

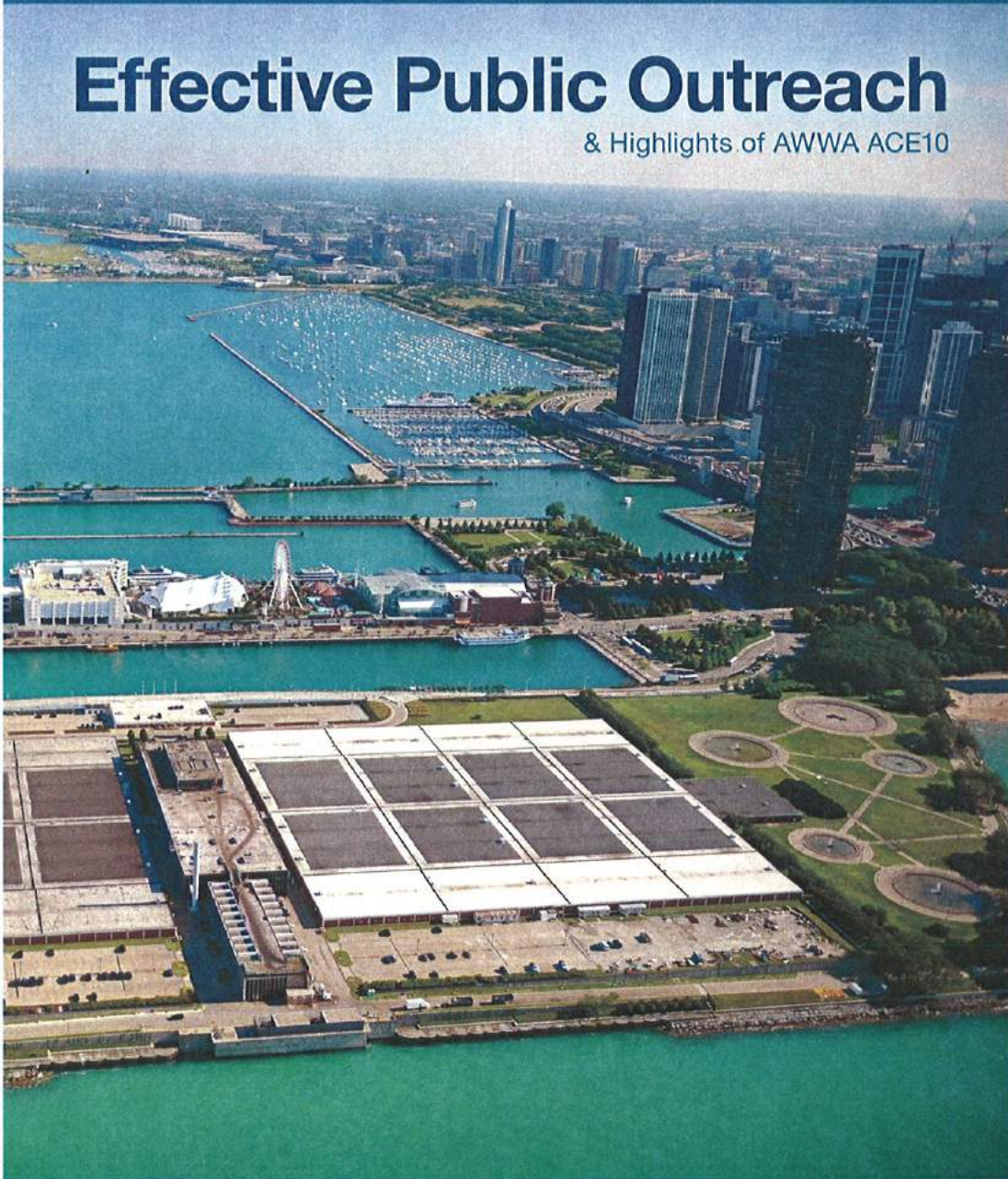
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into the new age

By Dave Slawson

Infrastructure upgrades are expensive, and money is tight for many cities: Mike Sudman knows this. So as superintendent of water and distribution for the city of Celina, Ohio, he often asks permission to upgrade old ductile water lines that are adjacent to new street projects. By making improvements to an area the city already is scheduled to dig up, he saves time and money and avoids aggravation. But on one recent occasion, city officials chose not to approve the extra expenditure. Sudman accepted the decision but warned that there could be problems—expensive problems. And he was right.

Ohio city embraces PVC0 for critical infrastructure improvements

For seven years, the only plastic pipe Sudman has installed for city water projects is Ultra Blue C909, a molecularly oriented polyvinyl chloride (PVC0) pipe. The product is a lightweight, high-strength pressure pipe for potable water and force main systems. Since 2002, Sudman has supervised the completion of 10 city and five commercial waterworks projects. He is so confident in C909 that he now includes it in specs for all new water line projects.

"We don't give the contractor a choice. We say, 'This is what you're going to use,'" he said.

But the water superintendent cannot force city officials to allow him to ride the coattails of every new project. Sudman only can debate the point, which is to not expect new water lines to always integrate with existing infrastructure—decades-old, rusty ductile iron pipe that may be ready to rupture. By doing so, the city risks having to dig up a \$1-million street project shortly after completion.

"We don't want to put a brand-new street on top of an old pipeline," Sudman said. "We prefer to upgrade. So throw it in on bids with contractors so you rip up the street only once. I told them, 'You're going to have problems.' It wasn't three days after completing the project that we had to get in there and fix a break." The new work was connected to a corroded iron pipe.

Keeping Pace with PVC0

Every year, the American Water Works Assn. (AWWA), the authority on safe water use, sends out surveys to municipalities to gather data about issues such as infrastructure needs. Recent conclusions that cities are struggling to do more with less come as no surprise to Sudman. Celina, located in the heart of Mercer County near Ohio's western border, is in the same boat.

"Most of us work on tight budgets," he said. "And we're run by a city council whose members are elected by our citizens, so they are not inclined to raise water rates. There's just not a lot of money set aside for big projects."

Budgets are stretched unmercifully as communities flourish. Sudman, who was raised in Celina, has seen his hometown grow. With its expansion has come greater demands on housing, schools, commercial districts—and waterworks.

Ultra Blue C909 has aided Sudman's attempt to keep pace. Since the PVC0 pipe is specially manufactured to have a thinner wall while boosting strength, it is lighter than other comparable materials. Workers save time because they can move the 6-, 8- and 12-in. pipe without the help of heavy equipment. Yet the lightweight pipe does not sacrifice pressure capabilities. In fact, it boasts a hydrostatic design basis (HDB) of 7,100 psi. Also, the product conforms to the AWWA and/or ASTM F1483 specifications, with gaskets meeting ASTM F477 and joints in compliance with ASTM D3139.

Preparation and installation are simple too, according to Sudman. PVC0 pipe can be cut easily with a fine-toothed hacksaw, handsaw or a power-type saw with a steel blade or abrasive disc. (Standard pipe cutters should not be used. The cutting wheel may crush or damage the pipe.) The joint connection is a push-on assembly in which the lubricated spigot end is inserted under the rubber gasket and into the bell end of the pipe.

If there were any lingering doubts in Celina about the durability of C909, they were dashed during the 2009 holiday season. Shortly after a new load of product was removed from a semi-truck and stacked for future use, a driver ran a stoplight, lost control of his vehicle and ran over the whole pile of pipe lengthwise. Yet only a few pieces of pipe were damaged. Sudman was surprised and impressed.

"It is definitely a timesaver. But when we started putting it in, very few municipalities were using it," he said. "When considering new concepts, very few engineers and city officials want to be the guinea pig. We have not had any problems with properly installed C909 pipe."



The town of Celina's new water lines would not integrate well with existing infrastructure—decades-old rusty ductile iron pipe ready to rupture.

Regardless of simple installation and durability, PVC pipe addresses an important health and cost-of-labor issue. Plastic pipe ends the worry about rusting and "red water" complaints from customers. Fewer complaints mean Sudman's three-man crew is not overworked responding to problems that can be prevented.

Big-Box Retail Compliance

As the Celina population expanded, big-box retail chains, such as Walmart and Menards, came calling. Although tax revenue is welcome in any city, commercial development also puts a greater demand on municipal waterworks. After being named superintendent of water and distribution in 2002, Sudman developed a strategy

that would accommodate the mutual need for growth.

Typically, large retail corporations arrive with a "cookie-cutter" plan for taking up residence. They install a 12-in. water main, then hook up to the local water system. In Celina, the water department assumes maintenance responsibility for the new installations after a 12-month period.

Because Sudman already had made contractors use Ultra Blue C909 when accepting city contracts, he began to apply the same standard for retail projects.

"Wal-Mart, for example, doesn't actually own their new store buildings; they lease them so they are not stuck with real estate if a location goes bad," Sudman said. "So from the city's standpoint, we had to set some guidelines:



PVC pipe has a thinner wall and is lighter than comparable materials, yet still has an HDB of 7,100 psi.



Plastic pipe eases worry about rusting, which consumes the chlorine residual that kills fungal growth in a water system, and "red water" complaints from customers.

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"You either meet our design specs, or we stop at your property line." If they have a water leak, now they have to fix it, not us. But if they meet city specs that require C909, after one year it is the city's responsibility to maintain that pipe."

So far, so good. Corporations have been willing to comply because they do not want to walk away from a potentially lucrative store site.

In his 13 years with the water department in Celina, Sudman has seen commercial growth and the expansion of subdivisions. Although the industrial base has not grown a great deal, the native Ohioan sees a bright future for Celina—if money can be found to install more durable and cost-friendly PVC.

"Ultimately, we're behind the eight ball like everybody else. In last three years, the new projects we have done have all been large. But in the next 30 years, we're going to have to get started on upgrading those side streets. That's the way most of these towns are," he said. "They put new pipe in where they are expanding, but they tend to forget the old stuff. We're replacing old with C909 when we can, but there is only so much money to go around." www

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