A simple philosophy helps keep Derry Township Municipal Authority on the cutting edge of sewer maintenance technology: “Just because it’s out of sight, it can’t be out of mind,” says Wayne Schutz, assistant manager of the authority, which serves the community better known as Hershey, Pa., or Chocolate Town, USA. “We’ve got a huge capital investment in our underground structures, and we have to pay attention to them.”

Like many older cities in the Northeastern United States, Hershey has many underground structures that need rehabilitation or replacement. Infrastructure inspection and maintenance is a top priority for Schutz and his team.

They keep the system operating smoothly with a coordinated program of sewer inspection and grouting and regular pipe cleaning. The program also includes an aggressive program of manhole rehabilitation using a spray-applied polyurethane product.

Diligent maintenance

Derry Township — the official name of what most people call Hershey — has a 150-mile wastewater collection system with facilities ranging from modern installations to 1927 vintage lines installed by Milton Hershey, founder of The Hershey Co., producer of chocolate bars, Hershey’s Kisses, and other popular candy and snack items. The system is primarily gravity-based, with 8- to 48-inch pipes made of VCP, ACP, DIP and PVC.

The DTMA maintains the collection system and treatment facilities that serve a population of 18,000, and a large tourist base. The authority’s proactive maintenance program begins with routine inspection and cleaning using a CCTV inspection and grouting vehicle made by Telespector Corp. and a Model 2001 combination sewer cleaning truck from Vactor Manufacturing.

The televising/grout unit and cleaning truck have teams of two members each who work in tandem with the goal of cleaning and inspecting the authority’s entire system every five to
seven years. The inspection/grout rig is equipped with two tractor-mounted mainline cameras, a winch-style camera and a pushrod mini camera. The addition of a QuickView pole camera from Envirosight LLC has helped in manhole inspection and in documenting the existence or absence of flow through manholes when residents report blockages. The camera provides an accurate quick assessment of the infrastructure without confined-space entry or time-consuming mainline camera deployment.

Mainline survey findings are collected onboard the rig using WinCan pipe survey software by WinCan America using the NASSCO Pipeline Assessment and Certification Program (PACP) standard defect coding.

The collection department prioritizes its work based on inspection findings and typically divides defects into three categories:

- Requires attention immediately/soon
- Longer-range repair
- Monitor

Once a group of repairs is compiled, they are given to the DTMA consulting engineer, who develops project plans and specifications and puts the work out for bid.

Another level

CCTV inspection crews do things a little differently than most agencies: They make air testing and follow-up joint grouting a standard procedure in the inspection routine. After a line is inspected, DTMA inspection crews use a simple air pressure testing apparatus by Cherne Industries Inc. to check each of the line’s joints.

Two inflatable 2-foot-long plugs (packers) are inserted to sit six inches on either side of the joint. The packers are then inflated, and air is pushed through a tube in one of the packers into the annular space until the pressure reaches 2 to 3 psi. If the pressure cannot be maintained for at least 30 seconds, the crew knows there is a potential leak.

In that event, they grout the joint immediately. Grout application is similar to air testing. The same equipment is used, and a second line in the packer is used to pump a liquid grout mixture made by Avanti International into the annular space under pressure. The applied pressure forces the grout out into the leaking joint, traversing around the pipe to form a collar on the outside of the structure.

The crew monitors the pressure, pumping grout until the pressure achieves a level that indicates leaks are filled and a collar is formed. The pressure is maintained for 30 to 60 seconds to set the grout. The packer is then deflated and removed.

Although grouting adds time to inspections, the benefits outweigh the extra expense. “As long as we’re inspecting, why not run a quick air test?” says Schutz. “We know if it fails the test, the line can conceivably leak. We can reduce I&I by taking these few extra steps, so in our opinion, it’s a very good investment.”

More than sewers

During sewer inspections, crews also visually inspect and record the health and integrity of some 3,000 manholes. (Photo by Ken Smith)

Derry Township Municipal Authority uses the Sprayroq process to seal leaking manholes. (Photo by Suzan Marie Chin)

Inspection operator Don Fuller works in the authority's camera truck. (Photo by Ken Smith)

A “walkway” sewer in Hershey. (Photo by Ken Smith)

A manhole next to the Super Dooper Looper inverted roller coaster at Hershey Park is on a steep hillside and is inaccessible to maintenance crews. (Photo courtesy of Derry Township)

A FAIRY TALE CITY

Officially, there is no such place as Hershey, Pa. Famous for its delightful chocolate smell and confectionary industry, the community known to most as Hershey is actually Derry Township.

Although there is a Hershey post office, there is no political subdivision that bears the name. It is one of only a few post offices in the country that have a post office named for a place that is not an incorporated municipality.

Created by Milton Hershey, founder of The Hershey Co., Hershey is a unique place, built as a company town. The infrastructure Milton Hershey built to take care of his employees includes housing for executives and ordinary workers alike, schools, churches, parks, recreational facilities, and a trolley system. Many of the town’s most impressive structures were built during the Great Depression, as part of Hershey’s Great Building Campaign to provide jobs.

Today, Hershey boasts a world-class medical center and school, the famous Hotel Hershey, Hershey Park amusement center, and an annual antique automobile rally known by vintage motoring enthusiasts worldwide.

Milton Hershey installed most of the area’s underground infrastructure in the late 1920s and early 1930s. Back then, the plans didn’t anticipate what the community would become. Several main sewer trunks now run directly through the center of Hershey Park, through ZOOAMERICA, next to cocoa bean silos, and across other high traffic areas. One line has its manhole access alongside one of the amusement park’s major roller coasters.

Due to its topography, Hershey also has some unusual “walkway” sewers that resemble viaduct structures. The most interesting is one that crosses Spring Creek and once served as a romantic walkway to a long-since-gone ballroom that was adjacent to the current Hershey Park.

Hershey’s collection system and wastewater treatment facilities are handled by the Derry Township Municipal Authority (DTMA). The confectionery plants and medical center operate and maintain their own collection systems, and the confectionery plant pretreats its wastewater as well.

All of these unique features make Hershey a challenging but always interesting wastewater collection system for the DTMA to maintain.
A manhole failure poses a serious threat of I&I, in addition to which a crumbling manhole can lead to a sinkhole or a sewer blockage.

“A manhole is the portal to the system, making it easy to spot problems quickly,” Schutz says. “We absolutely want to address the needs of our structures before they reach either of these impact levels, and we do.” The majority of the township’s manhole issues have been in structures near force main discharges. There, hydrogen sulfide builds up, causing wall erosion.

After trying many forms of manhole rehabilitation, Schutz settled on a new technology presented by Abel Recon, a local contracting firm that had a long relationship with DTMA. Hap Witmer, general manager of Abel Recon, offered a spray-applied polyurethane product from Sprayroq Inc. “We knew Wayne had been looking for a ‘right fit’ solution for a while, so we did our homework before presenting Sprayroq as a potential answer,” Witmer says.

In the spring of 2006, DTMA contracted Abel Recon to rehabilitate 52 manholes with the spray-on material. Most were of brick construction and had hydrogen sulfide damage, minor infiltration, or typical age-related problems.

The rehab process

The manhole rehabilitation process involves cleaning and surface preparation, followed by product application, needed to restore an average manhole. Abel Recon rehabilitated the 52 manholes in two months, causing little or no disruption to the neighborhoods where the work took place.

Right methodology

By staying proactive with its maintenance program, the DTMA staff keeps Hershey’s sewer system healthy. Budget constraints often mean Schutz and his team have to do more with less, but they recognize the need to do all they can to stay on schedule in caring for the infrastructure.

Schutz says new technologies have been valuable. “Be open to new ideas,” he advises. “I’m always more than willing to look at something new. No matter how great one product is, there is no such thing as a silver bullet. You have to have a complete toolbox of options at your disposal because one size just doesn’t fit all.”

MORE INFO:

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