

EQUIPPED FOR THE FUTURE

Georgia utility's stormwater management team finds a technology solution for NPDES compliance

By Mary Shafer

In July 2015, the city of Alpharetta, Georgia, was awarded a grant from the federal EPA for field inspections of its stormwater system. The city's inspection equipment, however, wasn't quite up to the task.

The decade-old existing pipeline inspection equipment and software was woefully out of date and not up to the needs of the current project. They had one pole camera, a steerable pan-tilt-zoom pipe camera, and 1,000 feet of cable on a reel. Everything was contained in a small, enclosed trailer specifically designed for CCTV inspection, but the technology was out of date.

Technology marches on

The city was keeping up in the collections system mapping software area. Alpharetta had spent

significant time and funds mapping its storm sewer infrastructure to identify and inventory city-maintained assets. This data allows the Public Works department to confidently catalog needed capital improvement projects, assign maintenance responsibility, and maintain compliance with the city's Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) permit, which was reissued in 2014.

But the old inspection equipment just couldn't keep up. It had no digital video upload capability, so reports generated from its data were quite generic and lacked important details. Also, due to age and wear, it didn't have the power to access or pass through some pipes with debris blockage or pipe defects. This completely stopped any video inspection from moving forward.

The city needed a new steerable camera and transporter that packed significantly more power, providing the mobility required to move around and over obstacles in the pipe. The camera system also had to include software the Public Works department could integrate into its existing stormwater structure and conveyance database, allowing operators to accurately add appropriate attribute information on pipes being inspected.

Lay of the land

Jill Bazinet is the senior stormwater engineer for the city, in charge of the entire stormwater management program, including floodplain management, MS4 program, CIPP program, water-quality lab and urban forestry. She works with Dennis Roland, Public Works stormwater super-

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The Alpharetta Stormwater Division team includes (from left) technician Louis Perriello, technician Glenn Pointer, senior stormwater engineer Jill Bazinet, technician Cory Chance, crew leader Jared Wilson, supervisor Dennis Roland, crew leader Marty Dockery and technician Sean McKelleget. (Photography by Kaylinn Gillstrap).



PROFILE:

Alpharetta, Georgia
Department of Public Works,
Stormwater Division,

FOUNDED:
1858

AREA AND POPULATION SERVED:
27.3 square miles, 65,000-100,000 people

INFRASTRUCTURE:
130 miles of stormwater pipeline
(7,486 pipes), 8,344 storm structures

STAFF:
14 stormwater division employees

ANNUAL OPERATING BUDGET:
\$7.8 million (includes all of Public Works)

WEBSITE:
www.alpharetta.ga.us

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— Dennis Roland

visor, in charge of MS4 asset inventory and maintenance of stormwater infrastructure. He also manages those crews and oversees permit compliance.

Bazinet says her biggest challenge is trying to define the end of the municipal system and the beginning of private assets — what is the city’s responsibility and what is the property owner’s, and maintaining those easements. “If it’s not clearly in the right-of-way or on city facility property, it becomes that gray area. I’m sure all municipalities run into this.”

Roland says the city’s topography can also present challenges. “Rolling terrain in the area does play into maintenance issues, such as placement of and access with machinery. It can affect both maintenance and project design.”

For instance, they use John Deere Gator ATVs to place riprap or clean out headwalls. “We contract with a hydroexcavation company, because all they have to carry back there is an ultrahigh-pressure wand and then a hose to suck up whatever materials they’ve produced,” he explains.

Taking the plunge

When it comes to making equipment purchases, Bazinet says the utility will typically look



Public Works Supervisor Dennis Roland works in an inspection trailer designed by Cobra Technologies equipped with a V9 pan/tilt/zoom camera attached to an 806 steerable crawler and 500 feet of cable. The new camera and crawler can get over more obstacles in pipes than the division’s previous equipment.

at what’s available and determine the features that are really necessary for the projects they have mapped out over the next 10 years.

“We make a list and prioritize items as ‘must have,’ and ‘great to have but not absolutely required,’” she says. “Then we put together our procurement package with the required items listed, so we can look for proposals from companies that can offer products with those features.”

For this ongoing inspection program, Roland knew his department would need a steerable crawler, an elevator attachment to keep the camera out of the stream flows inside some of the pipes, and software that could integrate with the city’s current ESRI GIS asset inventory and

locator mapping package and CityWorks asset management software.

“It would also have to provide extremely detailed inspection reports to help us with capital improvement planning, and that we could give to contractors on specific projects,” he says. “If they had to perform point repairs, they’d know exactly where those were located, and we would have footage of those areas. So, we needed software that calculated footage.”

Because of the EPA grant funding attached to the project, they had more open bid procurement requirements than usual. Under Bazinet’s guidance, the city’s Public Works and Finance departments prepared an RFP and advertised for

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Public Works technician Louis Perriello uses a JCB PowerBoom to remove a damaged storm drain cover while crew leader Jared Wilson directs.

bids in January 2016. Four companies responded and were evaluated on the following criteria:

1. Technical product specifications
2. Ease of service and maintenance
3. Cost
4. Product demonstration

“We required a demonstration from short-listed vendors, to show the specific functions of their equipment,” explains Roland. “We had a specified amount of linear feet of pipe they had to go down, then do three points of observation and produce a full inspection report, just as they would have for a real job.”

Bazinet says she would highly recommend

having that demonstration requirement in the procurement process for anyone looking to purchase new video inspection equipment. “It made such a difference, to be able to see the equipment, see the output and the computer input.”

Roland also notes that everybody has different needs, so a demo is the best way to learn these things. “You can judge real capabilities, ease of use, and how it’s going to perform on the job.”

Standards matter

The evaluation panel recommended that the city purchase an equipment and software package from Cobra Technologies (Trio Vision), based on

the equipment’s capabilities, software reporting and integration, and easy access to repair service.

Cobra picked up the existing trailer within a week of receiving the purchase order, replacing the existing CCTV inspection equipment with the new system, and delivered it within three weeks.

The new system included a V9 pan-tilt-zoom camera with a Model 806 steerable crawler, 1,000 feet of cable and the company’s Asset DMS software.

Roland says there were some pleasant but unexpected “extras” that came with the package’s new software. “We had the list of minimum features. Anything extra was a bonus. With the software, we can take our current GIS PACP attributes for any asset — pretty much everything a standard PACP sanitary inspection would ask you — and load it into the camera to access in the field.

“There is no actual PACP standard yet for stormwater, but we want to use what’s pretty much standard; we don’t want our data to be different from that of the next guy who needs it. So we’ve departmentally adopted the same PACP codes now used for sanitary, because it’s all we have to work with. Then, when we do a field inspection, we can load that data right in for the specific asset.”

Making it work

The Alpharetta stormwater team’s thorough evaluation process helped them get the right equipment for their needs, and they have some sound advice for others in their position.

“If you’re just getting a handle on your system, you need to not overwhelm yourself with the whole thing,” Bazinet says. “Start at one area and get a good grasp on your inventory. Then work on pri-

orization and maintenance. You can’t just go out and work on everything all at once, especially if you don’t know what you have.

“When you’re working on the inventory, make sure you’re gathering data that’s useful. When we started ours, we decided we were going to do measure-downs on structures and not survey them. Surveys would have been a lot more expensive than just sending people out in the field with a tape measure or a camera and visual inspection. That served us well by saving money at the front end, so we had money left for maintenance.”

Roland says it’s important to have a very good understanding of the assets you’re responsible for maintaining. “You want mapped data that shows the structures and pipes you are responsible for and what’s in need of repair or replacement.”

“You also have to get city leaders on board with the understanding that they’re going to be looking at large budget numbers for that maintenance,” Roland says. “It’s not exciting to fund pipe lining — like it is to put in a new city pool or another ‘feel good’ project — but it is necessary. One solution we have found that works well is to piggyback onto other projects. Combining stormwater infrastructure repairs with transportation or parks and rec projects helps save money and provides more incentives for funding.”

He says they work to align their projects with other leaders’ goals, but sometimes the best solution is “just sitting down with council members with pictures. They need to see the pipe full of sediment with no room for the water to get through.”

Both stormwater pros encourage you to look for all your possible partners and cheerleaders. “The more people you can find in the city or county that have your back and are willing to push for funding you need to get your projects done, the better off you’ll be,” Bazinet says.

“Once you get city council on board with the knowledge that this is important and necessary, you’re ready to go,” she adds. “But, remember to be flexible. Priority areas may change, opportunities for collaboration may shift the work plan, or expectations on the amount of work to be completed may grow. One way to get ahead of the expectations for getting more work done is to supplement your staff with on-call contractors. We’ve been successful the past few years using

these contracts for inspections and repairs.”

Best of all, utility customers seem to have taken notice.

“We’ve gotten great feedback from our citizenry and have been recognized with awards for our successful work,” Bazinet says. “We think we’re on the right track.” ♦

Public Works technician Glenn Pointer smooths fresh concrete as technician Cory Chance pours more into the frame. The crew was replacing 35 feet of sidewalk after the previous sidewalk settled due to a manhole failure.



MAINTENANCE IS THE BIGGEST CHALLENGE

Jill Bazinet recognizes that being a small city like Alpharetta, with a small staff that still has to do all the work it takes to comply with regulatory requirements, has its limitations. But she doesn’t believe in being ruled by them.

“We’ve done a lot of cross-training, both across jobs in the department and across departments, so we’ve got more eyes on the city than just our division’s 14 people. We can team up and work on projects together as needed.”

Alpharetta’s stormwater system is aging, and like all others, they must prioritize the most urgent needs and most cost-effective solutions on an individual-asset basis. Then they evaluate at the end of each year and try to do a more systemwide look for the following year. “Each time we get more inspection reports that add work orders to the list, we have to add those in and re-evaluate to see where they fall in priority. It’s an ongoing process to figure out where you are at any given time,” she says.

She lists a few issues she feels they’ve been very successful with:

- Educating city council so they understand the importance of infrastructure maintenance and support innovative techniques in stormwater management
- Educating their citizenry and getting them on board with helping identify needed projects, teaming up with the city to get them done, and being a driving force to get her department to the forefront of budget talks
- Implementing their sophisticated work order and permit program into the GIS and planning strategy, allowing them to use tablets in the field to access real-time data. “This allows us to see accurate progress daily and weekly, rather than estimating where we are.” Stormwater supervisor Dennis Roland feels that having a thorough inspection and maintenance program has allowed the department to stay out ahead of maintenance needs. This allows them to identify places where they can use trenchless technologies to avoid open-cutting. “Alpharetta is a big tree city, and being able to avoid cutting down specimen trees from people’s yards is always appreciated,” he explains. “I think our inspection program has been good at identifying problems in pipes while we can still rehabilitate them, before we have no choice but open-cut. That saves the city time and money, and a lot of headaches with property owners.”

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