Streamlining Asset Inspection in the Cloud:

Improving Productivity and Leveraging Critical Data

John Higginbotham, PE, PLS Assistant District Engineer Sangamon County Water Reclamation District 3000 N 8th Street Rd Springfield, IL 62707



Sangamon County Water Reclamation District (SCWRD) GraniteNet Web Case Study



The Sangamon County Water Reclamation District (SCWRD) provides wastewater treatment for the City of Springfield, Illinois, and surrounding communities.

As the Illinois State Capital, Springfield is known for a popular dish called a "horseshoe" consisting of an open-face sandwich thoroughly smothered with fries and cheese sauce. A close second to the horseshoe, Springfield is also President Abraham Lincoln's hometown and the place of his burial at Lincoln's Tomb. Located approximately 190 miles southwest of Chicago in central Illinois, the District was organized in 1924 and provides wastewater treatment and disposal services to approximately 150,000 residents of Springfield and the surrounding area.

The District maintains approximately 280 miles of gravity sewer mains consisting of typical small 8-inch diameter mains to 16-foot diameter CSO lines and everything in between. The District also operates and maintains 37 pump stations within the collection system and low pressure sewer systems around Lake Springfield.

Since 2015, the District has taken a proactive, map-driven approach to managing its collection system using an asset management and decision support software platform from CUES, Inc. called GraniteNet.

CHALLENGE

STREAMLINE MULTIPLE ASSET INSPECTION PROCESSES – PAPER, SOFTWARE, "IN-HOUSE" APPLICATIONS

John Higginbotham, PE, PLS Assistant District Engineer "Over the years tracking collection system maintenance activities such as cleaning and CCTV had become inefficient due to the number of different paper forms, software solutions, and "in-house" applications we were using. We decided to find a data management solution that could transform our processes by being tightly integrated with our other strategic systems. We evaluated and selected GraniteNet from CUES."



www.cuesinc.com/software



The first step was integrating maps with our wastewater collection system asset layers between **ESRI** ArcGIS and GraniteNet so our inspection crew could easily orientate themselves and verify field data with our master data to ensure accurate information was being collected on the proper assets. The bidirectional data exchange between ESRI and GraniteNet went live a few weeks after we purchased the modules from CUES and provided the CCTV crew with up-to-date information and helped to eliminate repetitive data entry, reducing errors and increasing efficiency in the field.

After several years of leveraging the benefits of GraniteNet integrated with ESRI, several things came together to push the District to take its investment in GraniteNet to the next level. A need for a robust and integrated CMMS, the ability to enable field, office, and remote workers, and a significant security breach-directed focus toward upgrades and functionality improvements in several systems, including GraniteNet. The District desired to use web or "browser-based" applications to enable field, office, and remote workers to view, collect, share, run reports, create tasks and much more from virtually any device with a browser. The District implemented Trimble's **Cityworks** Asset Management platform to create and track Work Orders. GraniteNet has certified integration modules with Cityworks so that each software product has bidirectional integration. Thus the District is completely synchronized with its ESRI maps, its Cityworks asset management software and its GraniteNet inspection and decision support applications.

With challenges from the pandemic necessitating remote workers to support critical infrastructure, the District evaluated and decided to extend its GraniteNet platform by acquiring a suite of tools called "GraniteNet Web". The solution is completely web-based and allows the District's users to easily access infrastructure data and maps from devices such as iPads, iPhones, Android devices, tablets, etc. The core application is called "WebOffice" and as the name indicates, it empowers managers, engineers, reviewers, etc. to log in from wherever they are to review statuses, watch video, create new projects, assign tasks and much more.

WebSync

"WebSync truly synchronizes our data instead of merely making a copy of it in a location such as Drop Box or Google Docs which requires a two-step process susceptible to human error."

John Higginbotham, PE, PLS Assistant District Engineer Included in the suite of applications is a tool called "WebSync" which uses internet connectivity to transmit encrypted inspection data and video wirelessly to the office or the Cloud. Whether synching new, incomplete inspection tasks out to the field trucks from the office or synching from the field back to the office, WebSync happens at the database level to ensure precise, up-to-the-hour statuses that do not require human intervention. If data transmission is interrupted due to connectivity issues, WebSync will re-initiate its session from where it left off and resume the transfer from that point when a suitable connection is obtained. "There's no need for lugging hard drives or carrying media. The guys simply finish their CCTV inspection, and the transfer begins automatically while they start a new inspection or pack up to move to the next location."





And the third tool that the District uses within GraniteNet Web is called "WebInspect" which is a browser-based SAAS inspection application that provides the District with out-of-the-box capability to perform inspections, collect information and track maintenance tasks on District assets. Using this out-of-the-box functionality, the District has expanded its collection system inspections to include manhole inspections in MACP format. Sewer mainline cleaning, root foaming, root cutting and tap cutting are also all tasked within WebInspect and can be completed by field workers from any internet connected device. "There's no software to install or maintain on any user devices to use GraniteNet WebInspect". Additionally, the CCTV inspections and the various mainline cleaning tasks are all stored in the GraniteNet system making CCTV inspection observations and videos available to maintenance crews and vice versa. This access to information enables workers, speeds data collection, provides insight to maintenance activities, and improves decision making.

CUES implementation specialists worked closely with the District to configure the Web solutions as the District required; and because Web applications can be located on-premise at the utility or up in the GraniteNet Cloud, the District decided to "lift and shift" the management of its Web infrastructure and secure storage to the GraniteNet Cloud, powered by AWS, as an annual service contract. There, up in the Cloud, all of the GraniteNet Web applications are secured using Amazon Security Groups with an Amazon Web Application Firewall (WAF). All data is backed up and server maintenance is included within the turnkey annual service from CUES.

SCWRD has implemented a truly forward-thinking Asset Management program that takes full advantage of automation technologies, security and real-time, map-driven, task-oriented workflows for greater efficiency and productivity.

Forward-thinking adoption of contemporary technologies has incrementally helped the District achieve an A-rated IDR bond rating which is supported by a growing, diverse, and primarily residential customer base surrounding Sangamon County. Its operating cost burden is low yet the District has invested in information technology to maintain service levels and address both its combined sewer overflows (CSO) and its long-term control plan (LTCP) as required by the Illinois Environmental Protection Agency (IEPA).

GraniteNet Web, ESRI ArcGIS, and Cityworks - all working seamlessly together- are all helping Sangamon County Water Reclamation District achieve its goals.



