality products. The City will be able to draw upon ADS's ability to bring this industry knowledge to the project. ADS’ quality programs are unmatched and result in attaining accurate, reliable flow information.

The quality of flow monitoring data is a function of the quality of the measuring equipment employed and the competence of the field crews and data analysts that work on the project. ADS maintains an internal training certification program for the field managers, field technicians, and data analysts who work on any ADS project. There are 18 training modules for field managers and 8 flow monitoring modules for field technicians. Data Analysts must complete classroom training plus a 6-month internship. Employees are not allowed to work independently until they have passed certification exams in each module and have demonstrated proficiency to a qualified trainer.

All Field Managers at ADS are required to complete the two-volume “Operation and Maintenance of Wastewater Collection Systems” course. This course is developed and administered by California State University, Sacramento for the U.S. Environmental Protection Agency. In some states, this course qualifies the graduate to become a Wastewater Collection System Operator.

ADS’ QA/QC and training methodologies are unparalleled within the industry and we believe this approach meets the City’s needs for the most accurate and reliable flow information.



C.7 - ADS Data to H2Ometrics



ADS Understands the H2Ometrics software very well, since our proposed team is already providing both raw and final data to their Software for our Oakland County WRC and Livonia Clients. To supply data, ADS has crafted an easy and low cost solution for sharing data into 3rd party software applications, such as H2Ometrics.

ADS Triton+ monitors can be programed to “Push Data” in a common .CSV file and to a secure FTP server, directly from the monitoring hardware. In the Oakland County WRC example, ADS has programed several of the ADS Triton+ meters to send data every 15 minutes to an H2Ometrics FTP.

This process is unique in that it doesn’t require any additional hardware or software to make the file transfer work between our ADS hardware systems and the H2Ometrics software system. Raw data directly from the flow meter is “pushed” via cellular telemetry onto a secure FTP folder, H2Ometrics then looks for the file on a pre-defined interval, and when a new .CSV file is discovered, the data is automatically imported into the system for the corresponding location.

ADS is already committed to working with H2Ometrics in other projects – and we see this as a huge advantage to the City since we have a system already in place that works very well, with minimal effort or setup required by either party. **ADS will also accommodate the City if other data delivery formats are required in the future.**

D. Fee Proposal - Included in Separate Envelope as Requested by RFP

E. Authorized Negotiator

For this project, our local Business Development Manager, Chris Skehan, will serve as the Authorized Negotiator for any price or contractual obligations, if we are selected for this project. Chris’s contact info is as follows:

Christopher Skehan, M.S.
Business Development Manager
Phone: (708) 341-9701
[Email: cskehan@idexcorp.com](mailto:cskehan@idexcorp.com)

F. Attachments

- ✓ Legal Status of Consultant
- ✓ Conflict of Interest Form
- ✓ Living Wage Compliance Form
- ✓ Non-Discrimination Form