itpipes™

2024
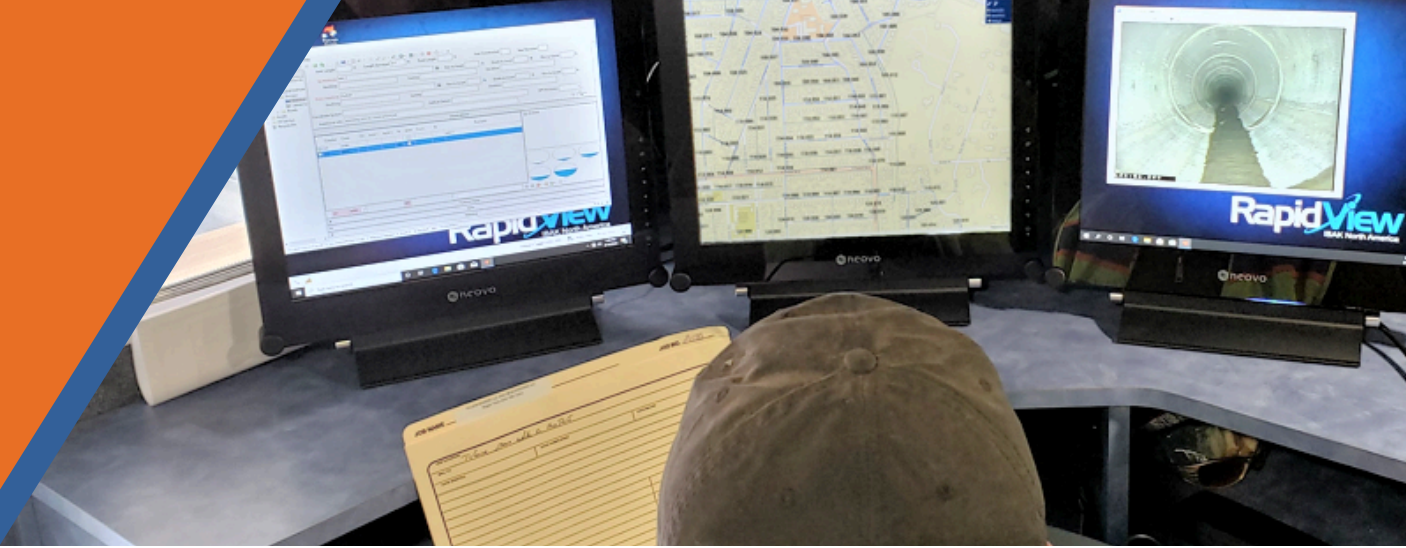
PIPE INSPECTION SOFTWARE
BUYERS GUIDE

This guide provides a comprehensive look at selecting the right pipe inspection software for your needs. It covers key features, real-world use cases, integration capabilities, and tips for securing stakeholder buy-in and funding.

BUYERS' GUIDE
ROADMAP

it pipes™

WHAT IS
PIPE INSPECTION SOFTWARE

Pipeline inspection software is a specialized tool designed to streamline the inspection, maintenance, and management of pipeline networks. It helps organizations capture and track inspection data by seamlessly integrating with GIS systems and generating detailed reports. Inspection software provides an efficient solution for monitoring pipeline conditions, detecting risks, and ensuring regulatory compliance. With advanced data analytics and visualization tools, it transforms raw inspection data into actionable insights, allowing for better decision-making and strategic planning.

Additionally, pipeline inspection software enhances collaboration and communication across different teams and departments by allowing field inspectors to input data directly into a centralized system via mobile devices. This field-to-office accessibility helps boost productivity, improve organizational visibility, and eliminate delays and discrepancies.

Organizations can also leverage an inspection solution to support a variety of inspection strategies, including CCTV, sonar, and laser profiling, making it a versatile tool for diverse pipeline environments. By automating routine tasks and optimizing data management, pipeline inspection software significantly improves the efficiency and effectiveness of pipeline maintenance programs.

WHY PIPE INSPECTION SOFTWARE IS
ESSENTIAL

Managing a pipeline network is a complex and demanding challenge. Traditional inspection methods are time-consuming, susceptible to human error, and often fall short in delivering comprehensive data. As infrastructure ages, regulatory demands increase, and the need for efficient maintenance strategies intensifies, municipalities and utility organizations are under significant pressure to ensure the safety and reliability of their systems.

Benefits of Using Pipe Inspection Software

- *Accuracy*: Pipe inspection software eliminates manual data entry, reducing errors by automatically capturing and recording all relevant information.

- *Efficiency:* Software solutions streamline the inspection process, allowing inspectors to complete tasks more efficiently with real-time data syncing and mobile access for improved field-to-office collaboration.

- *Cost Savings*: By optimizing inspection and maintenance processes, pipe inspection software delivers significant cost savings through early problem detection and proactive maintenance, helping to minimize costly emergency repairs.

- *Comprehensive Data:* Advanced software solutions provide detailed and comprehensive insights on pipeline conditions. This data is crucial for making informed maintenance and rehabilitation decisions.

- *Regulatory Compliance*: Pipe inspection software ensures organizations meet regulatory requirements by documenting all inspections and making them easily accessible for review.

KEY
FEATURES

Essential Features

Seamless Esri GIS Integration

Integrating with Geographic Information Systems (GIS) allows for precise mapping and spatial analysis of pipeline data, making it an essential feature for managing extensive pipeline networks and planning maintenance activities.

Mobile Data Syncing

Mobile-friendly software enables crews to conduct inspections and access data in the field, ensuring teams stay up-to-date. Real-time, field-to-office syncing instantly makes data available to all stakeholders, facilitating prompt decision-making.

Browser-Based Platform

A browser-based platform serves as a centralized repository for all pipe inspection data, ensuring easy access, secure storage, and streamlined management from any internet-connected device.

Integrated Automated Defect Recognition

The built-in option of Automatic Defect Recognition or Assisted Inspection Coding significantly enhances inspection efficiency and accuracy. This advanced feature quickly identifies and categorizes defects, reducing human error, and ensuring consistent, reliable inspection results.

Hardware Agnosticity

Hardware-agnostic software offers the flexibility to select any inspection hardware that meets specific organizational and budgetary needs, free from manufacturer compatibility restrictions.

Bi-Directional Automated Enterprise Asset Management Integration

Bi-directional automated integration with an enterprise asset management system seamlessly connects inspection data and asset records, ensuring that all changes and updates are automatically reflected in real-time, within a unified system of record.

it pipes™
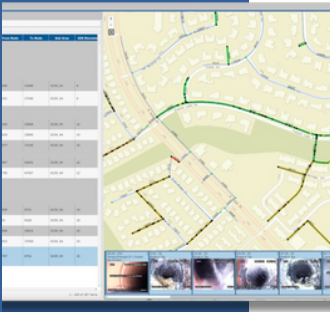
KEY
FEATURES
CONTINUED

Nice-to-Have Features

Cloud-Based Storage

Utilizing pipe inspection software that is cloud-based ensures that inspection data is securely stored, easily accessible, and well-protected.

Configurable Templates

The ability to configure and customize templates enables organizations to create tailored forms and reports that align with specific workflows — ensuring greater consistency, accuracy, and compliance with local regulations and standards.

Automated Reporting

Automated reporting features save time by generating dynamic inspection reports that ensure consistent documentation and deliver metric-based insights.

Mobile Mapping

A seamless Esri ArcGIS integration with pipe inspection software enables agencies to visualize asset data, streamline workflows, and enhance field inspection accuracy.

Inspection Hyperlinks

Inspection hyperlinks give organizations and key stakeholders quick, direct access to detailed reports and data, making it easy to review inspection information, such as videos, photos, reports, and other metrics.
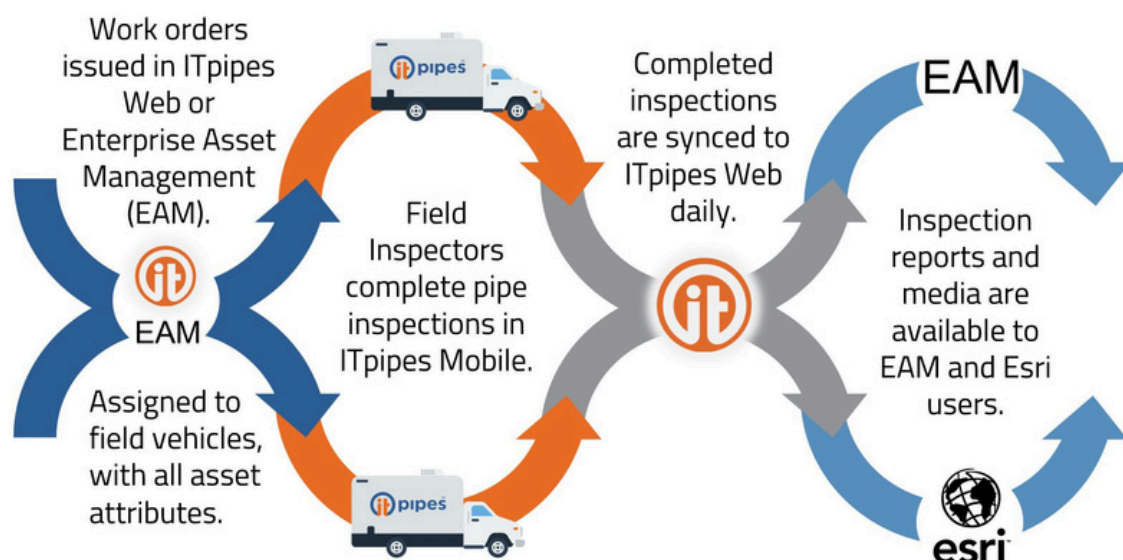
INTEGRATION CAPABILITIES

Effective management of pipeline networks requires a holistic approach, where inspection data is integrated with other systems, such as GIS and asset management technology. Connecting additional technology solutions helps maximize the value of pipeline inspection software by ensuring all relevant data is collected and fully leveraged.

Esri GIS

Pipe inspection software and Esri GIS technology work hand-in-hand to provide precise mapping and spatial analysis of pipeline data. A tight integration of these solutions allows organizations to visualize inspection data within a comprehensive geographic context, improving decision-making and overall management.

Asset Management Systems

Inspecting, maintaining, and managing pipeline infrastructure is a complex process that often involves large amounts of data and a variety of work activities. Agencies can streamline these operations by integrating pipeline inspection software with asset management technology. Solutions like Trimble, Cartegraph, Lucity, and Tyler Technologies help centralize data management and eliminate data silos. Coupling an asset management system with pipeline inspection software provides agencies with accurate, real-time data to inform their operation and maintenance strategies, ultimately extending the lifespan of critical infrastructure.

Work orders issued in ITpipes Web or Enterprise Asset Management (EAM).

Assigned to field vehicles, with all asset attributes.

Field Inspectors complete pipe inspections in ITpipes Mobile.

Completed inspections are synced to ITpipes Web daily.

EAM

Inspection reports and media are available to EAM and Esri users.

INTEGRATIONS IN ACTION:
ESRI SUCCESS STORY

———

Sheboygan, WI

The City of Sheboygan, WI, was tasked with operating and maintaining its aging infrastructure, including pipelines dating back to the 1800s. To ensure the continued delivery of safe and efficient services, the city adopted ITpipes as a comprehensive inspection software solution, seamlessly integrating it with Esri ArcGIS Enterprise for enhanced spatial analysis. This integration has enabled a more efficient and effective approach to managing asset data and associated work activities. With access to real-time data in a unified digital platform, both field crews and office staff have streamlined their workflows, optimizing pipeline management across the board.
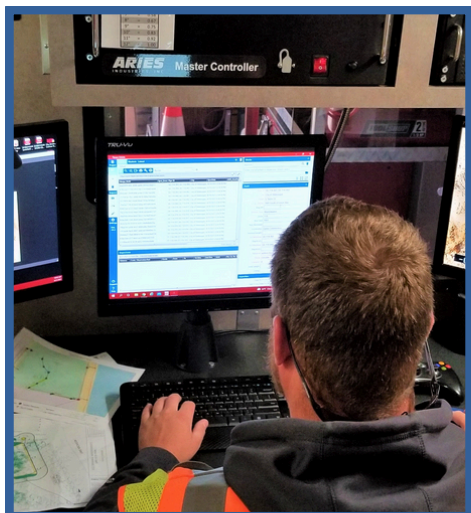
The collaboration between ITpipes and Esri has transformed Sheboygan's asset management strategy, enabling easy access to inspection videos and related data within the GIS interface. This has significantly reduced the time and effort needed for infrastructure maintenance, while enhancing data accuracy and decision-making. As a result, Sheboygan can now proactively maintain its infrastructure, and ensure reliable, safe, and sustainable services for years to come.

Learn more about Sheboygan's innovative use of ITpipes and Esri:
Out of Sight, Not out of Mind: Moving Buried Assets into GIS

INTEGRATIONS IN ACTION:
ASSET MANAGEMENT SUCCESS STORY

——— Arlington County, VA

In an effort to streamline pipe inspection and rehabilitation processes and align with its Smart Growth principles, Arlington, Virginia, has integrated a number of digital solutions, including ITpipes, Esri, and Cartegraph. This holistic approach to infrastructure management has allowed the city to manage its 465-mile sanitary sewer system and successfully conduct CCTV inspections. The integration has also allowed Arlington to connect its data through bi-directional data synchronization, fostering real-time updates and enhanced communication. By centralizing its technology solutions, the city has made informed rehabilitation decisions, allowing it to achieve its ambitious goal of relining 2,000 feet of pipe weekly.

The city's success is largely due to its connected workflows, which seamlessly issue work orders through Cartegraph and automatically transfer them to ITpipes Mobile for inspections. By leveraging both software solutions, city staff can upload reliable and easily accessible data directly from the field via hotspot. This holistic approach to pipe inspection and management has minimized duplicate efforts and empowered proactive maintenance, ensuring infrastructure is delivered effectively and efficiently.

Learn more about Arlington County's innovative use of integrated solutions:
Assessing the Pipes: Smart Growth, Smart Data, and Smart Rehab in Arlington

it pipes

AI-ASSISTED INSPECTION
CODING

Leveraging AI to Improve Processes

AI-assisted coding in pipe inspection software has transformed how municipalities manage and analyze pipeline data. This technology automates the coding of inspection observations, significantly increasing both accuracy and efficiency. By leveraging AI, organizations can dramatically reduce manual data entry and minimize the risk of human error. AI algorithms quickly process vast amounts of data, identifying, and categorizing defects based on pre-set criteria, ensuring consistency while saving both time and money.

Submission	Notification	Processing	Review	Delivery	Integration
Post inspection, user clicks button to upload inspection to ITpipes	ITpipes team is notified	Inspection is processed	ITpipes personnel reviews & finalizes the coding	Report is generated and delivered to the client	Inspection information is integrated with GIS & AMS systems

Procedure

- Converted
- Pixels clustered
- Defects recognized
- Areas flagged

Reducing Manual Efforts

Introducing AI-assisted coding into pipeline management workflows significantly reduces the administrative burden on inspectors by automating repetitive and time-consuming tasks. This technology streamlines the inspection process, allowing inspectors to replace manual data entry and tedious coding with AI-driven efficiency. The reduction of manual efforts not only helps crews complete projects faster but also lowers labor costs, making the entire inspection process more efficient.

Human Review

Despite the advancements in AI technology, human oversight remains an essential component of the inspection process. AI can handle a significant portion of the coding work, but the final review by a human expert ensures that all observations are accurate and that any anomalies or unusual findings are appropriately addressed. This combination of AI efficiency and human expertise guarantees a high standard of inspection quality.

ON-PREMISE VS. CLOUD

While on-premise hosting was once the standard for municipal agencies, cloud-based pipe inspection software is rapidly becoming the preferred choice. This industry shift is driven by the cloud's built-in advantages, such as lower upfront costs, automatic updates, and easier scalability. Municipalities are increasingly recognizing that cloud solutions can streamline operations, reduce IT burden, enhance security, and improve data accessibility. According to a 2023 survey by the American Public Works Association, 60% of respondents indicated they were either using or considering cloud-based solutions for asset management — a clear indication that more organizations are embracing cloud adoption.

	On-Premise	Cloud
Scalability	Limited by physical hardware and infrastructure	Easily scalable with flexible resource allocation
Accessibility	Accessible only within the network or through VPN	Accessible from anywhere with internet access
Data Storage	Local servers with capacity limits	Virtually unlimited storage capacity managed by the cloud provider
Maintenance	Requires dedicated IT staff for maintenance and updates	Maintenance and updates managed by the cloud provider
Cost	High upfront costs for hardware and ongoing maintenance	Lower upfront costs with a subscription-based pricing model
Security	Managed internally, requiring robust security measures	Managed by cloud provider, often with advanced security protocols
Disaster Recovery	Requires separate solutions for backup and disaster recovery	Built-in backup and disaster recovery solutions
Performance	Dependent on local hardware capabilities	Optimized by the cloud provider, often with high availability
Software Updates	Manual updates needed, can be time-consuming	Automatic updates with minimal downtime
Integration	Potentially complex integration with other systems	Easier integration with other cloud-based services and applications

CHOOSING THE RIGHT
VENDOR

When selecting a vendor for pipe inspection software, organizations should consider the following key factors:

Industry Experience

Look for vendors with extensive experience in the pipe inspection industry. A seasoned vendor will understand the challenges and specific needs of pipeline management. They should offer, not only software solutions, but also PACP training and consulting services to improve pipe inspection workflows.

Customer Support

Choose a vendor that offers robust customer support. Reliable support ensures that any issues are promptly addressed, minimizing downtime and disruptions.

Scalability

The software that is selected should have the ability to be configured and grow with an organization's evolving needs, to ensure long-term value and adaptability.

Proven Track Record

A reliable vendor will have a proven track record of successful implementations and satisfied customers. Be sure to ask for vendor references from agencies of a similar size or with comparable workflows.

Tailored Configuration

Municipalities should choose a software vendor that understands the unique configuration of camera hardware, workflows, and integrated software. The vendor should offer customized solutions that meet specific organizational needs and align seamlessly with existing systems and operational requirements.

COST CONSIDERATIONS

When investing in pipe inspection software, it's essential to consider both the initial and long-term costs. Here are some expenses to take into consideration:

Initial Costs

1. **Software Purchase or Licensing Fees**: The cost of acquiring or licensing the software for municipal use.
2. **Hardware Costs**: Expenses for hardware, such as mobile devices, tablets, or specialized inspection equipment.
3. **Implementation Fees**: Costs associated with setting up the software, including data migration and system configuration.
4. **Integration Costs**: Expenses for integrating the software with existing systems like GIS and asset management platforms.
5. **Training Costs:** Initial training sessions for staff to ensure they can effectively use the new software. Some vendors, like ITpipes, include unlimited training.
6. **Configuration Fees:** Costs for any custom features or templates required to meet specific municipal needs.

Ongoing Costs

1. **Subscription or Renewal Fees**: Regular payments required to maintain software licensing or access to cloud-based services.
2. **Maintenance and Support Fees**: Costs for ongoing technical support, troubleshooting, and regular software updates.
3. **Additional Training:** Training for new employees or refreshers for existing staff as needed.
4. **Data Storage Fees:** Costs for cloud-based data storage solutions, including backups and security measures.
5. **Upgrade Costs**: Expenses related to upgrading the software to newer versions with enhanced features and capabilities.
6. **Operational Costs:** Regular expenses related to the day-to-day use of the software, such as data usage fees for mobile access.
7. **Defect Coding:** Automated defect coding services can be used to help ease the burden on the staff and ensure consistency. Usually priced per foot.

ROI AND
COST SAVINGS

Choosing the right pipe inspection software can lead to substantial cost savings and a strong return on investment (ROI). Here are some key areas where an effective inspection solution provides financial benefits and operational efficiencies:

- **Reduced Labor Costs**: Effective inspection software automates labor-intensive tasks like data entry, report generation, and scheduling — significantly reducing the need for manual labor.

- **Improved Data Accuracy**: Features like AI-assisted coding, automated data collection, GIS integration, and asset management connectivity minimize human error and ensure that inspection data is accurate and reliable.

- **Optimized Asset Management:** Organizations can leverage pipe inspection software to gain actionable insights into pipeline conditions, enabling predictive operations and maintenance. This proactive strategy extends asset lifecycles and helps avoid costly repairs.

- **Maximized Inspection Efficiency**: Implementing an effective software solution helps streamline inspection processes with capabilities like mobile accessibility, automated workflows, and spatial analysis. This enables crews to complete more inspections in less time, increasing overall productivity.

- **Decreased Regulatory Compliance Costs:** Compliance with regulatory standards often requires extensive documentation and reporting. The right pipe inspection software automates these processes, reducing the time and effort needed to compile and submit compliance reports.

- **Reduction in Emergency Repairs:** Enhanced monitoring and predictive analysis help prevent pipeline failures before they occur, significantly reducing the frequency of emergency repairs. This translates into substantial cost savings on labor, equipment, and service disruptions.

- **Enhanced Resource Allocation:** With a centralized platform for data accessibility, pipe inspection software enhances resource planning and budget allocation, ensuring that maintenance efforts are focused on the most critical areas.

SECURING STAKEHOLDER
BUY-IN

Securing stakeholder buy-in is essential for the successful adoption of a pipe inspection software solution. Here are some key points to emphasize when seeking the support of key decision-makers:

Highlight Benefits
Explain how the software automates manual processes, reduces staff workload, and boosts productivity. Emphasize the benefits of seamless integration with GIS and asset management systems, such as streamlined workflows and enhanced data accuracy. Demonstrate how the inspection software delivers cost savings by reducing labor, minimizing data entry errors, and lowering emergency repair expenses. Highlight its powerful reporting and analytical capabilities for better decision-making and proactive maintenance.

Present Case Studies and Success Stories
Share success stories from other municipalities that have successfully implemented the chosen pipe inspection solution. Focus on the challenges they faced, how the software addressed those challenges, and the tangible benefits they experienced.

Address Concerns and Provide Solutions
Address stakeholder concerns early on by communicating openly and seeking to understand their specific needs and priorities. Demos, references, case studies, and testimonials can help build confidence. Ensure that transparency is maintained throughout the entire decision-making process to facilitate a smooth adoption and maximize the software's impact.

Engage Stakeholders Early and Often
Involve key stakeholders from the beginning. Seek their input during the needs assessment phase to ensure their concerns and requirements are addressed. Organize demonstrations and workshops to showcase the features and benefits of the solution. Maintain open communication throughout the implementation process and keep stakeholders informed and engaged.

Demonstrate Alignment with Strategic Goals
Show how implementing a robust pipe inspection solution aligns with the municipality's strategic goals, such as improving infrastructure management, enhancing service delivery, and optimizing resource allocation. Demonstrate how the solution supports compliance with regulatory requirements and industry standards.

Provide a Clear Implementation Plan
Present a detailed implementation plan with clear timelines, milestones, and responsibilities. Outline a structured approach to training, data migration, and system integration. Reassure stakeholders that the transition will be smooth and well-managed, with minimal disruption to ongoing operations.

Leverage Vendor Support
Outline the support options provided by your vendor, such as technical assistance, training, and customer service. Share testimonials from other agencies highlighting the vendor's responsiveness and effectiveness in resolving issues, helping to reinforce confidence in the partnership.

BEST PRACTICES FOR
IMPLEMENTATION & TRAINING

Successful implementation and training are critical to maximizing the effectiveness of pipe inspection software. Properly integrating the new system into your operations and ensuring that all users are adequately trained can significantly boost productivity, accuracy, and efficiency. Here are key steps to ensure a successful implementation and training process:

1. Develop a Detailed Implementation Plan

Start with a comprehensive implementation plan that outlines each step of the process, including timelines, milestones, and responsibilities. Break the implementation into manageable phases to avoid overwhelming the team and to ensure each stage is completed thoroughly before moving on to the next. Clearly define objectives and key performance indicators (KPIs) to measure success.

2. Involve Stakeholders Early

Engage all relevant stakeholders from the beginning of the implementation process. This includes IT staff, field inspectors, office personnel, and management. Early involvement ensures their needs and concerns are addressed and fosters a sense of ownership and commitment to the new system. Regularly update stakeholders on progress and solicit their feedback to make necessary adjustments.

3. Configure the System to Fit Your Need

Collaborate closely with the software vendor to customize the system to meet specific requirements. This may include configuring templates, integrating with existing systems (e.g. GIS and asset management platforms), and setting up automated workflows. Customization ensures that the software aligns with organizational operations and maximizes its effectiveness.

4. Conduct Comprehensive Training

Invest in comprehensive training for all users to ensure they are comfortable with the new software. Training should be tailored to different user roles, providing field inspectors, office staff, and management with the specific knowledge they need. Offer a combination of training methods, such as hands-on workshops, online tutorials, and user manuals. Continuous training should be available for new employees and to refresh existing users' skills.

BEST PRACTICES FOR
IMPLEMENTATION & TRAINING

5. Provide Ongoing Support

After implementing the software solution, ongoing support, regular communication, and an open feedback loop are essential to ensure the software is effective and is used to its full potential. To maximize post-implementation buy-in and effectiveness, ensure that users' concerns are addressed and that they feel confident and capable in using the software.

6. Monitor and Evaluate Performance

As the inspection software becomes part of regular operations, consistently evaluate its performance against the organizational KPIs established in the initial implementation plan. Adjust workflows, training, and support as needed to achieve desired outcomes. Ensure that the data collected is being effectively leveraged for informed decision-making and being optimized through additional enhancements.

7. Foster a Culture of Continuous Improvement

Cultivate a culture of continuous improvement by encouraging users to share best practices and innovative uses of the software. Facilitate collaboration by creating opportunities for knowledge-sharing, such as regular team meetings or dedicated user groups. Reinforce the value of continuous learning and growth by recognizing and rewarding team members who have successfully adopted and optimized their use of the software.
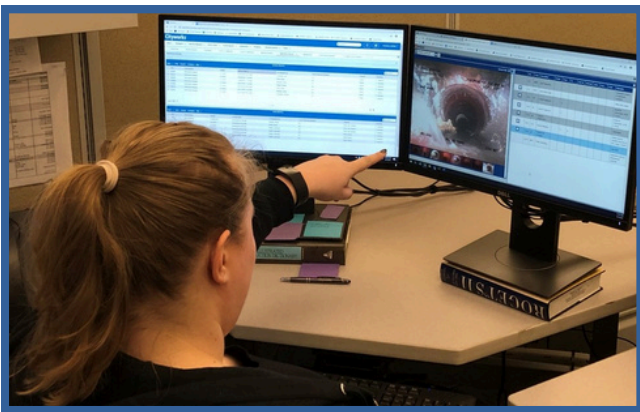
INVESTING IN SAFER AND MORE RELIABLE PIPELINE NETWORKS

Adopting pipe inspection software is a strategic decision that can elevate an organization's ability to inspect, manage, and maintain pipeline networks. By leveraging this digital inspection technology, organizations can significantly enhance operational efficiency, improve data accuracy, and make more informed decisions, all while reducing operational costs.

The impact of implementing pipe inspection software extends beyond the organization. Local communities, businesses, and individuals directly benefit from pipeline networks that are properly inspected, managed, and maintained. By ensuring the integrity and longevity of critical infrastructure, organizations contribute to safer, more reliable services, ultimately fostering trust and confidence among those they serve. In embracing this technology, organizations are not only advancing their operational capabilities but also enhancing the overall quality of life in the communities they support.
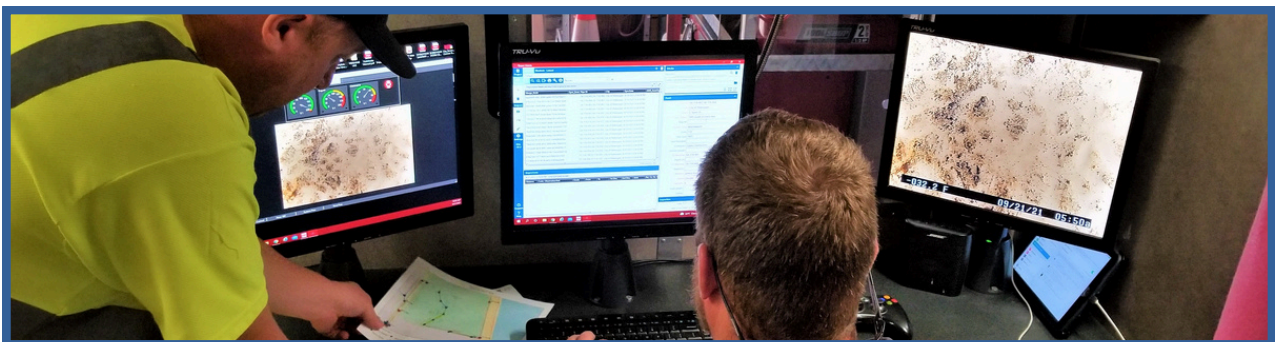
PIPELINE INSPECTIONS.
ACTIONABLE INTELLIGENCE.

For more information on choosing the right pipe inspection software for your organization, visit us at itpipes.com.

877-ITPIPES

www.itpipes.com

solutions@itpipes.com

9450 SW Gemini Drive
PMB 26914
Beaverton, OR 97008