

Florida County Solves II Problem

More than 6,00 linear feet of 8- and 10-in. pipe required repair to reduce infiltration and inflow.

Water is one of Florida's greatest natural resources. The Sunshine State certainly has plenty. There are more than 1,200 miles of coastline, 11,000 miles of rivers and waterways, and hundreds of lakes. The state also gets 50-plus in. of annual rainfall. It seems as though water is everywhere in Florida.

Florida has plenty of water beneath the surface as well. Dig down a few feet and chances are you'll find water. For

those who work in wastewater management, this can be a significant problem, especially if they have to deal with old sewer pipes. Old pipes can crack and become disjointed. In areas with a high water table, this results in infiltration and inflow (II).

Such was the case recently in Hillsborough County, FL.

Hillsborough County, on the east side of Tampa Bay on Florida's gulf coast, is typical of most Florida counties. The terrain is flat, the water table is high,

and the county is packed with people. When maintenance crews began reporting infiltration problems in 2002, the county's public works officials knew they had to find a cost-effective solution.

"Our South Line Maintenance crews have been concerned for some time with infiltration problems," explained Bill Bozeman, project manager for the Hillsborough County Water Department. "It costs a significant amount of money to treat the county's wastewater, so infiltration

and inflow can be a very costly problem over time. Likewise, repairing and replacing sewer lines is also very costly."

Two areas that were affected by the problem are Sun City Center and Apollo Beach. Both are densely populated residential and commercial areas. Sun City Center is popular with retirees who are often home during the day. Nearly all of the pipes in those areas are vitrified clay, some more than 50 years old.

A close examination of the pipes revealed that most of the II was entering through misaligned, leaking joints. "The pipes themselves were in good condition, but we had a lot of leaky joints," said Bozeman. "Replacing the pipes was not a good option because of cost and inconvenience. The high water table would



A look down a manhole reveals two steps in the Ultraliner repair process. On the left is the downstream end of a sewer line. It is plugged so that the steam and air can be pumped inside to inflate the PVC Alloy pipe to its full size. On the right, a remote controlled cutter is inserted into a repaired line to reopen the lateral connections. The entire repair process usually takes less than five hours.

make excavation very difficult and expensive.”

Trenchless Solutions

Working with consulting engineers from the firm Metzger Willard (Tampa, FL), county water department officials initially chose another trenchless technology to reline the sewers. They were able to avoid excavation, but the installation process was slower and more disruptive than engineers had imagined. After a few weeks of slow progress, and some complaints from inconvenienced homeowners, the county project managers began to reconsider their options.

“The technology that we initially chose took a lot of time to install, and that created problems for us,” said Glenn Marlow, P.E., with Metzger Willard. “It took 10 to 12 hours to reline 300 feet of pipe. With the trucks and heavy equipment, plus the loss of service, that’s very disruptive for a residential neighbourhood.”

In considering other alternatives, Bozeman recalled a previous project that involved PVC Alloy liner technology.

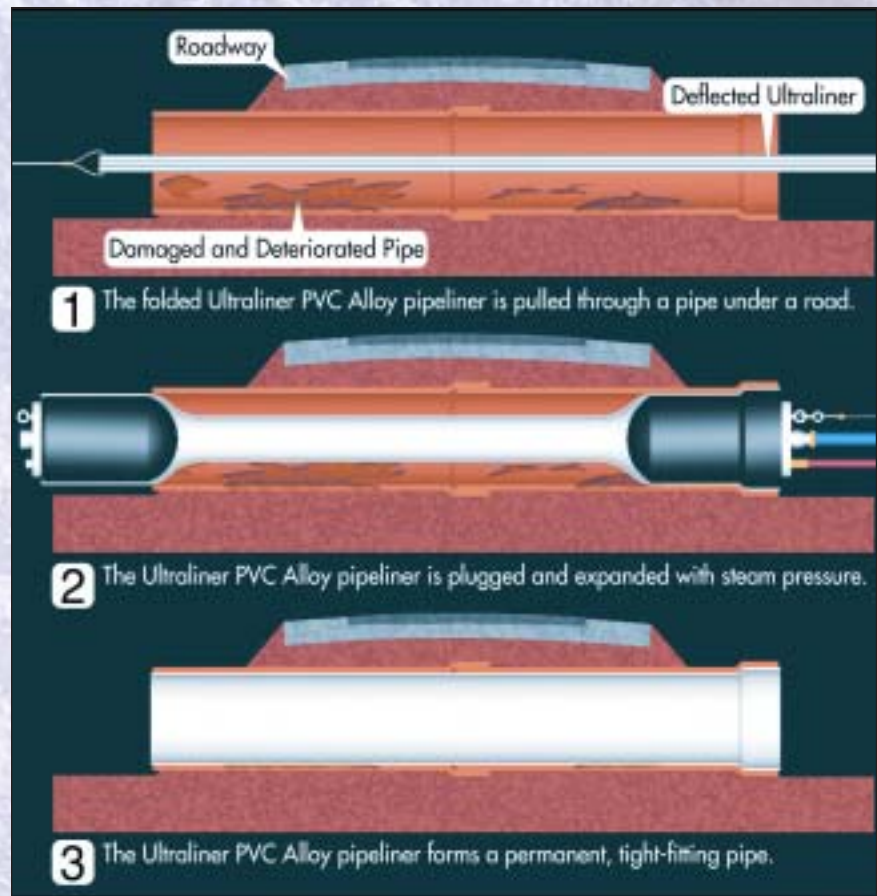
“We previously had a good experience with PVC Alloy liner repairs, so we were familiar with the technology,” said Bozeman. “The question was, would it be faster to install than other trenchless technology we were using?”

Ultraliner, Inc. (www.ultraliner.com), with more than 15 years in the PVC pipe lining business, was selected as the PVC pipeliner supplier and installer for the project. President and CEO Luke Whittle, who has 40 years of experience using PVC, made a personal visit to Hillsborough County to explain the benefits of the technology and provide a schedule for the installation.

Benefits of PVC Alloy

As Whittle explained, the Ultraliner product would provide all the benefits of PVC pipe with the speed and ease of trenchless installation. The company’s PVC Alloy pipeliner has extremely high impact strength and dimensional stability. Like PVC, it resists abrasion and chemical attack. It has a 50-year design life, but most engineers expect it will last even longer.

Best of all, the installation time for



each pipe run would be reduced by about one-third to one-half.

“Typically the Ultraliner people would arrive at the job site at about 8 a.m.,” explained Marlow. “By 11 o’clock they would have the Ultraliner heated and ready to install. They would run a winch line from one manhole to the next. That takes about ten minutes for a 300-foot pull. They would then pull the liner through, plug the ends, and thermoform the pipeliner. The cool-down process would take about two hours. By 2 p.m., they were reopening the laterals and were usually finished by 5 p.m., or earlier. The whole process took less than 8 hours.”

According to Bozeman, the PVC Alloy process required less equipment, thereby creating less disturbance to the public, and it was cost competitive.

“The finished product looks great,” said Bozeman. “The liner fits tightly and it has a very smooth, almost glassy interior surface. The laterals were easy to locate and reopen and the Ultraliner people smoothed the edges of all the

service openings to prevent waste or debris from accumulating on the lip. The Ultraliner crew did an outstanding job.”

While Bozeman and Marlow were extremely pleased with the product, it was the installation process that was most satisfying.

“The main thing was the speed of the installation,” Bozeman explained. “Speed and installation quality are major considerations on a project like this one.”

The new wastewater pipes beneath Apollo Beach and Sun City Center are now in place. No one yet knows just how much II will be eliminated from the county’s sewer system, but it is virtually certain that treatment costs will be reduced. All this was accomplished with zero digging and little disruption to the public.

When all the aspects of the project are considered, you might say that the recent sewer reconstruction project is a “high-water” mark for Hillsborough County’s public works department. **GE**