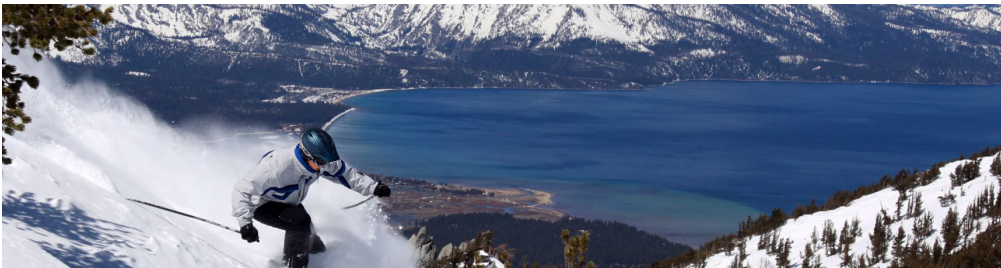Tahoe City Public Utility District

GraniteNet Software goes beyond Pipelines as an Inspection and Decision Support Platform for Municipal Public Works

A California public utility increases productivity and improves decision making

Just down from the spectacular Sierra Nevada mountains where the United States hosted the Winter Olympics in 1960 (and upset the Soviet Union winning its historic first ever Gold Medal in ice hockey), lies the vibrant community of Tahoe City located on the shores of Lake Tahoe.

Tahoe City strives to attract people to its incredible location and seeks to become the "Best Mountain Town in America to work, visit and live in". Providing a sustainable ecosystem with reliable public works infrastructure is critical for the community's success as well as the natural resources and wildlife habitats that surround it. The Tahoe City Public Utility District (the "District") is making this happen.

Operating in an environmentally sensitive area requires vigilance, proactivity and innovation. The District is responsible for providing its customers with a highly effective sewer system, and providing clean, reliable sources for drinking water and fire protection. Spanning 31 square miles, the District serves 7,500 sewer customers while maintaining approximately 422 miles of sanitary sewer lines and 34 wastewater lift stations.   Water is served to 4,000 customers spread throughout six physically separate and mountainous service areas, containing over 550 fire hydrants and 1,800 system valves. The District has embraced the need to innovate and leverage new technologies to increase efficiencies and improve decisions related to maintaining its critical infrastructure.

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> *The District takes pride in our proactive approach to inspecting our critical utility infrastructure, however over the years the process had become inefficient due to the number of different paper forms, software solutions, and "in-house" applications we were using. It was proving difficult to efficiently collect, manage and aggregate the critical data we need to make informed decisions.*
>
> **Sean Barclay,**
> Director of Support Services,
> Tahoe City Public Utility District

"The Standard of the Industry"

CUES

The Challenge

Providing excellent service while minimizing the total cost of owning, operating, and maintaining District assets - has required the District to think strategically about its information systems and how informed decisions drive labor and equipment to the most critical assets.

The Solution

The District needed to find a single inspection platform for evaluating multiple types of public works assets which would be user friendly for both front line staff and key decision makers. The system would need to be configurable to carry forward the historically proven and successful inspection methods used by the District, while also being able to add new assessment data into the analysis. And the desired system would need to be able to streamline business processes between the field and the office while leveraging the District's investment in GIS (maps) to allow for spatially precise data collection and improved data visualization and analysis.

Ultimately the District's goal is to have more intuitive, map-driven methods to infer infrastructure criticality and Consequence of Failure for the District's wastewater collection system, its water lines and to extend out to multiple other types of municipal assessments.

The District's research led it to contact CUES, Inc. makers of GraniteNet Asset Inspection / Decision Support Software to inquire about the potential of their platform to manage multiple types of asset inspections. Director of Support Services, Sean Barclay then submitted a proposal to the District's Board of Directors, who approved a budget amendment to move forward with the GraniteNet software solution.

> *"CUES staff demonstrated their existing software capabilities to us online and I was confident they could provide a solution that would achieve all of our requirements. After working closely together to evaluate their approach, test their software and develop a scope of work, I became confident in both their software product and their commitment to customer service.*

Sean Barclay,
Director of Support Services,
Tahoe City Public Utility
District

The Implementation

Kevin Hyche, the District's Information Systems & Technology Technician worked closely with the CUES team to develop a comprehensive project scope to address all of the District's needs for a single-platform, field inspection system. The scope included:

- Migration of the existing data to GraniteNet
- Integrating the District's ESRI ArcGIS mapping platform with the GraniteNet system
- Setting up Automation for data transfer and report generation
- Building custom inspection forms for Sewer Line Cleaning Inspections, Water Valve Inspections, and Fire Hydrant Flow Testing
- Conduct On-Site and web-based training
- Provide Project Management

In the fall of 2016, the CUES Software Development Staff kicked off the implementation with a thorough project implementation meeting to discuss District goals, existing workflows and available resources. This extensive process culminated in the preparation of an implementation document used to create task completion dates and benchmark the project components.

The implementation included a number of complex processes, including the migration of an existing Microsoft© Access database to Microsoft© SQL Server in order to provide a more stable, scalable database platform. The District's GIS data was examined and modified in order to complete the vital integration of the mapping to GraniteNet, creating a more user friendly inspection workflow for staff and giving managers the ability to view inspection results on a map in the office and run customized reports.

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> *I was extremely impressed by the comprehensive, expert project management of the CUES staff because, without that, a project of this complexity would not have been successful as quickly as it was. As the project heads towards its first full season with this new, streamlined field inspection system, we're really looking forward to continuing to work with CUES in expanding and improving our system.*
>
> **Sean Barclay,**
> Director of Support Services,
> Tahoe City Public Utility
> District

CUES staff took existing paper forms used by the District for recording sewer line cleaning data, water valve inspections and fire hydrant flow testing, and created custom inspection forms in the GraniteNet software which can be run on Microsoft Windows™ workstations and tablets. The hydrant flow testing form leverages the advanced capabilities of the software which uses customized formulas to calculate real-time values based on the data entered. The software gives staff in the field immediate results and helps prescribe next steps based on the flow rate of a tested hydrant. This capability will dramatically reduce the number of manual steps involved in what was previously a very labor intensive, time-consuming process.

Once the system design, software migration and installation tasks were completed in late 2016, CUES staff came on-site and provided comprehensive field training for the District front line staff. Shortly after completion of training, the system went "live". All steps in the project were completed on time and on budget to the District's satisfaction.

The Result

In the office, the efficiency and reliability of managing the collected data has been greatly improved due to the ability of the software to automate the transfer of data from the field to the main database. Using the built in GraniteNet Scheduler tool, data collected in the field is uploaded to the office production database automatically at a designated time. This tool relieves the operator of this task and it can customize exactly what data will be brought in, and specify the frequency of data transfers as well as sending out new work request tasks for field work to be completed, and the dates requested for completion.

The GraniteNet Scheduler tool was also configured to automatically generate weekly reports and send them via email to a supervisor for review. This can be applied to any custom form and can be scheduled as frequently as needed.

Today, the number of separate forms and field inspection processes has been reduced from five to one, greatly improving efficiency. The GIS integration has also immediately improved the way District staff access and use critical asset inspection data.

According to Tony Laliotis, Director of Utilities with the Tahoe City Public Utility District, *"the ability to query and display observations and inspection data in real time on a map is a game changer. The GNET [GraniteNet] platform has really given the District a way to leverage our data, we're excited about having this kind of access to so much data, all in one place and to be able to see and interact with that data on a map. This can really improve how we use data to plan for future projects."*

The District now has both the spatial and the historical context to proactively improve its project planning and prioritization methodologies by classifying the criticality and rate of declining infrastructure to proactively plan for its rehabilitation or replacement. Since the software platform is extensible, the District is looking forward to realizing even more benefits and already has plans to incorporate some additional GraniteNet modules (Valve Exercising, Lift Stations, Pump Stations, Grease Traps, GPS locating etc.) to further leverage this powerful platform.

> *Now with just a half a year or so using the new system, our staff has noted significant improvements in a number of areas. Perhaps most importantly, field staff have been impressed with the ease of use and have embraced the single platform solution for inspections. Having an integrated GIS map allows field staff to easily choose and launch the appropriate asset inspection form straight from the map in GraniteNet and have the spatial certainty that they are recording data against the correct asset.*

Sean Barclay,
Director of Support Services,
Tahoe City Public Utility District