

August 14th, 2023

**RFP No. 23-39 - Sanitary Sewer Flow Metering Services**

City of Ann Arbor, MI

Attention: City Procurement Unit

c/o Customer Service

301 East Huron Street

Ann Arbor, MI 48104

Proposal Submitted by:



Troy, MI

August 14th, 2023

City of Ann Arbor, MI  
Customer Service  
301 E. Huron Street  
Ann Arbor, MI 48104

**Subject: RFP No. 23-39 – Sanitary Sewer Flow Metering Services**

ADS Environmental Services (“ADS”) is pleased to provide the City of Ann Arbor our project understanding, approach, experience, and qualifications for the above referenced project. We are very excited at the opportunity to continue our relationship with the City to provide critical flow and rainfall monitoring data and alarming services, as you carry out the many programs that utilize this information.

Successful and accurate flow monitoring is a very complex task requiring superior technical expertise, dedicated personnel, and proven workflow processes. These components are essential to eliminate risk and deliver a successful project. ADS has collected a significant amount of experience and lessons learned while working on the City’s flow, level and rainfall monitoring program over the last decade and is prepared to enhance these critical components to provide the City a program that is unrivaled in the industry. Our proposal demonstrates that we can meet, without exception, each standard of qualifications outlined by the City’s specifications.

ADS would like to thank you for the opportunity to continue our working relationship with the City. We believe we provide the City the technical expertise, the most experienced staff, and proven processes to manage this project. **By selecting ADS, the City will eliminate any risk associated with switching flow monitoring service providers.** You will partner with a flow monitoring specialist that will continue to focus its energies and leverage its experience with your system on providing a flow monitoring program to the satisfaction of all your stakeholders. If you have any questions regarding this submittal, please do not hesitate to call me at (219) 546-9056.

Sincerely,  
ADS Environmental Services

*Bob Uzelac*

Bob Uzelac  
Business Development Manager  
(219) 546-9056  
[buzelac@idexcorp.com](mailto:buzelac@idexcorp.com)

A.1 - Professional Qualifications – Company Information



**There are many companies, firms, and groups that claim to perform flow monitoring services. ADS is the only true expert of these services.**

When municipal owners need to know about collection system flows, they choose ADS to monitor performance. They rely on ADS for robust, accurate and affordable measurement, the kind of hydraulic analysis necessary to support their projects and financial objectives. Organizational Information for this project includes:

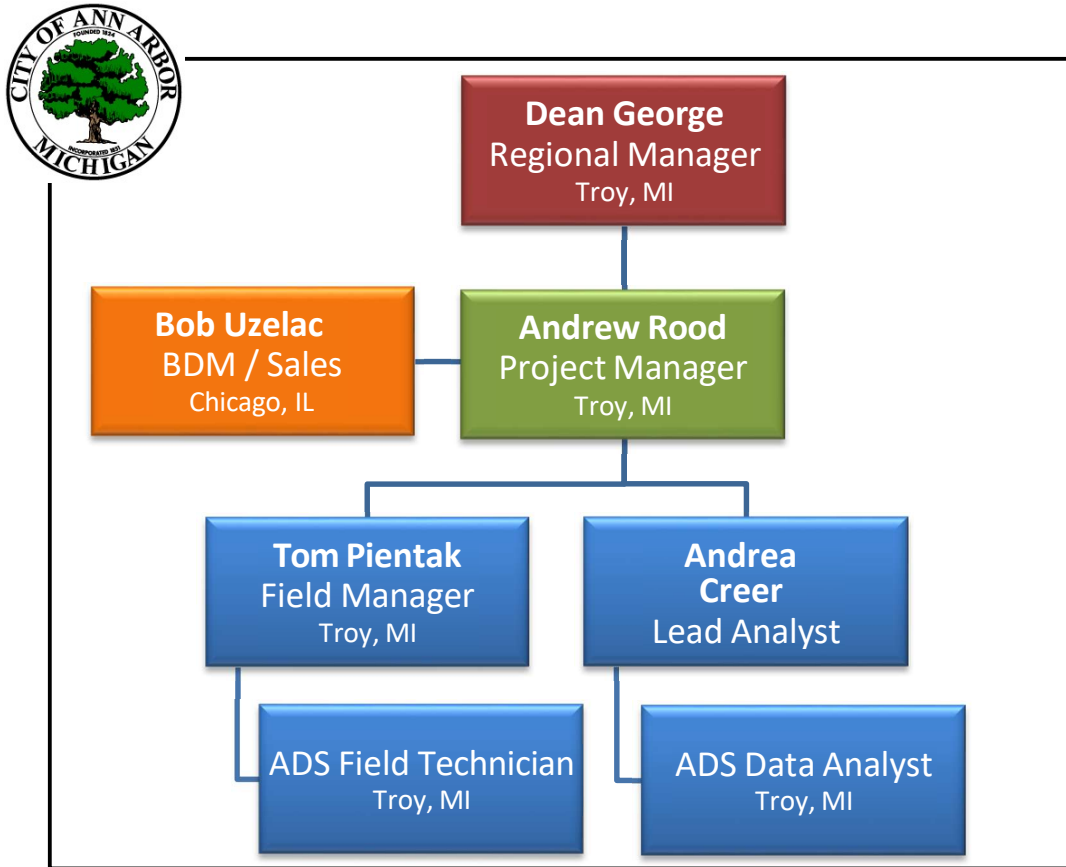
<b>Firm Name:</b>	ADS LLC (dba ADS Environmental Services)
<b>Operating As:</b>	Limited Liability Company (LLC) <b>(Michigan LARA ID: B9379M)</b>
<b>Corporate Address:</b>	340 The Bridge Street, Suite 204, Huntsville, AL 35806
<b>Local Address:</b>	1100 Owendale Drive, Suite K, Troy, MI 48083
<b>Local Contact:</b>	Andrew Rood – Project Manager – (248) 740-9593
<b>Contract Negotiations:</b>	Bob Uzelac – Business Development Manager - (219) 546-9056



At ADS, we offer comprehensive, innovative flow information, from real-time flow data to temporary flow monitoring reports. Drawing upon nearly four decades of experience and thousands of flow assessment projects, we tailor our product recommendations to meet your most challenging projects and provide the right level of equipment and services to match your budget and resources. For knowledge about the performance of your collection system, you can rely on our comprehensive array of flow monitoring products to deliver information of the highest quality. From flow monitors, software, field services and data processing to Web-based information and statistical reporting, **ADS can deliver the right information at an affordable cost.**

*A.2 - Professional Qualifications – Professional Personnel*

ADS will provide an outstanding team of experienced professionals for this project who are truly experts in achieving a customized Flow Monitoring Plan for the City. The team includes a highly respected staff who specialize in Flow Monitoring Project Management, Flow Monitoring Inflow and Infiltration Analysis, Flow Monitoring Field Services, Sewer Evaluations, and Local Engineering Services and Knowledge. The roles of each team member are defined below. Each member of this team has a proven track record of performance for their assigned tasks, which will greatly benefit the City of Ann Arbor in achieving the goals outlined for this project.



Detailed resumes have been included in our proposal that outline the Professional Skills and Qualifications for each key employees dedicated to the project. All key staff will be in our Troy, Michigan office, except for Bob Uzelac, Business Development Manager, who will be located out of the Chicago, IL office. ADS will not be using any subcontractors for this project, as our team can deliver a complete turnkey deliverable for all the requested items outlined in the RFP.





## Dean S. George, PMP

Region Manager



25 Years of Experience providing Water & Wastewater solutions throughout the country.

1100 Owendale Drive, Suite K, Troy, MI 48083  
www.adsenv.com - dgeorge@idexcorp.com

### Expertise

- Regional Oversight
- Project Management
- Flow, Level and Rainfall Monitoring
- Data Analysis

### Education

- B.S. Civil Engineering, Clarkson University, Potsdam, NY 1996

### Certifications

- Project Management Professional

### Affiliations

- Water Environment Federation (WEF)
- American Society of Sewer Sociologists

### BACKGROUND

Mr. George has been with ADS Environmental Services for over 25 years, and currently serves as Region Manager for eastern Canada and the Midwest Region. In this role, he is directly responsible for resource allocation, staffing and development of regional project teams, revenue and cost projections, and oversight of regional activities. He has direct accountability for the safety, quality, and customer satisfaction for work performed in the region. Success in this role is achieved through effective communication and coordination with Project Managers, Engineers, and Business Development Managers.

### PROFESSIONAL EXPERIENCE

#### Senior Project Manager / Project Manager - 2000 to 2016

Mr. George worked as Senior Project Manager for ADS for over 15 years. In this role, Mr. George managed projects involving all major product lines including long term flow monitoring service and data processing, temporary flow monitoring studies, I/I analysis, limited sewer system evaluation and surveys, and specialized collection system analysis. Duties included contract negotiations, project scheduling, budget generation and tracking, progress reporting, training, and supervising field and office team members.

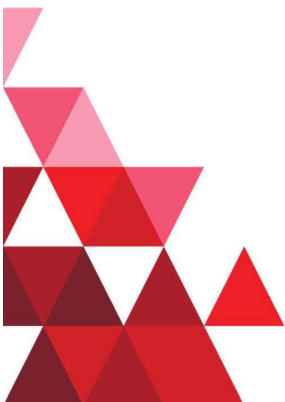
During his time as Project Manager Mr. George was responsible for over 300 projects completed in the Michigan, Ohio, Indiana, Illinois, Wisconsin, Pennsylvania, Colorado, New York, New Jersey, and New England Districts. Several of these projects were some of the largest individual projects with ADS.

#### Field Manager - 1998 to 2000

Mr. George worked as Field Manager where he directly managed the day-to-day operations of up to four field crews. His responsibilities included field operations quality assurance and quality control, field and safety training, productivity tracking, field personnel development, and equipment and resource management.

#### Data Analyst - 1996 to 1998

Mr. George began his career with ADS as a Data Analyst where he received training in the theory and operation of ADS's software, field operational methods, and hydraulics. As Data Analyst he was responsible for analysis of flow data, mapping of sewer systems, reviewing schematics and WWTP records, client support, and overall QA/QC of project deliverables.





## Bob Uzelac

*Business Development Manager*



25 Years of Experience in the Environmental Services Industry.

935 W. Chestnut Street, Suite 415, Chicago, IL 60642  
www.adsenv.com - buzelac@idexcorp.com - (219) 546-9056

### EXPERTISE

- Level and Flow Monitoring
- Project Development

### EDUCATION

- B.S. in Biology, Indiana University, 1995

### BACKGROUND

Mr. Uzelac is a client focused manager with over 25 years of experience providing business leadership, client support, and technical and field knowledge in environmental and wastewater industry. In his time with ADS, Mr. Uzelac has served as Business Development Manager where he has worked with consultants and municipalities to provide cost-effective solutions to their flow monitoring needs. He has knowledge with flow monitoring equipment, SCADA applications, long term flow monitoring networks, inflow and infiltration studies, and capacity analysis.

### TOP RELEVANT PROJECTS

#### **The City of Naperville, IL - Long Term Level, Flow and Rainfall Monitoring with RTC**

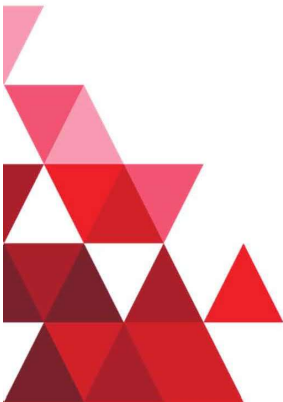
Currently the Business Development Manager for the City of Naperville who has 50 permanent ADS monitoring devices that function "near-real-time" for the City.

#### **Oakland County Water Resources Commission (WRC), MI - Long Term Monitoring Project Length – 1990 to current**

Bob is currently serving as the Business Development Manager for Oakland County, MI, a public utility with 188 Permanent ADS Flow Meters. This monitoring equipment is part of a wastewater billing network that spans several satellite communities which are located in the norther suburbs of Detroit.

#### **The City of Ann Arbor, MI - Long Term Flow and Level Monitoring Project Length – 2017 to current**

Bob is currently serving as the Business Development Manager for the City of Ann Arbor, MI, who has 25 long term monitoring devices installed throughout the City. These devices are used to detect potential issues in the system that may contribute to sanitary sewer overflows (SSO) or backups.





## Andrew Rood

Project Manager



16 Years of Experience on Level, Flow, and Rainfall Monitoring Projects in the Midwest.

1100 Owendale Drive, Suite K, Troy, MI 48083  
www.adsenv.com - arood@idexcorp.com - (248) 740-9593

### Expertise

- Level and Flow Monitoring
- Data Analysis
- Project Management

### Education

- B.S. in Chemical Engineering, Michigan Technological University, 2003

### BACKGROUND

Mr. Rood has been with ADS Environmental Services since 2004, and currently serves as Project Manager based out of the Troy, Michigan office. In this role, he is responsible for the effective planning, delegating, coordinating, staffing and management of projects through the Michigan and Ohio areas of the Midwest Region. Success in this role is achieved through effective communication and coordination with all local office personnel, engineers, and Business Development Managers. Mr. Rood is responsible for several long-term flow monitoring networks in and around the Detroit Metropolitan area.

Mr. Rood worked as Field Supervisor for ADS for seven years. In this role, Mr. Rood worked on projects involving all major product lines including long term flow monitoring service and data processing, temporary flow monitoring studies, I/I analysis, limited sewer system evaluation and survey, and specialized collection system analysis. He then transitioned from Field Supervisor to a Data Analyst where he received training in the theory and operation of ADS's software, field operational methods, and hydraulics.

### PROFESSIONAL EXPERIENCE

#### Oakland County, MI - Long Term Flow Monitoring - 2004 to Current

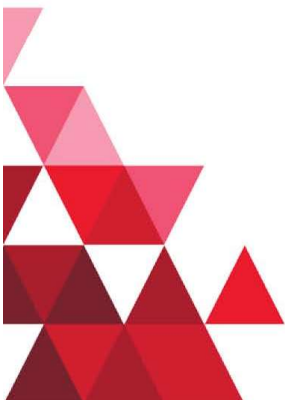
Currently serving as the Project Manager for Oakland County, MI, who has 188 ADS Flow Meters. Many of these flow meters are a part of a large billing network that spans several communities that are located in the norther suburbs of Detroit. Andrew is responsible for project coordination with client representatives and local ADS staff.

#### The City of Ann Arbor, MI - Long Term Flow and Level Monitoring - 2017 to Current

Currently serving as the Project Manager for Ann Arbor, MI, who has 25 long term monitoring devices installed throughout the City. Andrew is responsible in all project management aspects related to this project.

### OTHER PROJECTS

- Macomb County, MI; Meter Maintenance; Project Manager; 2020
- Wayne County, MI - Long Term Flow Monitoring; Project Manager; 2012 to Current
- Erie County, OH; Meter Operation & Maintenance; Project Manager; 2016-2020







## Thomas Pientak

Field Manager



21 Years of Experience on Level, Flow, and Rainfall Monitoring Projects in the Midwest.

1100 Owendale Drive, Suite K, Troy, MI 48083  
www.adsenv.com - tpientak@idexcorp.com - (248) 740-9593

### Expertise

- Level and Flow Monitoring
- Safety/Quality Control
- ISO Procedures

### Education

- University of Michigan  
1988-1992

### BACKGROUND

Mr. Pientak has been with ADS Environmental Services for over 20 years, and currently serves as Field Manager for the Troy, Michigan office. In this role, he is responsible for the resource management and training requirements for field operation taking place throughout Michigan. He has direct responsibility for safety, quality, and ISO standards, supported with certification from the OSHA 10-hour Construction Safety and Health. All field personnel report directly to Mr. Pientak. He is also a regional certified trainer for safety and flow monitoring services.

### PROFESSIONAL EXPERIENCE

#### Oakland County, MI - Long Term Flow Monitoring - 1999 to Current

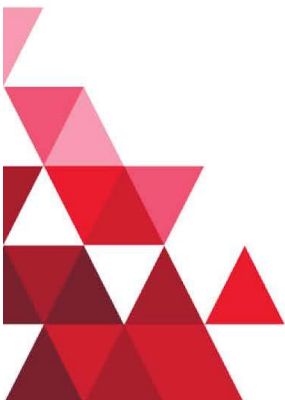
Currently serving as the Field Manager for Oakland County, MI, who has 188 Permanent ADS Flow Meters. Many of these Flow Meters are a part of a large billing network that spans several communities that are located in the norther suburbs of Detroit. Thomas is responsible for assigning outstanding service to the field personnel to maintain a high level of data quality. He is also responsible in relaying important field information to the Data Analysts reviewing the data.

#### The City of Ann Arbor, MI - Long Term Flow and Level Monitoring - 2017 to Current

Currently serving as the Field Manager for Ann Arbor, MI, who has 25 long term monitoring devices installed throughout the City. Thomas is responsible for assigning outstanding service to the field personnel to maintain a high level of data quality. He is also responsible in relaying important field information to the Data Analysts reviewing the data.

### OTHER PROJECTS

- Macomb County, MI; Meter Maintenance; Field Manager; 2020
- Wayne County, MI - Long Term Flow Monitoring ; Field Manager; 2012-Current
- Erie County, OH; Meter Operation & Maintenance; Field Manager; 2007-2020





## Andrea Creer

Senior Data Analyst



16 Years of Experience on Level, Flow, and Rainfall Monitoring Projects in the Midwest.

1100 Owendale Drive, Suite K, Troy, MI 48083  
www.adsenv.com - acreer@idexcorp.com - (248) 740-9593

### Expertise

- ADS Monitoring
- Data Analysis
- Flow and Level Systems
- Rain Gauges
- Data Reporting
- Data QA/QC

### Education

- B.S. Computer Information Systems, University of Detroit Mercy, Detroit, MI 2002

### BACKGROUND

Ms. Creer has been with ADS Environmental Services since 2004, and currently serves as Senior Data Analyst based out of the Troy, Michigan office. In this role, she is responsible for the data management of projects throughout the Michigan and Ohio areas of the Midwest Region. She successfully handles a 180+ metering network while coordinating data activities for two other local Data Analysts.

Ms. Creer has received training in the theory and operation of ADS's software, field operational methods, and hydraulics. As a Senior Data Analyst, she is responsible for analysis of flow data, mapping of sewer systems, reviewing schematics and WWTP records, client support, and overall QA/QC of project deliverables.

### PROFESSIONAL EXPERIENCE

#### Oakland County, MI - Long Term Flow Monitoring - 2004 to Current

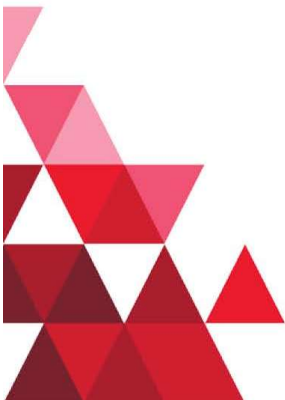
Currently serving as the Senior Data Analyst for Oakland County, MI, who has 188 Permanent ADS Flow Meters. Many of these Flow Meters are part of a large billing network that spans several communities that are located in the norther suburbs of Detroit. Andrea is responsible for reviewing data throughout each week and creating service orders that are assigned to the field personnel. She is also responsible for the monthly QA/QC process the data goes through each month before being submitted to the client.

#### The City of Ann Arbor, MI - Long Term Flow and Level Monitoring - 2017 to Current

Serviced as the Senior Data Analyst for the for Ann Arbor, MI, who has 25 long term monitoring devices installed throughout the City. Andrea was responsible for reviewing data throughout each week and creating service orders that are assigned to the field personnel. She was also responsible for the monthly QA/QC process the data goes through each month before being submitted to the client, along with generating a monthly CSO report that is required by the State.

### OTHER PROJECTS

- Wayne County, MI; Meter Data Review and Processing; Senior Data Analyst; 2012-2017
- City of Fostoria, OH; Meter Data Review and Processing; Senior Data Analyst; 2009-2018



## ADS LLC Field Staff Available for this Project

ADS will assign a field crew for all required Service. ADS Field Crews can mobilize in from different parts of the region to assist with the work, however, it is expected that a consistent crew will be utilized for this project as the work gets started and as specified by the RFP.

Technician	Home Office	ADS Classification	Years	Project Experience
Al Miracle	Troy, MI	Field Tech – Level 2	7	<ul style="list-style-type: none"> <li>• Ann Arbor, MI – 25 Meters</li> <li>• Oakland County, MI – 179 Meters</li> <li>• Wayne Co, MI – 50 Meters</li> <li>• NEORS D HHI, OH – 210 Meters</li> </ul>
Jimmie Hinton	Troy, MI	Field Tech – Level 2	10	<ul style="list-style-type: none"> <li>• Ann Arbor, MI – 25 Meters</li> <li>• Oakland County, MI – 179 Meters</li> <li>• Wayne Co, MI – 50 Meters</li> <li>• NEORS D HHI, OH – 210 Meters</li> </ul>
Nick Seales	Troy, MI	Field Tech – Level 2	5	<ul style="list-style-type: none"> <li>• Ann Arbor, MI – 25 Meters</li> <li>• Oakland County, MI – 179 Meters</li> <li>• Wayne Co, MI – 50 Meters</li> <li>• NEORS D HHI, OH – 210 Meters</li> </ul>

Field Crew Training and Certifications are available upon request.

### *A.3 - Professional Qualifications – Firms History and Unique Qualifications*

ADS LLC is a Fluid & Metering Business Unit of IDEX Corporation. As such, ADS has the financial backing of a \$3.2 billion dollar company with the autonomy to innovate new equipment, software, and services to serve the highly specialized wastewater flow monitoring marketplace. **We are licensed with the Department of Licensing and Regulatory Affairs to operate in the State of Michigan.**

We are a company that was founded and built upon providing the most accurate and complete collection system flow and rainfall data. We understand the importance of the information and the multimillion dollar decisions that our municipal clients make with this information. ADS has established all of our systems and processes to allow us to deliver the best information possible. A quality assurance plan that ensures the performance of contract deliverables is at the core of the products and services that ADS delivers.

At ADS, we offer comprehensive, innovative flow solutions, from real-time flow data to temporary flow monitoring reports. Drawing upon over four decades of experience and thousands of flow assessment projects, we tailor our product recommendations to meet your most challenging projects and provide the right level of services to match your budget and resources. For knowledge about the performance of your collection system, you can rely on our comprehensive array of software products to deliver information of the highest quality. From flow monitors, software, field services and data processing to Web-based information and statistical reporting, ADS can deliver the right information at an affordable cost.

ADS provides products and services that have helped thousands of municipalities diagnose and correct wastewater infrastructure problems. For over 40 years, we have helped our clients increase efficiency and mitigate environmental compliance action. ADS comprehensive flow monitoring programs have saved millions of dollars in unnecessary SSES and sewer rehabilitation expenditures by pinpointing problem areas and focusing repair budgets on only those areas that will result in short-term operational improvement and problem resolution. **Many ADS clients find that for every dollar they spend in comprehensive flow monitoring, they realize a ten-fold return, or more!** We strive to over-serve our clients, providing them with the underground intelligence necessary to obtain actionable data, which in turn will produce a considerable ROI.



ADS provides single source responsibility for the results of our work. We manufacture the flow meters that we will use and train our staff based on our ISO 9001 quality management program. ADS is an equal opportunity employer and actively seeks partnerships with disadvantaged and small businesses in order to support them and their local economies. We seek out partners that have potential for growth and strong business plans.

*ADS pioneered the field of sewer flow monitoring and has been at its forefront for more than 40 years. 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.*

We bring to our clients the stability and strength of a global corporation while embodying the commitment and attention to detail of a small, local company through its network of regional offices. We have the philosophy, experienced personnel and equipment that are unequaled in the industry. This is evidenced by the fact that ADS has performed more than 8,000 pipeline services projects in 32 countries since opening our doors. Our reputation for quality work is supported by the high degree of repeat clients that we have had over the years.

### **What makes ADS unique in performing Sewer Flow Monitoring?**

ADS Environmental Services, over the past 40 years, has developed an organization unrivaled in the sewer investigation industry. The organization is built on a foundation of highly experienced field and office staff that have worked in the industry for many years. ADS Professional Engineers and Project Managers aren't afraid to enter manholes, and in fact do so regularly. ADS is a full-service field service firm, with Professional Engineers in most all major offices. ADS encourages movement through the ranks from Field Representative to Data Analyst to Project Manager.

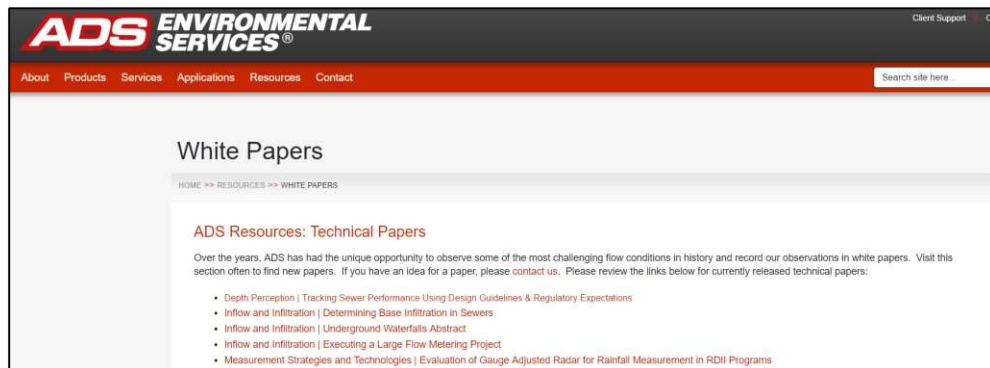
ADS' size is also distinctive as an international firm participating in a niche service industry that is made up primarily of local and regional small businesses. Our size provides economies of scale along with the capability to perform large projects that most competitors are too small to staff. This distinction as a large international firm is also tempered by our personal dedication to each of our clients, large and small.

*ADS Environmental Services is the leader in flow monitoring technology and information services and presents outstanding credentials to ensure successful completion of all projects it undertakes.*

Our company continues to pioneer the methodology of Sewer Flow Monitoring – which is evident by the available published literature developed by our staff over the last 4 decades. We remain a trusted advisor to many local and national regulatory agencies and continue to educate system owners, staff, association members, agencies, and departments in successful approaches in this line of work.

Over the years, ADS has had the unique opportunity to observe some of the most challenging flow conditions in history and record our observations in white papers that are available at:

<http://www.adsenv.com/resources/white-papers>





ADS believes that the best way to ensure the success of any flow monitoring project is to assign the most qualified personnel using the best available technology within a disciplined quality management system. This formula has worked for us time and time again, producing high quality data, which is delivered on time and to the satisfaction of our customers. In similar projects, the ADS team is often considered an extension of the owner’s utility staff. Our team is committed to open and timely communication with the City representative, we can quickly adapt to changing conditions and the focused needs of the City, and we strive for excellence with any project for which we are selected. It is our goal, our desire, to become your Trusted Advisor for projects such as this. We work to obtain this level of trust from our clients.

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 accurate and consistent data. ADS field crews maintain 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 the 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 circumstances.

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 documents available to the City’s Representative for further review.



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.

To more rapidly identify and respond to data irregularities, repairs, and other service, ADS utilizes an innovative tablet-based, paperless field work order system that speeds the flow of information and data from the analyst to the field crew and back. These efficiencies in the flow of information will bring many benefits to this project as it will minimize time spent “transmitting” the work orders to a matter of seconds over the wireless network, allowing field crews to be diverted or mobilized to meet immediate and urgent needs for the City’s flow meter network.

### *B. Past Involvement with Similar Projects*

ADS is pleased to include the following project experience and references forms for this project. We have tried to include local projects and references so that the City can get a good sense on why ADS is often considered the leading firm in Sewer Flow Monitoring projects. Locally, we are highly respected and we are currently performing work on some of the largest and most complex sewer flow monitoring projects in the State of Michigan. Our team included on this project is highly respected by our clients as we strive to go above and beyond on every project – *truly putting our customers' needs first.*

**To highlight our Technical Experience, we offer the following project references:**

**Related Experience of Firm**

**Oakland County, MI – Water Resources Commissioner (WRC)**

Project Title: WRC – Permanent Flow Monitoring	Time Period: 1990 to Current
Location of the Project: Oakland County, MI	Period of Firm’s Involvement: 27+ years
Total dollar value of the project: \$1 Million+	
<b>Key Personnel:</b>	
<b>Name</b>	<b>Role</b>
Dean George	Regional Project Manager
Bob Uzelac	Business Development Manager
Andrew Rood	Project Manager
Thomas Pientak	Field Manager
Andrea Creer	Data Analyst
Troy MI Office Field Staff	Daily Meter Maintenance
<b>Project Summary:</b> To provide operation, maintenance, and analysis services on the Counties Permanent and Temporary ADS Flow Monitoring Network – specifically for collection systems billing requirements for WRC. ADS works in collaboration with Applied Sciences, Inc. (ASI) to provide complete, accurate and affordable flow monitoring data.	<b>Reference Information:</b> Name of Client: <u>Oakland County WRC</u> Contact Person: <u>Brian Coburn</u> Title: <u>Assistant Chief Engineer</u> Address: <u>One Public Works Drive #95</u> <u>Waterford, MI 48328</u> Telephone No: <u>(248) 452-9846</u>
<b>Brief Description of the Project:</b> The WRC’s project requirements are not limited to simply maintaining a network of flow monitoring equipment. Rather, the project includes providing and maintaining a complete flow monitoring information system. This system is continuously evolving as the collection system, billing requirements, and CVT and internal WRC needs have evolved. High data quality standards have been set by the WRC, and ADS’ approach continue to fully meet these standards. Accurate and timely information is the key to the WRC’s successful flow monitoring program.  There are currently more than <b>125 ADS-manufactured Permanent and Temporary flow meters</b> installed in the Clinton-Oakland, Evergreen-Farmington, City of Pontiac, and Walled Lake - Novi systems. ADS also provides quarterly audits for the influent flow meters at the Acacia, Bloomfield and Birmingham RTB facilities.  We work in collaboration with Applied Sciences, Inc. – who has created a 3 <sup>rd</sup> party software application that further enhances the ADS data against dye dilution testing procedures developed by ASI.  <b>ADS is also providing raw and final data through an “FTP push” for the H2OMetrics software.</b>	



**Related Experience of Firm**

**Wayne County, MI – Department of the Environment**

Project Title: Wayne County Flow Monitoring	Time Period: 2012 to Current
Location of the Project: Wayne County, MI	Period of Firm's Involvement: 5+ years
Total dollar value of the project: \$500K	
<b>Key Personnel:</b>	
<b>Name</b>	<b>Role</b>
Dean George	Regional Project Manager
Bob Uzelac	Business Development Manager
Andrew Rood	Project Manager
Thomas Pientak	Field Manager
Andrea Creer	Data Analyst
Troy MI Office Field Staff	Daily Meter Maintenance
<b>Project Summary:</b> To provide operation, maintenance, data management services on the Counties ADS Flow Monitoring Network – specifically for collection systems billing requirements for the Down River, North East, and Rouge Valley Sewer Disposal Systems. ADS works in collaboration with Applied Sciences, Inc. (ASI) to provide complete, accurate and affordable flow monitoring data.	Reference Information: Name of Client: Wayne County, MI Contact Person: Mr. Tim Minor – P.E. Title: Project Manager (ASI) Address: 300 River Pl #5400 Detroit, MI 48207 Telephone No: (313) 215-4777
<b>Brief Description of the Project:</b> We work in collaboration with Applied Sciences, Inc. – who has created a 3 <sup>rd</sup> party software application that further enhances the ADS data against dye dilution testing procedures developed by ASI.  The County requires ADS and ASI to provide maintenance and data management on the County's network of flow monitoring equipment. The project includes providing and maintaining a complete flow monitoring information system.  ADS provides monitoring services for the Down River, North East, and Rouge Valley Sewer Disposal Systems- and the data provided is utilized for system-wide billing reports.  There are currently <b>more than 50 ADS-manufactured Permanent and Temporary flow meters</b> installed in the systems. ADS also provides quarterly audits for the influent flow meters. We have also supplied hardware for more than 10 large diameter monitoring project, in pipes larger than 60" in diameter, where billing accuracy of flow data is critical.	



**Related Experience of Firm**

**City of Livonia, MI – Public Utilities**

Project Title: Livonia Flow Monitoring	Time Period: 2010 to Current
Location of the Project: Livonia, MI	Period of Firm’s Involvement: 7+ years
Total dollar value of the project: \$60K	
<b>Key Personnel:</b>	
<b>Name</b>	<b>Role</b>
Dean George	Regional Project Manager
Bob Uzelac	Business Development Manager
Andrew Rood	Project Manager
Thomas Pientak	Field Manager
Andrea Creer	Data Analyst
Troy MI Office Field Staff	Daily Meter Maintenance
<b>Project Summary:</b> To provide operation, maintenance, and analysis services on the Cities Permanent and Temporary ADS Flow Monitoring Network. ADS provides installation, hardware maintenance and troubleshooting, analysis, and reporting for the City. The City maintains 8 permeant ADS meters and in 2015, ADS installed 13 temporary meters to assist with RDII analysis.	<b>Reference Information:</b> Name of Client: City of Livonia, MI Contact Person: Don Rohraff Title: Superintendent Public Utilities Address: 33000 Civic Center Drive Livonia, MI 48154 Telephone No: (734) 466-2607
<b>Brief Description of the Project:</b> Livonia Public Works is responsible for the maintenance of approximately 540 miles of sanitary sewer in the City, and has selected ADS to assist with flow monitoring services in various parts of the City. Livonia works in conjunction with their supplier, the Detroit Water and Sewerage Department (DWSD) and now with the Great Lakes Water Authority (GLWA).  ADS Currently has 8 permanent ADS area/velocity flow meters installed, and has assisted with numerous temporary flow monitoring studies, the most recent in 2015 which included 13 temporary flow monitoring locations.  All data is uploaded to the ADS FlowView web-portal so that continuous data accessibility is available for the Owners and their consultants.  <b>All of the ADS meters are wireless systems that utilizes a multi-carrier cellular 3G/4G UMTS/HSPA+ wireless communications modem equipped with a Data SIM for true wireless data transmission of the data.</b>	



**Related Experience of Firm**

**Great Lake Water Authority - City of Detroit, the counties of Wayne, Oakland, and Macomb**

Project Title: GLWA Flow Monitoring	Time Period: 2016 to Current
Location of the Project: Various Counties	Period of Firm's Involvement: 2 years
Total dollar value of the project: \$350K	
<b>Key Personnel:</b>	
<b>Name</b>	<b>Role</b>
Dean George	Regional Project Manager
Robert Grob	Sales Manager
Eric Hehmann	Project Manager
Thomas Pientak	Field Manager
Pamela Good	Data Analyst
Troy MI Office Field Staff	Daily Meter Maintenance
<b>Project Summary:</b> To provide operation, maintenance, and analysis services on the Cities Permanent and Temporary ADS Flow Monitoring Network – specifically for RDII analysis and reporting. ADS has been working with Naperville since 2005, providing hardware services, and in 2016 was awarded a long term monitoring contract to provide maintenance and analysis services for the City	<b>Reference Information:</b> Name of Client: GLWA Contact Person: Mr. Chandan Sood Title: Manager – System Analytics Address: 6425 Huber Detroit, MI 48211 Telephone No: (313) 267-9007
<b>Brief Description of the Project:</b> ADS was selected to supply, install, and maintain 45 ADS area/velocity flow meters for GLWA – The data is being used to study wet weather event monitoring, CSO outfall monitoring, and being used for a hydraulic model for the Authority.  Data is made available via the ADS FlowView operations hosted website for the owner and all consultants. ADS is working in collaboration with Applied Sciences, Inc. and Wade Trim on this project.  <b>All equipment installed in GLWA utilizes a multi-carrier cellular 3G/4G UMTS/HSPA+ wireless communications modem equipped with a Data SIM for true wireless data transmission of the data.</b>	



### *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 and ECHO Level 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 its 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 programmed 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

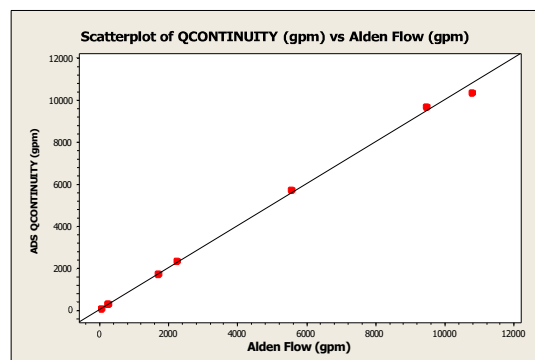


Triton+ GSM modem is certified for installation and operation in the hazardous area and draws its power from the Triton+ battery pack.

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.



## TRITON+® Flow Monitoring System

# ADS TRITON+



The **TRITON+** Flow Monitoring System is used to gather data for use in a variety of applications:

- Sanitary sewer overflows (SSOs)
- Combined sewer overflows (CSOs)
- Infiltration and inflow (I/I) analysis
- Sewer model validation
- Optimize cleaning process
- Lift/pump station backup
- Regulatory reporting
- Mitigate SSOs
- Bypass monitoring
- Inter-jurisdictional billing

### Flow Monitoring for Open Channel Flows

The ADS® **TRITON+** is the most versatile and cost-effective flow monitor on the market. The **TRITON+** includes connections for multiple sensor technology options and provides users with industry-standard data for a variety of applications.

The **TRITON+** is an intrinsically safe, "Fit-for-Purpose" open channel flow monitor for use in sanitary, combined, and storm sewers. It supports single pipe or dual pipe flow measurement installations.

#### Versatile and Accurate

Monitor-Level Intelligence (MLI®) enables the **TRITON+** to effectively operate over a wide range of hydraulic conditions. The **TRITON+** supports single or dual pipe/monitoring point measurement capabilities. It supports actuation of a water quality sampler for flow proportional or level-based operation.

#### Access Data with Ease

Wireless options make it easy to collect data from your **TRITON+**. The ADS web software **PRISM™** enables you to access all your data in one platform from any device (PC, tablet, phone).

#### Configure to Suit Your Budget

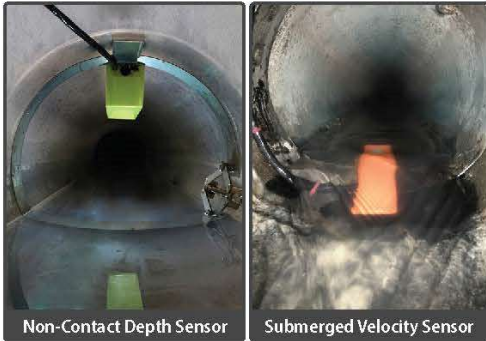
The **TRITON+** has the lowest operational cost per data sample of any **Intrinsically Safe** flow monitor available. The platform adapts to a wide range of customer applications and budgets, and can be configured as an economical *single sensor monitor or dual sensor monitor*.

#### Extended Asset Life

The **TRITON+** has industry-leading battery life. It offers a longer battery life and fewer parts for a more reliable system, providing a lower purchase price and lower ownership cost over the life of the monitor.



## ADS TRITON+ Sensors are Adaptable to a Wide Variety of Applications



The **TRITON+** flow monitor is compatible with a suite of sensors designed to cover a wide range of applications and a wide range of flow conditions in sanitary sewer, combined sewer, and storm sewer applications. Choose from area-velocity (AV) sensors and depth sensors using submerged or non-contact mounting options. There is even an available inclinometer. The **TRITON+** is configurable with one or two sensors measuring one or two monitoring points. See the sensor specifications at [www.adsenv.com/triton](http://www.adsenv.com/triton).

**ADS Sensor Technologies Include:** Pressure depth, Ultrasonic depth (non-contact & submerged), Doppler velocity, Gated velocity, Surface velocity, Temperature, Inclinometer (tilt sensor)



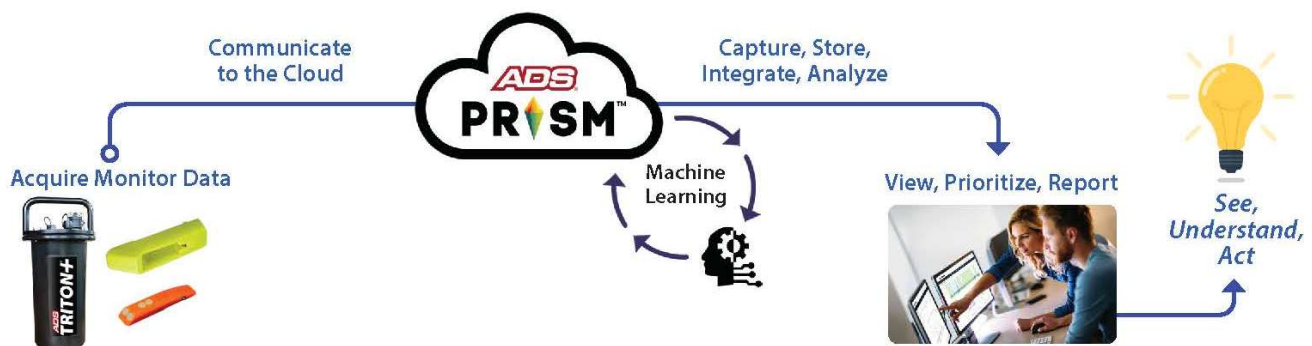
## ADS PRISM™ Software Enhances Understanding

**PRISM** is a cloud-based, secure software system that acquires, stores and presents data with ongoing user access. The home page (right) provides a map view and a dashboard for quick access to essential parameters. Individual site details, hydrographs and remote site system settings are all accessible. **PRISM** APIs enable third party data exchange.



- Configure and activate
- Set alarms
- Manage data
- Manage blockages with **blockage PREDICT™**
- Conduct I/I studies with the **NEW SLiICER™** app
- Utilize GIS

Real-time data is collected and communicated to the cloud-based **PRISM** software and analytics. With continuous user access, informed actions are enabled. Learn more about **PRISM** at [www.adsenv.com/prism](http://www.adsenv.com/prism).



## Self-Contained Solutions for Power, Communication, Analog and Digital I/O and Modbus

The ADS **TRITON+** COMM+EXT PWR port is used for external power via the ADS XIO, XBUS or ExPAC devices, delivery of Modbus output values as well as for on-site, direct monitor communication.

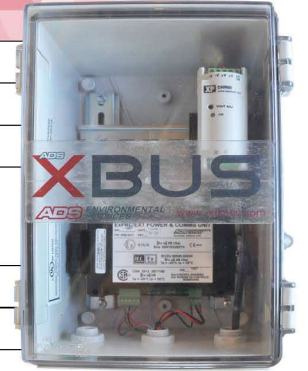
### XIO Features

- Process variables measured by the **TRITON+** can be converted to two (2) 4-20mA loop output signals for SCADA systems or local display and control
- Logging capabilities of the **TRITON+** can be used for two (2) 4-20mA input process variables measured by other instrumentation
- Alarms produced by the **TRITON+** can be output on the two (2) XIO relay contacts for process actuation
- Two (2) switch, solid state or dry contact digital inputs can be sampled and logged
- Design facilitates easy field wiring
- Supports easy plug and play configuration and start-up
- Associated Apparatus **IECEx certification** for use with approved equipment in **Zone 0** (equivalent to Class I, Division 1, Groups C & D); **ATEX Zone 0**; and **CSA Class I, Zone 0, IIB** hazardous areas
- Rugged indoor/outdoor NEMA 4x case with hinged clear cover
- Accepts 85-264 VAC, 120-375 VDC; 47-62 Hz; 1.1A@110/0.59A @250 VAC
- Supplies 8 – 11.5 VDC, 500mA power to the **TRITON+** flow monitors



### XBUS Features

- Supports Modbus RTU, ASCII and TCP communications
- Connects to wired networks via RS485 or RS232
- Supports easy plug and play configuration and start-up
- Associated Apparatus **IECEx certification** for use with approved equipment in **Zone 0** (equivalent to Class I, Division 1, Groups C & D); **ATEX Zone 0**; and **CSA Class I, Zone 0, IIB** hazardous areas
- Rugged indoor/outdoor NEMA 4x case with hinged clear cover
- Accepts 85-264 VAC, 120-375 VDC; 47-62 Hz; 1.1A@110/0.59A @250 VAC
- Supplies 8 – 11.5 VDC, 500mA power to the **TRITON+** flow monitors



### ExPAC Features

- Designed to be housed in another enclosure
- Associated Apparatus **IECEx certification** for use with approved equipment in **Zone 0** (equivalent to Class I, Division 1, Groups C & D); **ATEX Zone 0**; and **CSA Class I, Zone 0, IIB** hazardous areas
- Requires DC power input between 9 and 36 volts and a minimum of 15 watts
- Supplies DC power of 8 to 11.5 volts, 500mA to the **TRITON+** flow monitors
- RS485 and RS232 Modbus output connections to SCADA systems
- Supports Modbus RTU, ASCII and TCP/IP communications





# ADS TRITON+<sup>®</sup>

## Flow Monitor Specifications



<b>Connectors</b>	U.S. Military specification MIL-C 26482 series 1, for environmental sealing, with gold-plated contacts	<b>Mounting Options</b>	<p><b>Mount on the manhole rung</b> using standard hook (ADS p/n 8000-0021)</p> <p><b>Mount permanently to the manhole wall</b> using monitor mounting bracket/flange (ADS p/n 140-0009)</p> <p><b>Mount to the manhole rim</b> using monitor bracket/flange (ADS p/n 140-0009)</p>
<b>Communication</b>	<p>Third-party, FCC/IC/EC- and carrier-approved wireless modem</p> <p>Compatible with all 4G LTE-M networks worldwide with 2G fallback (where available)</p> <p>Automatically detects installed SIM upon boot up to determine correct network</p> <p>Modem FCCID: R17ME910C1WW</p>	<b>Intrinsic Safety Certifications</b>	<p><b>Certified under the ATEX</b> European Intrinsic Safety standards for Zone 0 rated hazardous areas</p> <p><b>Certified under IECEx</b> (International Electrotechnical Commission) Intrinsic Safety Standards for use in Zone 0 rated hazardous areas (equivalent to Class I, Division 1, Groups C &amp; D)</p> <p><b>CSA Certified to Class 225803</b> Process Control Equipment, Intrinsically Safe and Non-Incendive Systems – For Zone 0 Hazardous Locations, Ex ia IIB T3 (152° C) in Canada</p> <p><b>CSA Certified to Class 225883</b> Process Control Equipment, Intrinsically Safe and Non-Incendive Systems – For Class I Zone 0 Hazardous Locations, AEx ia IIB T3 (152° C) in the USA (equivalent to Class I, Division 1, Groups C &amp; D)</p>
<b>Monitor Interfaces</b>	<p>Supports simultaneous interfaces with up to two combo sensors</p> <p>Supports optional Analog and Digital I/O with ADS XIO: two 4-20 mA inputs and outputs, two switch inputs and two relay outputs</p>	<b>Other Certifications/Compliances</b>	<p>FCC Part 15 compliant</p> <p>Carries the EU CE mark</p> <p>ROHS (lead-free) compliant</p> <p>Canada IC CS-03 compliant</p> <p>IP68 compliant</p>
<b>Power</b>	<p><b>Internal</b> - Battery life with a cellular modem:</p> <ul style="list-style-type: none"> <li>• Over 15 months at a 15-minute sample rate*</li> <li>• Over 6 months at a 5-minute sample rate*</li> </ul> <p><b>External</b> - Optional external power available with ADS External Power and Communications Unit (ExPAC) with an ADS- or customer-supplied 9-36 Volt DC power supply</p> <p>* Rate based on collecting data once a day and varies according to sensor configuration and operating temperature</p>		
<b>Connectivity</b>	<p><b>Modbus ASCII:</b> Wireless; Wired using ADS ExPAC or XBUS</p> <p><b>Modbus RTU:</b> Wireless; Wired using ADS ExPAC or XBUS</p> <p><b>Modbus TCP:</b> Wireless only</p>		
<b>Operating and Storage Temperature</b>	-4° to 140° F (-20° to 60° C)		
<b>Compatibility</b>	<p>Attachable ADS Sensors</p> <p><b>Qstart™XML</b> with ADS TRITON+<sup>®</sup> firmware version 6.43 and higher</p> <p><b>PRISM™</b></p>		



Learn more about ADS TRITON+  
[www.adsenv.com/triton](http://www.adsenv.com/triton)



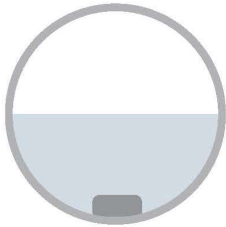
Call: 800.633.7246  
 Email: [adssales@idexcorp.com](mailto:adssales@idexcorp.com)



# TRITON+<sup>®</sup>

## Sensor Specifications

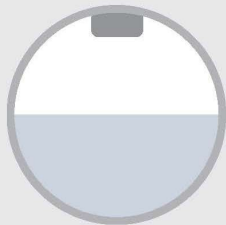
The ADS<sup>®</sup> TRITON+<sup>®</sup> features three depths and two velocities with five sensor options. Each sensor provides multiple technologies for continuous running of comparisons.



### Peak Combo Sensor

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*.

<b>Dimensions</b>	<b>Height:</b> 0.83 in (21 mm), <b>Width:</b> 1.23 in (31 mm), <b>Length:</b> 6.76 in (172 mm)
<b>Continuous Wave Velocity</b>	<b>Operating Range:</b> -30 fps to +30 fps (-9.1 m/s to +9.1 m/s) <b>Resolution:</b> 0.01 fps (0.003 m/s) <b>Accuracy:</b> +/- 0.04 fps (0.01 m/s) in velocities < 1 fps; +/- 2% of actual velocity in velocities > 1 fps (0.30 m/s) in uniform flow
<b>Uplooking Ultrasonic Depth</b>	Performs with rotation of up to 15 degrees from the center of the invert; up to 30 degrees rotation with Silt Mount Adapter <b>Operating Range:</b> 1.0 in (25 mm) to 5 ft (152 cm) <b>Resolution:</b> 0.01 in (0.254 mm) <b>Accuracy:</b> 0.5% of reading or 0.125 in (3.2 mm), whichever is greater
<b>Pressure Depth</b>	<b>Operating Range Option:</b> 0 - 05 PSI up to 11.5 ft (3.5 m) 0 - 15 PSI up to 34.5 ft (10.5 m) 0 - 30 PSI up to 69 ft (21.0 m) <b>Resolution:</b> 0.01 in (0.25 mm) <b>Accuracy:</b> +/- 1.0% of full scale



### Surface Combo Sensor

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

<b>Dimensions</b>	<b>Height:</b> 2.45 in (62 mm), <b>Width:</b> 2.03 in (52 mm), <b>Length:</b> 10.61 in (269 mm)
<b>Surface Velocity</b>	<b>Minimum air range:</b> 3 in (76 mm) from bottom of rear, descended sensor <b>Maximum air range:</b> 42 in (107 cm) <b>Range:</b> 1.00 to 15 fps (0.30 to 4.57 m/s) <b>Resolution:</b> 0.01 fps (0.003 m/s) <b>Accuracy:</b> +/- 0.25 fps (0.08 m/s) or 5% of actual reading (whichever is greater) in flow velocities between 1.00 and 15 fps (0.30 and 4.57 m/s)
<b>Ultrasonic Depth</b>	<b>Minimum dead band:</b> 1.0 in (25.4 mm) from the face of the sensor or 5% of the maximum range, whichever is greater <b>Maximum operating air range:</b> 10 ft (3.05 m) <b>Resolution:</b> 0.01 in (0.25 mm) <b>Accuracy:</b> +/- 0.125 in (3.2 mm) with 0.0 in (0 mm) drift, compensating for variations in air temperature
<b>Surcharge Continuous Wave Velocity</b>	<i>When submerged, this technology provides the same accuracy and range as Continuous Wave Velocity for Peak Combo Sensor</i>
<b>Surcharge Pressure Depth</b>	<i>When submerged, this technology provides the same accuracy and range as Pressure Depth for Peak Combo Sensor</i>

The **Ultrasonic Depth Sensor** version of this sensor specializes in depth measurement. This non-intrusive, zero-drift sensing method results in stable, accurate, and reliable flow depth calculation. Two independent ultrasonic transducers allow for independent cross-checking.

The ADS® *ECHO*™ is the only level monitoring system that provides continuous visibility of flow levels within a manhole from the invert to the rim and beyond. The ADS *ECHO* was designed to provide advanced notification of pending SSO conditions and ultimate prevention of SSOs. This is achieved by providing continuous monitoring of the water level and alarming once predetermined thresholds are reached. The *ECHO* system is also a great tool to deploy upstream of traditional area/velocity meters when performing an RDII study, since they will capture additional information about the performance of the basin, while minimizing the cost.

The patent pending design uses a parabolic reflector to create a narrow focused beam to read water levels directly in the invert. By reading into the invert, low level alarms can be set to identify flow losses that may indicate a blockage upstream, while a variety of high level alarms can be configured to detect downstream blockages. ADS would provide alarming services to the City if desired, but this function can easily be deactivated if it is not needed.

The ADS *ECHO* is mounted within a manhole from the surface and a span of up to 20 feet can be fully monitored up to the ultrasonic sensor with no “dead band.” Once the ultrasonic sensor is submerged, the ADS *ECHO* transitions to an embedded pressure sensor to measure water levels up to the manhole rim and beyond.



Enhanced collection system visibility enables the ADS team to identify issues early, in strategic locations or to supplement the traditional area/velocity flow meters. We suspect that parts of the collection under study suffer from or have a high risk for overflows due to blockage or structural condition. The ADS *ECHO* provides additional information (and alarms) to better monitor the system during a flow study.





## Level Monitoring System **ECHO™**

### Level Monitoring for Open Channel Flows

The ADS® **ECHO™** is an all-new generation level monitor. It gives users up to 10X more monitoring range and uses machine learning software to predict overflows long before they occur.

Coupled with its wide range of uses and low cost, **ECHO** is the leading solution for level monitoring applications.

### Collection Systems, Plants, Surface, and Storm Water Structures

Sanitary Sewers



Combined Sewers



Wastewater Treatment Plants



Lagoons and Ponds



Rivers and Streams



Canals



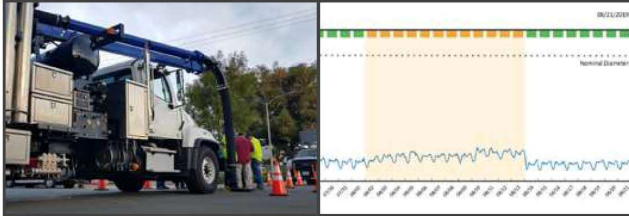
**ADS**  
[www.adsenv.com/echo](http://www.adsenv.com/echo)



# The Wide Range of ECHO Applications Gives You Flexibility

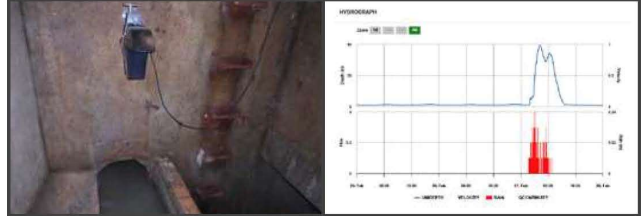
Operations, Engineering, Planning, Modeling, and Contractor Professionals

## Efficient Cleaning Process



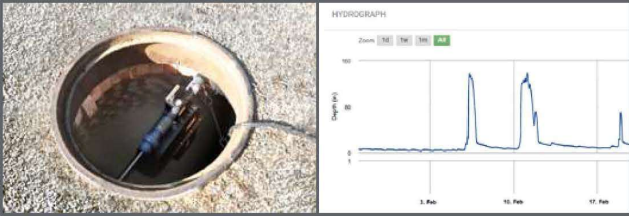
Reduce cleaning frequency and mitigate Sanitary Sewer Overflows (SSOs) with continuous monitoring and blockage prediction software.

## CSO Data and Reporting



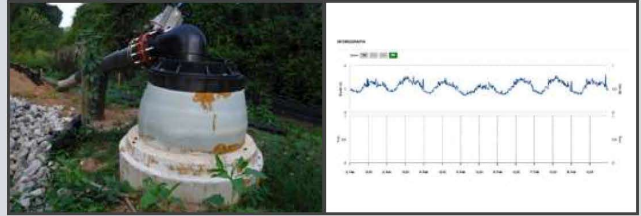
Monitor Combined Sewer Overflows (CSO) activation and de-activation in real-time. Calculate overflows, prepare reports.

## Hydraulic Model Validation



Acquire data for updating and validating hydraulic models. Low cost means higher sensor density.

## Bypass Monitoring



Secure 24/7 protection from overflows with bypass monitoring.

## Wastewater Pump Station Back-up



Avoid pump station overflows from power failures, partial pump blockages, or failed alarms with **ECHO** back-up.

## SSO Mitigation

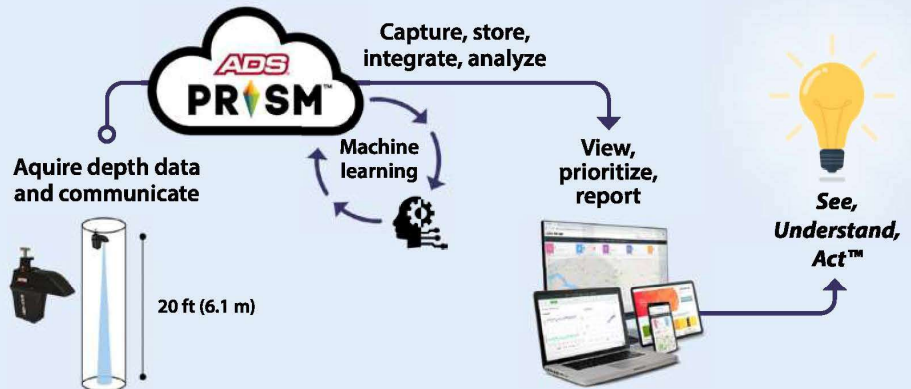


ECHO is the latest generation level monitor. This means you get:

- Predictive, early-stage notices of developing blockages
- Precise, long range ultrasonic measurements
- Multiple high and low flow alarms
- Fast, easy installation
- Stabilized mounting with integral sensor that avoids false alarms

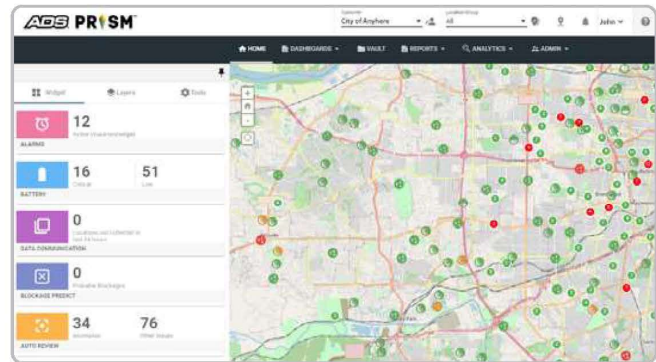
# Continuous Monitoring Drives Informed Actions

Real-time depth data is collected and communicated to the cloud-based **PRISM** software and analytics. With continuous user access, informed actions are enabled.



## ABS PRISM™ Software Enhances Understanding

**PRISM** is a cloud-based, secure software system that acquires, stores and presents data with ongoing user access. Its home page (right) provides a map view and a dashboard for quick access to essential parameters. Individual site details, hydrographs and remote site system settings are all accessible. **PRISM** APIs enable third party data exchange.



**PRISM's blockage PREDICT™** app (below) uses machine learning and will predictively detect blockages, with days' or weeks' worth of warning. When detected, blockages are presented in the dashboard.

### Dashboard Reveals Prioritized List

**2**  
Probable Blockages  
BLOCKAGE PREDICT

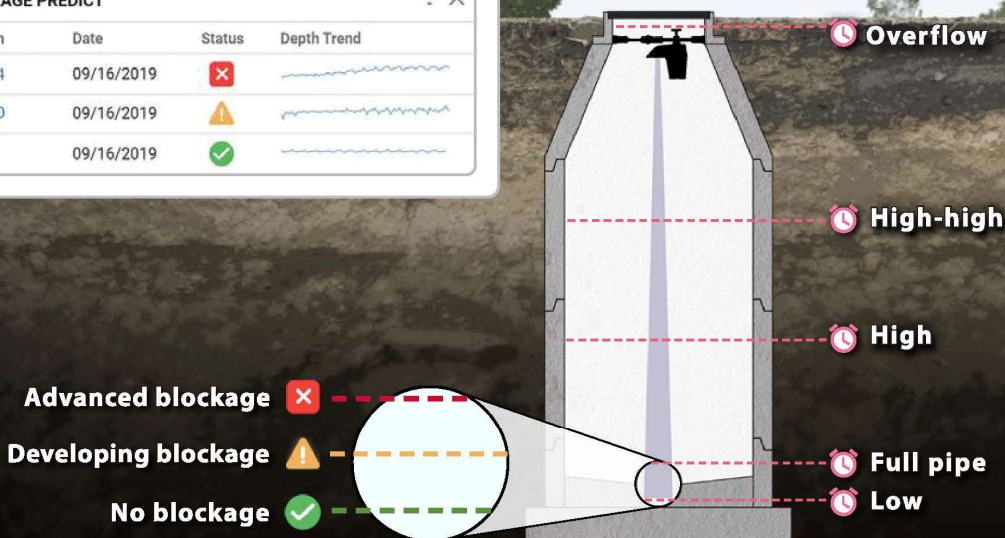
**blockage PREDICT** lists prioritized, colored-coded symbols and access to details for sites of interest (below).

Location	Date	Status	Depth Trend
AN_204	09/16/2019	✘	
AN_110	09/16/2019	⚠	
AN_96	09/16/2019	✔	

### Real-Time Alarms

**5**  
Active Unacknowledged  
ALARMS

Dashboard summarizes Alarms and gives access details. Five redundant SSO alarms (below) guard against fast developing events.





## The ECHO Difference Means New Standards in Performance:



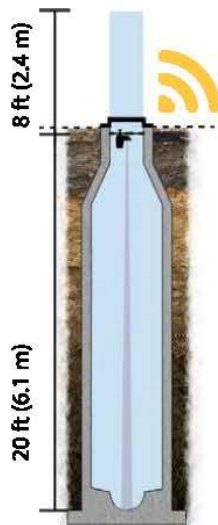
### New LTE-M communications

LTE-M communications provide improved reliability often allowing the antenna to be installed in the manhole, eliminating drilling. Set-up is fast and easy, taking just minutes.



### Total manhole visibility

ECHO's unique narrow beam technology provides up to a 20 ft (6.1 m) range and its pressure sensor can read up to 8 ft (2.4 m) above the ECHO.



## SPECIFICATIONS

<b>System</b>	Dual-measurement sensor (ultrasonic and pressure), tilt alarm for sensor alignment, battery powered, wireless communication
<b>Software</b>	PRISM, cloud-based with data storage, dashboard, analytics, and reports
<b>Communications</b>	Third-party, FCC/IC/EC- and carrier-approved wireless modem Compatible with all 4G LTE-M networks worldwide with 2G fallback Automatically detects installed SIM upon boot up to determine correct network Modem FCCID: R17ME910C1WW
<b>Battery Life</b>	Up to 2 years depending on operating temperature, modem power management, for the and frequency/type of communications
<b>Submersible</b>	Meets IP68
<b>Manufacturing Standard</b>	ISO-9001

## ECHO System Components:



## Installation Options:

The ADS ECHO installs quickly making it easy to move from one location to another.



ECHO with tension bar installation



PVC wall mount bracket



Stainless steel wall mount bracket



Adjustable tension bar

## Tailored, Affordable Purchase Programs

### Purchase

The ADS ECHO can be purchased bundled with communications and software.

### D-Site Turn-Key Service

ADS takes care of your monitoring network including equipment, software, and onsite maintenance through one low monthly fee.



### 2 Year Warranty

Our two-year warranty gives you added assurance of its quality and reliability.



Learn more about ECHO:  
[www.adsenv.com/echo](http://www.adsenv.com/echo)



Access PRISM:  
<https://www.adsprism.com>



Call: 800.633.7246  
Email: [adssales@idexcorp.com](mailto:adssales@idexcorp.com)



ADS PRISM was developed in 2017 and the software is a culmination of 40+ years of ADS' experience. Prior to PRISM, ADS developed similar online web applications (branded as ADS Intelliserve and ADS FlowView) to help distribute data to our clients. In our development of this software specifically for flow monitoring services and applications, ADS has gathered extensive client and customer feedback, which has been used to assist in prioritizing feature enhancements and improvements.

PRISM will connect the City to the flow and rainfall monitoring network, delivering operational intelligence at each location. PRISM offers a fast and easy way to visualize the condition of a collection system and delivers data in a secure platform.

PRISM offers dynamic analytical functions in a Cloud-based platform that can be utilized through individual login accounts. The system includes an ESRI map view reflecting flow, level, and rainfall monitors with location and condition details, and leaderboard tiles that outlines the equipment status, quick access to a data vault to store files related to the monitoring program, as well as specialized report features that can be tailored for project specific needs. Additionally, users can import or export data and events through a fully functional API to automate and enhance specific workflow tasks.




PRISM will specifically help the City of Ann Arbor and its stakeholders by:

1. Transforming data into actionable insight with powerful data viewing and analytics
2. Visualizing sewer system performance through dashboards and graphical displays
3. Provide notifications with configurable alarms for overflows and developing problems
4. Can quickly ingest ESRI Map Server or Feature Server Geographic Data (GIS)
5. Allows data sharing, reports, and related files among cross-functional groups
6. Provides an easy and transformative user experience for monitoring data management
7. Provides user configured Exporting Templates that can quickly be replicated

#### **What dashboards are provided with ADS PRISM**

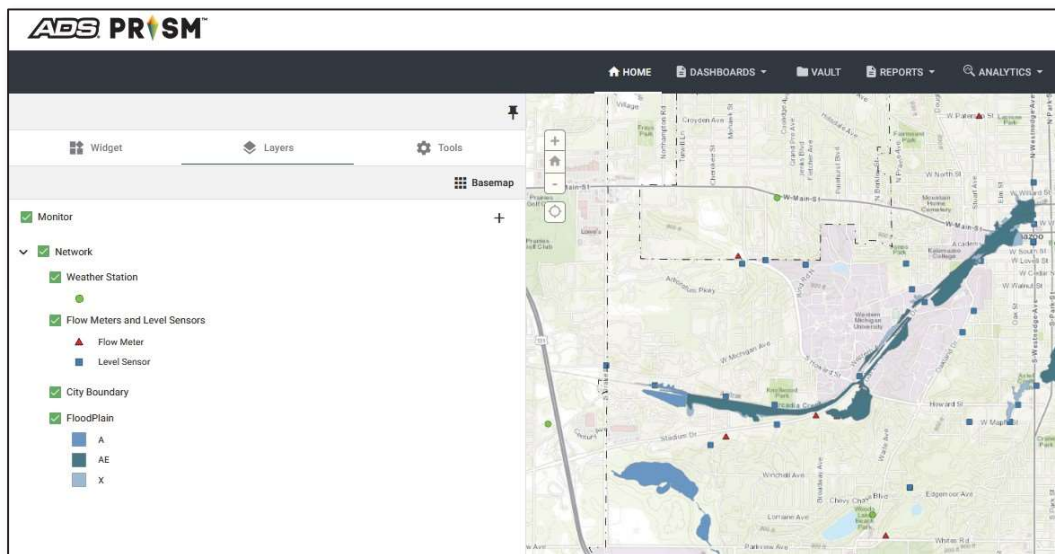
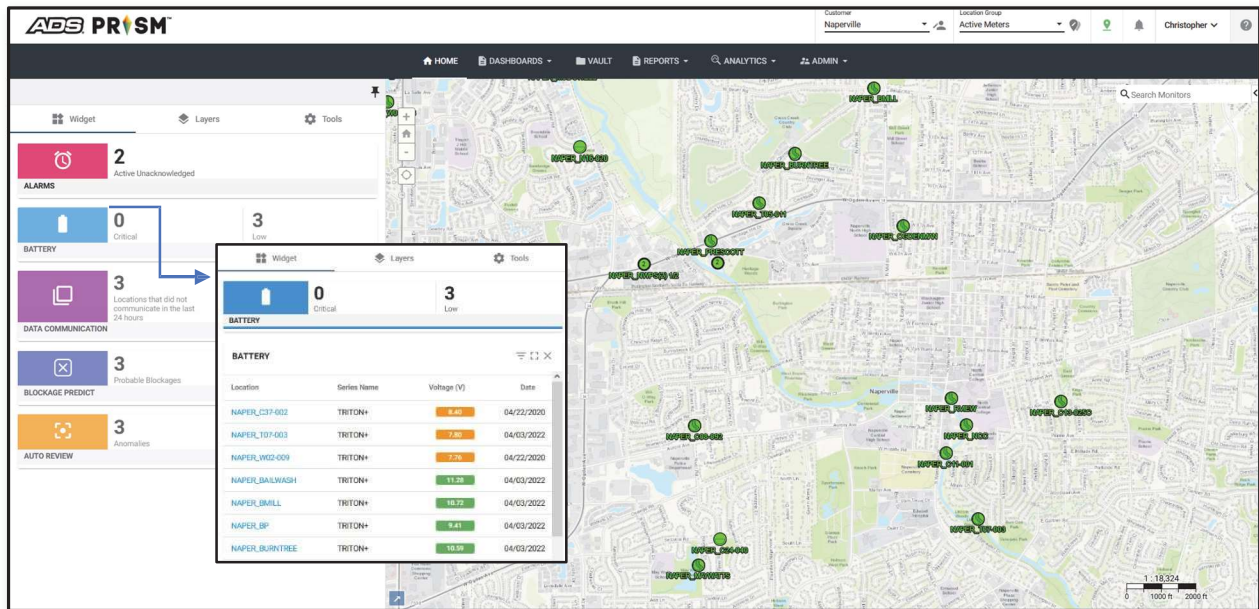
With such a dynamic and feature rich software system, it challenging to provide the full details of PRISM and it's dashboard within this proposal. However, we have highlighted some of the key dashboard features of this software in the graphics and text below.

***ADS is available to offer a full demonstration of the software, should the City be interested.***

Upon login, users are presented with a Widget Tile Board and System Map. These features are dynamic and will update on a regular basis. Active alarms are available and identifiable though the  Alarms Widget to prompt users of configurable alarm state detected by the monitor. The  Battery Widget will update each time data is collected or pushed into the PRISM system. And the  Data Communication widget provides details on monitors that may be experiencing communication issues or interruptions.

A simple navigation at the top of the software bar allows users to quickly jump into other dashboards, such as data viewing, the data vault, reports and analytics. Additionally, Location Groups can be created, customized, and accessed quickly and easily for filtering and fast navigation.

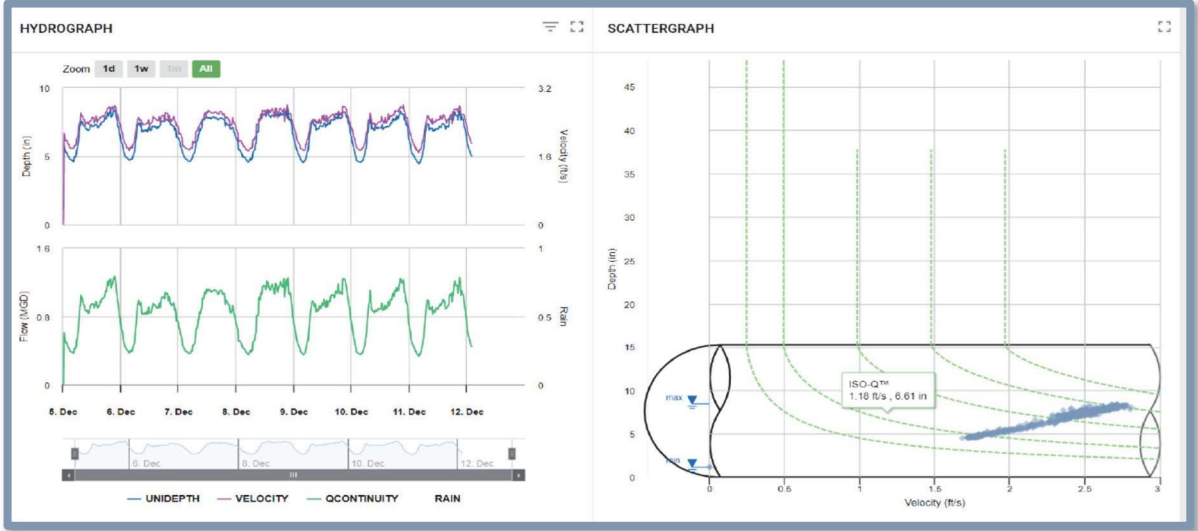
The main display provides Widgets and Maps. For each widget in the dashboard, users can drill down to find additional information that pertains to each device summarized in the main display. The dashboard was designed to provide the user both early notifications as well as critical notifications as the monitoring network changes with the actual field conditions.



PRISM is GIS ready and built for ESRI integration. ArcGIS services are built into PRISM and ready to use **today**. PRISM can consume MapServer or FeatureServer information from ArcGIS Online and without any additional development required.

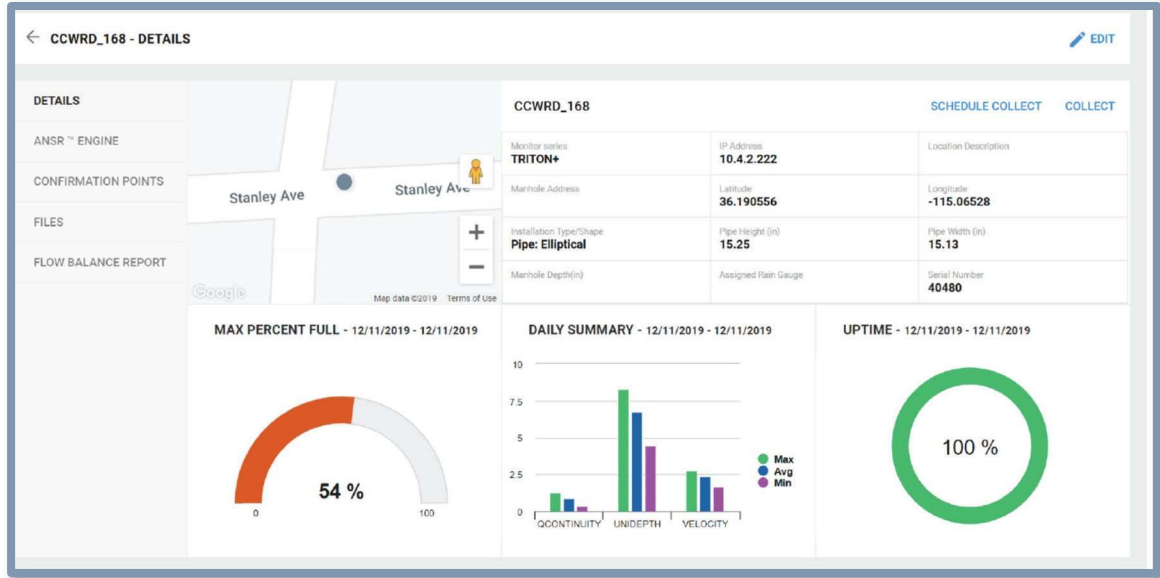


Viewing data is simplified through our locations dashboard. In PRISM, both Hydrographs and Scattergraphs are shown on the same site-location page, as shown in the example below. PRISM allows for great flexibility to choose individual sites, groups of sites, entities such as velocity, depth and flow, raw or finalized data, data ranges, etc.



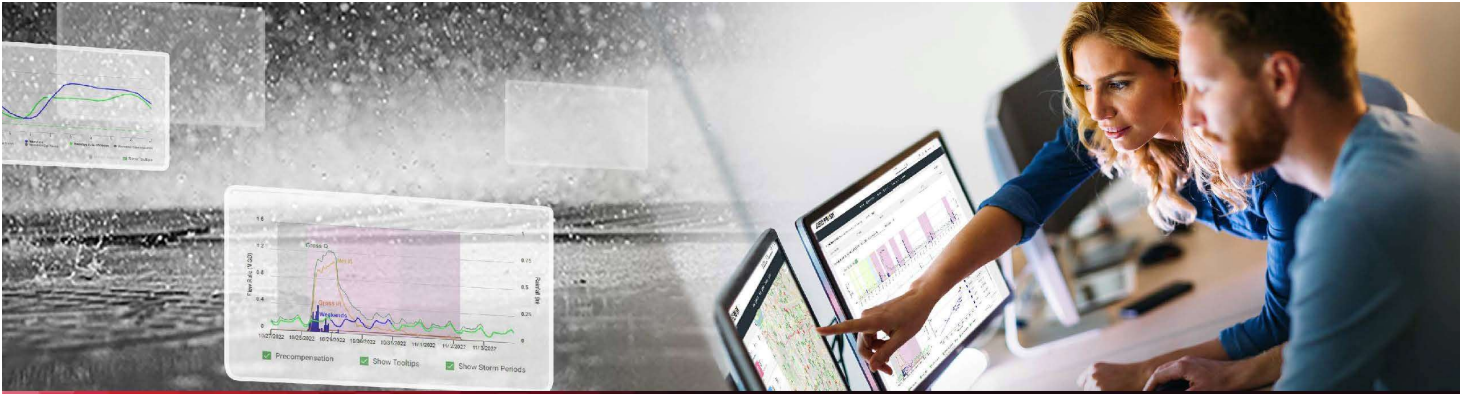
The example above shows the connections of Hydrographs and Scattergraphs and where overlays of Iso- Q lines and Pipe Visualization is shown on the Scattergraph. Other overlay choices include alarms, pipe height, manhole depth, data quality, confirmation points, rain, silt, and estimated data quality.

Each site location also has a Site Details page as shown below, with a zoomed location map, monitor installation details, confirmation points data, files folder for storing site reports/photos/notes, a daily summary on depth, velocity, flow, as well as metrics on data uptime.



Additionally, the quick-reference graphs shown above for the *Percent Full* graphic offers a drill-down report which will open the associated report page for viewing of the data in more detail.

Finally - exporting Data has been simplified within PRISM. Any Hydrograph, Scattergraph, report, table, etc. can be exported as a pdf file or CSV file depending on the nature of the report/graph, that can then be incorporated into hydraulic models, I&I software, capacity studies, etc. There is also a customizable "Flow Monitoring Report" that can provide great flexibility to include variables, entities and additional location summary information and can be replicated at various time intervals and through a saved template. Our "Vault Dashboard" provides users with a quick way to save their exporting template and get the data they need quickly and easily in a recognizable display similar to Windows File Explorer.



# PRISM™

## Proactive Insight for Collection System Management

### PRISM Transforms Your System Management

**PRISM™** is a web application that puts critical data at your fingertips to support management, engineering, and operational decisions within your wastewater collection system. **PRISM** connects clients to an **ADS®** monitoring network, delivering near real-time operational intelligence on the status of your wastewater collection system. It is the fastest and easiest way to visualize the condition of your collection system. It offers dynamic analytical functions to fuel discoveries that will lead to enhanced management of your system.



**Visualize** sewer system performance through intuitive dashboards and graphical displays



Transform data into **actionable insight** with powerful analytics



Ensure timely **performance notifications** with configurable alarms for advance notice of developing problems



Provides an **easy and transformative** user experience for sewer data management



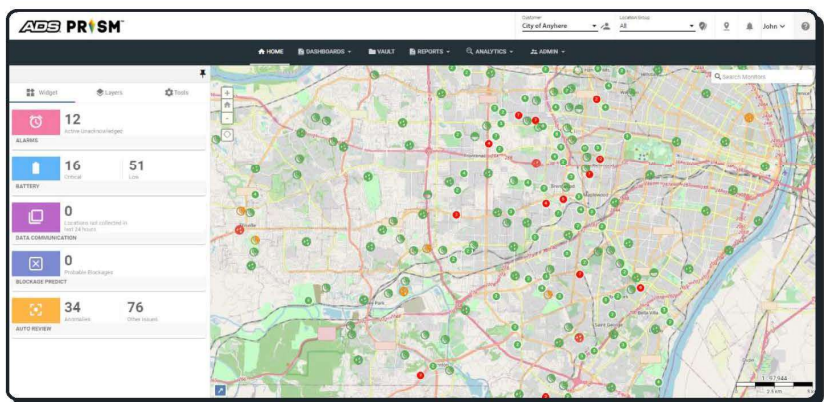
**Collaborate for success** by sharing data, reports, and related files among cross-functional groups



Display the full sewer network by linking **PRISM** to your **GIS Server** to have full control over symbology and visible layers

### System Wide Performance at a Glance

Access your data and device status on our cloud-based Collection System Management platform, **PRISM**. The home page provides immediate system insight including a map view reflecting flow, level, and rainfall monitors with location and condition details, leaderboard tiles with system status, and quick access to the data vault as well as specialized reports. The intuitive interface allows you to quickly manage alarms, check collection and device status, generate reports, and link third party data through our self-service API to automate and enhance your specific workflow.



Flow



Level



Rain



**ADS**  
www.adsenv.com/prism



### Easy, Intuitive, Actionable

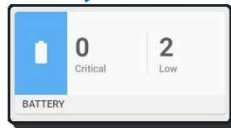
PRISM's dashboard transforms your experience. Get in-depth system analysis that places operational intelligence at your fingertips.

#### Alarms



Self manage and review alarms to inform you of events, performance, and data anomalies at flow, level, or rainfall monitoring locations.

#### Battery Status

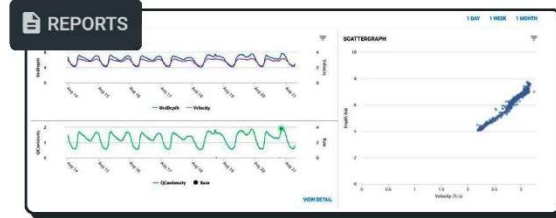


Easy battery status management ensures seamless operation of flow, level, and rainfall monitors.

#### Data Communication

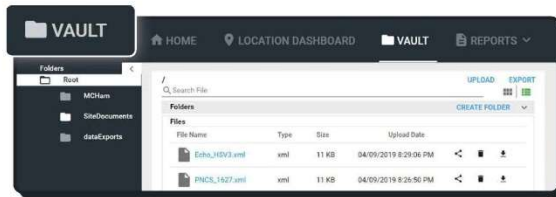


Track monitor communication status to identify any data collection problems that may arise.



#### Visualizing and Reporting

Graphing and reporting capabilities include side-by-side Hydrograph and Scattergraph comparisons for rapid viewing of each site's status.

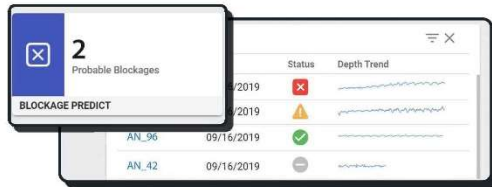


#### Data Vault

Upload, store, organize, and delete any files pertinent to your project. Share a time-sensitive link of your files with PRISM users or non-users.

### Advanced Features

ADS is introducing new advanced features so you can stay on top of your collection system with in-depth insights and specialized tools. Contact us for demos or to purchase.



#### blockage PREDICT™

Prevent sewer overflows by coupling flow depth data with smart algorithms to sense developing sewer blockages. This *advanced machine learning* application recognizes flow anomalies and provides advance notifications so you can direct resources in a timely, cost-effective manner to proactively prevent sewer overflows before they become a problem. See [www.adsenv.com/blockagePREDICT](http://www.adsenv.com/blockagePREDICT) to learn more.



#### New Auto Review™ & Advanced Data Editing

Perform quality control operations on your data within PRISM. Within the editing interface, eliminate suspicious data from final entity generation and correct errors at will with the ability to add commentary about site conditions. The ability to design custom pipe shapes, create calculation based entities, and edit data is at your fingertips.



#### New SLiICER®

Together, PRISM and SLiICER provide a powerful set of online engineering tools designed to extract rigorous Dry and Wet Weather Performance measurements from sewer flow and rain data with speed and precision. See [www.adsenv.com/SLiICER](http://www.adsenv.com/SLiICER) to learn more.

**PRISM Links:**  
<https://www.adsprism.com>  
<https://www.adsprism.com/sliicer>

**Video Tutorials:**  
[www.adsenv.com/video-library/](http://www.adsenv.com/video-library/)

**Talk to a Trained Representative:**  
 T: 800.633.7246  
 E: [adssales@idexcorp.com](mailto:adssales@idexcorp.com)

## Site Selection

Locations for flow meter sites were already determined by 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 confirmed with the City. Typically, a suitable flow meter location has straight pipes, free of debris, flowing into the selected manhole to provide laminar flows.

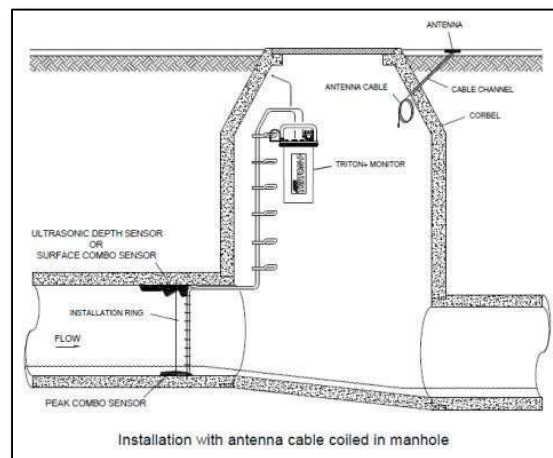
## Site Inspections for Monitoring Suitability

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 3<sup>rd</sup> 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 City's 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.

Example of the ADS Daily Field Log Checklist

Problem Type	Part Name	Regular Monitors				Other Monitors					
		3-K	3K	3500	4000	3500	3501	3502	3503	3504	3505
Flow & Communication Problems	Hydro										
	Call Box (VMI Only)										
	Control Module (351-3520)										
	Control Module (351-3520)										
	Control Module (351-3520)										
	Control Module (351-3520)										
	Control Module (351-3520)										
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Control Module (351-3520)											
Ultrasonic	Ultrasonic Sensor										
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Pressure	Pressure Sensor										
	Pressure Sensor										
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Flow Battery	Flow Battery										
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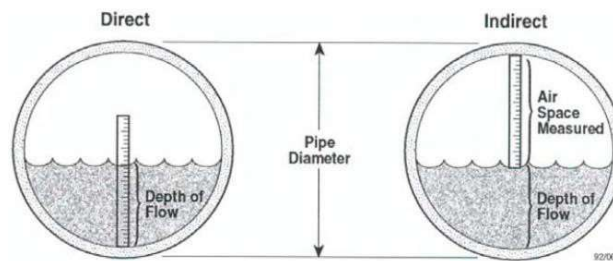
ADS has Advanced Checklists for all Hardware Maintenance

### 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 review process, and as part of our proposed work plan when needed.**

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

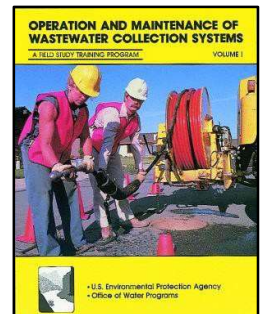
Our comprehensive Quality Assurance/Quality Control (QA/QC) Program is unmatched in the industry and will provide a consistent approach to quality to ensure that all products and deliverables meet project requirements. The program will address methodologies, work review, frequency and timing of review, 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.



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

*E. Authorized Negotiator*

For this project, our local Business Development Manager, Bob Uzelac, will serve as the Authorized Negotiator for any price or contractual obligations. Our submittal is contingent upon the ability to negotiate mutually agreeable terms of the General Services Agreement. Bob's contact info is as follows:

**Bob Uzelac**

Business Development Manager

Phone: (219) 546-9056

[Email: buzelac@idexcorp.com](mailto:buzelac@idexcorp.com)

*F. Attachments*

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



**ATTACHMENT B  
LEGAL STATUS OF OFFEROR**

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

The Respondent is:

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

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

- A limited liability company doing business under the laws of the State of Delaware, whom Ramona Bolden Fether bearing the title of Assistant Secretary whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.
- ~~• A partnership organized under the laws of the State of \_\_\_\_\_ and filed with the County of \_\_\_\_\_, whose members are (attach list including street and mailing address for each.)~~
- ~~• An individual, whose signature with address, is affixed to this RFP.~~

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

Ramona Bolden Fether  
Signature

Date: 8/8/2023,

(Print) Name Ramona Bolden Fether Title Assistant Secretary

Firm: ADS LLC

Address: 340 The Bridge Street, Suite 204, Huntsville, AL 35806

Contact Phone 256-430-3366

Fax 256-430-6633

Email rfether@idexcorp.com

**ATTACHMENT E**



**VENDOR CONFLICT OF INTEREST DISCLOSURE FORM**

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

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

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

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr/> <input type="checkbox"/> Interest in vendor's company <input type="checkbox"/> Other (please describe in box below)
N/A	

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

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
ADS LLC	256-430-3366	
<b>Vendor Name</b>	<b>Vendor Phone Number</b>	
	8/9/2023	Ramona Bolden Fether
<b>Signature of Vendor Authorized Representative</b>	<b>Date</b>	<b>Printed Name of Vendor Authorized Representative</b>

**ATTACHMENT D  
CITY OF ANN ARBOR  
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE**

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

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

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$15.90/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$17.73/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

**Check the applicable box below which applies to your workforce**

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

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

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

ADS LLC

Company Name



Signature of Authorized Representative

8/9/2023

Date

340 The Bridge Street, Suite 204

Street Address

Huntsville, AL 35806

City, State, Zip

Ramona Bolden Fether, Assistant Secretary

Print Name and Title

256-430-3366

Phone/Email address



**ATTACHMENT C  
CITY OF ANN ARBOR DECLARATION OF COMPLIANCE**

**Non-Discrimination Ordinance**

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

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

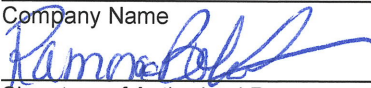
The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

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

ADS LLC

Company Name



8/9/2023

Signature of Authorized Representative

Date

Ramona Bolden Fether, Assistant Secretary

Print Name and Title

340 The Bridge Street, Suite 204, Huntsville, AL 35806

Address, City, State, Zip

256-430-3366, rfether@idexcorp.com

Phone/Email address

**Questions about the Notice or the City Administrative Policy, Please contact:**

Procurement Office of the City of Ann Arbor

(734) 794-6500