

Updating a Town's GIS Infrastructure



From left to right: Henry Aguayo, Alex Stouder and Alex Mikel of the Bremen Water Department with a Trimble R2.

How the water division of an Indiana town migrated to a modern GIS system to improve workflow and location accuracy

Products

- Trimble R2
- ArcGIS Collector
- ArcGIS Mapping Software

When the Town of Bremen, Indiana Water Department has a water main break, the public wants to know two things: will this affect me and for how long? When you are working with outdated or bad data about a town's infrastructure, solving these issues quickly and effectively becomes that much harder.

The Seiler GIS Mapping team, including Brett Wiedemann (GIS/sales) and Jay Riester (Sr. Mapping Support Technician), provided a solution to help Superintendent Alex Mikel and the Town of Bremen Water Department migrate from legacy ArcPad/ArcMap and the Trimble Geo 6000 XH to the new [Trimble® R2 GNSS system](#) and ArcGIS Collector and ArcGIS Pro mapping software. Alex's team also received personalized training sessions from Seiler to ensure everyone was confident using the equipment and software.

Using the new system, "If we have a water main break, I can pull up my map and know exactly where every shut-off valve for every house is and know exactly which houses are being affected," Alex said.

Real-Time Map Corrections and Cloud Integration

There was a "night and day difference" between the legacy equipment and the upgrade according to Alex. The Bremen Water Department started utilizing GIS in 2013, shooting all the valves, curb stops and meter pits in the Bremen water system. Having to count down from 100 to get the average GPS position with the legacy Esri ArcPad slowed down workflow. Now, using ArcGIS Collector and the Indiana DOT real-time network for corrections, they can quickly gather the data they need and move on. Alex said, "Using real-time maps that are within two inches to find a two-inch or four-inch valve cap, your time just got cut in half, if not more."

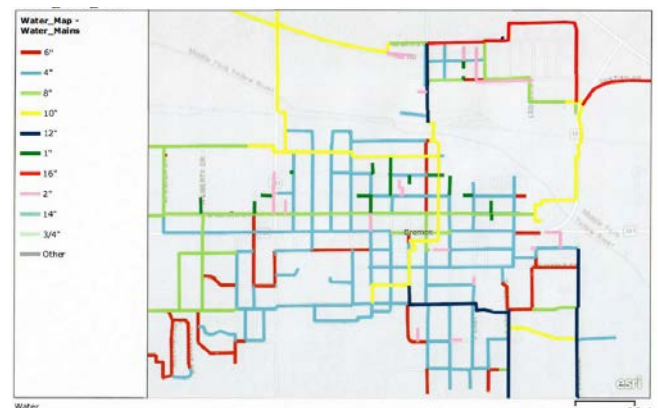
This migration has allowed Bremen Water staff to collect and update water infrastructure assets in real-time to the cloud instead of going back to the office to physically offload the data to a computer. The ease of use of ArcGIS Collector on a tablet with the Trimble R2 has increased usability and efficiency for the Bremen Water Department.

Alex said when they first started collecting GIS data, staff would have to go back into the office and check in and check out the project. He said some days they would collect an entire day's worth of data, then get busy and before they knew it, the seven day GPS time had passed and they had to recheck out the project and reshoot everything. Now using the cloud-based mapping software ArcGIS Online, the data are automatically uploaded to the cloud.

Alex also noted that an incredibly knowledgeable employee who has been with the department for years could retire at any time. Previously, that employee would take that knowledge with them when they left. Now, that knowledge is saved in the cloud.



Top: Bremen Water Department using ArcGIS Collector and the Trimble R2. Below: Overview of Bremen water main system.

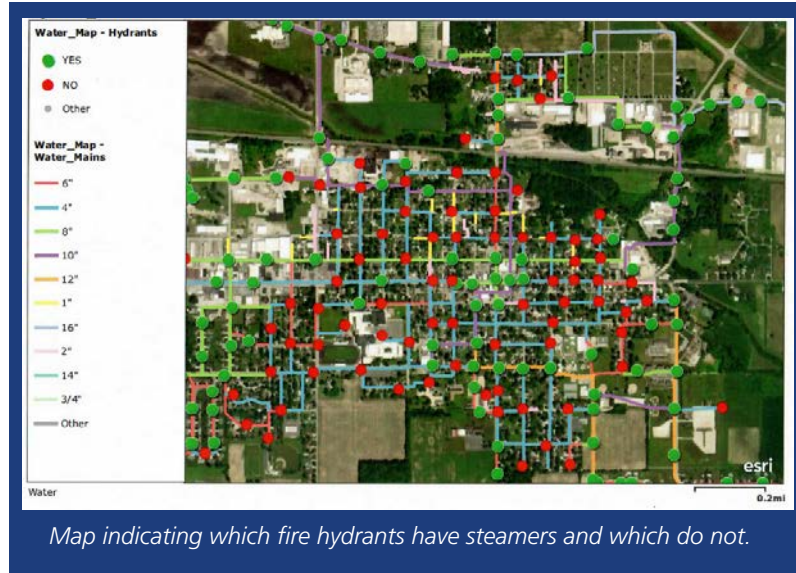


Color-Coded Maps

Features like Color-Coded maps allow Alex and his team to stay on the same page with the progress of projects. They created a hydrant map that allows the crew to keep track of which hydrants have been serviced during routine maintenance. Staff will bring a tablet with them and, when flushing hydrants for example, can add the date and change the color from gray to red when the flush is complete. Alex said, "That is invaluable, because if someone is sick, the rest of the team knows exactly where the other guy left off."

This new system has also allowed Bremen Water to share important information with other departments. Some of the fire hydrants in Bremen have a steamer on them and some do not. The Water Department was able to provide a map to the Fire Department showing which hydrants have steamers and which ones do not. This lets the fire department know which hydrant will give them the best water pressure, even if that hydrant is not necessarily the one closest to the scene.

"It is unbelievable what we can do with it," Alex said, "We are using it for meter change outs, for water main breaks. If we have to shut a valve off, we can change the color of the valve just by clicking open or closed. It is an unbelievable tool, and it is getting used every day."



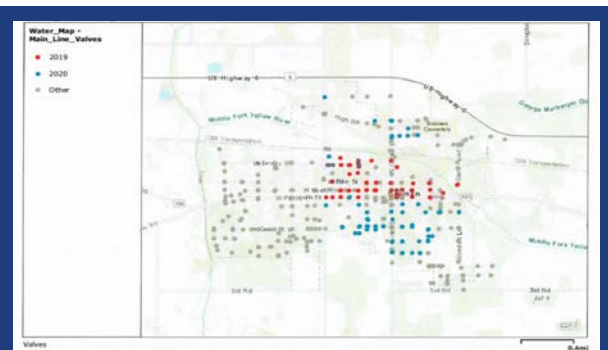
Map indicating which fire hydrants have steamers and which do not.

Project Collaboration

ArcGIS Collector has made collaboration between the water division and the town's engineers even easier. Flow tests for hydrants are on a GIS system for the engineer and town manager to access. The engineer has login information and is able to plan out future projects without having to come into the office to look at prints or as-builts.

"We are so impressed by it, we are sharing it with other communities, and I think they are jumping on board," Alex said.

Asset Management



Value exercising map showing projects completed each year.

A big benefit of the new system is asset management. By using the Color-Coded map feature, Bremen Water can easily identify the older water main systems that continuously break over a certain period of time. Having this repetitive data on older water main systems makes it easier to invest in upgrades to fully repair and replace aging infrastructure systems.

Locating and updating existing water infrastructure will enable Alex and his staff to maintain and plan for the future. They can map out pattern issues that exist like water leaks and broken pipes and run reports with all the data saved in real-time to the database. These processes allow Bremen Water to make cost-effective decisions about the infrastructure which, in the long run, will save customers money on their water bills and reduce down-time during maintenance.

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Personalized Training



Bremen Water Department receiving training on the ArcGIS Collector and the Trimble R2.

The Seiler GIS staff also provided additional training for the Bremen Water Department when they purchased the equipment. Alex said that the biggest benefit of the paid training sessions he received from Seiler was that it allowed them to fully take advantage of all the features the software has to offer. He said, "It is hard sometimes when you are getting into something new to figure out all the bells and whistles that come with it. You can plot every point, but what you can do with those points can be so much more and give you so many more options."

He also said, "There have been a few times where I have had a little hiccup, and I have been able to get ahold of Jay, and he has been helpful in getting me through that hiccup. Those are the things that really count. We would not be where we are right now if we did not have these guys helping us."



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