

# drawing to a flush

■ BY RICH LORD

**An unprecedented push for regional collaboration aims to fix Southwestern Pennsylvania's sewage systems and keep development hopes from going down the drain**



Mark Hannum peers into a 120-foot-deep holding tank and gestures toward 200 million gallons of wastewater, chemicals, sanitary products, rags, balls, bottles, boots, branches and candy wrappers. "If it ends up in the street, it ends up here," says Hannum, director of operations and maintenance at the Allegheny County Sanitary Authority.

And if it's just 200 million gallons a day, Hannum can handle it. By the time the day is over, it will all be raked clean of rags and plastics; stripped of road grit, chemicals and grease; treated with bacteria in roiling,

Photography by Blaine Stiger

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foaming, green-brown trenches; purged of the bacteria; and lightly chlorinated. And it'll be cleaner than the Ohio River it flows into.

But on stormy days, as much as a billion gallons of mixed rainwater and sewage rushes Hannum's way. And as Alcosan's North Side plant backs up, much of that mixture can overflow the system, pouring—untreated—out of Alcosan's 90 miles of pipes and the thousands of miles of municipal sewers and into streams and rivers. The flood carries e. coli bacteria, giardia cysts,

cryptosporidium parasites and fecal matter that can wreak havoc on human health and aquatic ecosystems. And the same thing happens in hundreds of Southwestern Pennsylvania communities served by other sanitary systems, turning the three rivers into open sewers.

Add to that the facts that the federal Environmental Protection Agency has a microscope in one hand and a billy club in the other; that sewage problems threaten to swamp development efforts from the pastures of Greene County to the brownfields of the Kiski Valley; and that it

will take unprecedented cooperation among some 850 municipalities, sewer authorities and regulatory agencies to fix the problem, and you can see why regional leaders are increasingly focused on sewerage.

"I view this as the quiet problem," says David Marshall, president and CEO of DQE Inc. Marshall is a member of the Southwestern Pennsylvania Water and Sewer Infrastructure Project Steering Committee, a volunteer group trying to find solutions to the sewer overflow problem. "People flush their toilet. It's gone. [They think,] 'It's not my problem.'



Well, it is your problem.”

It's the whole region's problem, because it threatens our environment, our health and our image, says Jared Cohon, president of Carnegie Mellon University and chairman of the sewer steering committee. Because sewage respects no boundaries, he says, “This is indeed the poster child for the importance of regional cooperation.”

**Dilution no solution** When Pittsburgh was built, horses walked—and sullied—the city's streets. So it made sense to build a system that carried the

detritus of both the streets and the restrooms in the same pipes, and to the same place: the rivers.

By World War II, municipalities stopped building so-called combined sewers and instead constructed separate sewers for human sanitation and street runoff. But older towns were stuck with what they had. “They couldn't dig up thousands of miles of old sewers,” says Jan Lauer, senior project manager at the Pennsylvania Economy League and the main facilitator of the sewer steering committee. So Alcosan, the Allegheny County Sanitary Authority, which opened in 1959, was given the unenviable task of capturing and treating both the concentrated sewage from separated systems in newer suburbs and the rain-diluted stuff from combined sewers in older areas.

At the time, sanitation plants didn't have to treat every gallon of wastewater in rainy conditions. Regulators believed that rainwater diluted the sewage enough to render it relatively harmless. So Alcosan's pipes, and the 83 municipal systems that flow into it, were built with 316 overflow gates, allowing wet-weather sewage to discharge into creeks and rivers.

The 1972 Clean Water Act and subsequent amendments set higher bars. “The old ‘dilution is the solution to pollution’ attitude that was prevalent 40 years ago no longer works,” says John Brosious, deputy director of the Pennsylvania Municipal Authorities Association. The EPA now wants the 900-odd municipalities and sewer authorities nationwide with known combined sewer overflows—dubbed CSOs—to virtually eliminate the discharges.

In addition to being a regulatory problem, CSOs are a quality-of-life issue. “The rivers represent a very important part of the way Southwestern Pennsylvania's people recreate,” notes Cohon. Because fecal matter is a threat to people with open wounds or weakened immune systems, the Allegheny County Health Department issues water-safety advisories when the region's sewers overflow. Last year, such warnings were in effect on 71 days during

the 140-day boating season.

“That problem has got to be fixed,” says Marshall.

Fixing it throughout Southwestern Pennsylvania could cost as much as \$7 billion over the next several decades, says Lauer. But not fixing it could cost more, as the cautionary tale of the municipality of Penn Hills shows.

Penn Hills grew explosively in the 1950s and built its own sanitation system. For decades the home-rule municipality held down costs, in part by forgoing maintenance and allowing overflows, says Bob Sevcik, a Penn Hills councilman. But residents grew tired of seeing toilet paper in the streams and eventually called the county health department, which called in the state's environmental regulators, and eventually the EPA.

In the 1980s, as the EPA investigated, Penn Hills considered patching up its sewers, shutting down its treatment plants, and joining the Alcosan system, which would likely have cost \$10 million, Sevcik says. But it opted against that, and the EPA sued. The borough was eventually found guilty of criminal negligence, one sewer-plant operator went to jail, and the courts ordered improvements that have, so far, cost \$55 million, Sevcik says.

“Instead of having the lawyers, the judges, and the EPA solve this problem,” Sevcik says, “it would have been better to have the engineers of the area's communities get together to find an answer.”

**When it rains, it overflows** The EPA launched an investigation of Alcosan in 1995. After years of talks, and a year and a half after Alcosan submitted a plan for reducing CSOs, the EPA in September presented Alcosan with a consent decree ordering the authority to take action. Though the agency could sue Alcosan at any time, talks aimed at finding the best solution are continuing.

Alcosan is already expanding its capacity from 225 million gallons per day to 275 million, and it's looking for ways to boost that number even higher. “We want to be able to treat 875 million gallons, which would put a significant dent in the



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problem,” says Arletta Scott Williams, Alcosan’s executive director.

To do that, Alcosan may have to build mini-treatment systems along the rivers, construct remote storage tanks that will hold sewage and bleed it into the system during dry periods, and separate out the 21 streams that flow right into the sewers. The price tag could easily reach \$1 billion, and Williams expects that the state and federal government will cover just a fraction of the cost. “We will always lobby for more funding, but there will definitely be rate increases,” she says.

The problem doesn’t end with Alcosan. It doesn’t even start there. It starts with the crumbling pipes beneath homes, and from homes to the street—called laterals—which carry rainwater and groundwater into the sewer system. And it extends to the tens of thousands of miles of aging sewers owned by municipalities or sewer authorities.

In the Alcosan service area alone, the cost of repairing those lines is pegged at \$2 billion.

That’s where the 3 Rivers Wet Weather Demonstration Project comes in. “Our goal is to knock that [cost] down by hundreds of millions of dollars,” says John Schombert, executive director of the nonprofit organization created by Alcosan and the county health department. Schombert’s secret weapon: cooperation.

“We couldn’t solve this problem with 83 municipalities doing 83 different things,” Schombert says. But if communities work together, they can not only pool resources, ideas and expertise, but they can also identify the projects that will get them the most bang for the buck and reduce the total sewage flow at a lower total cost.

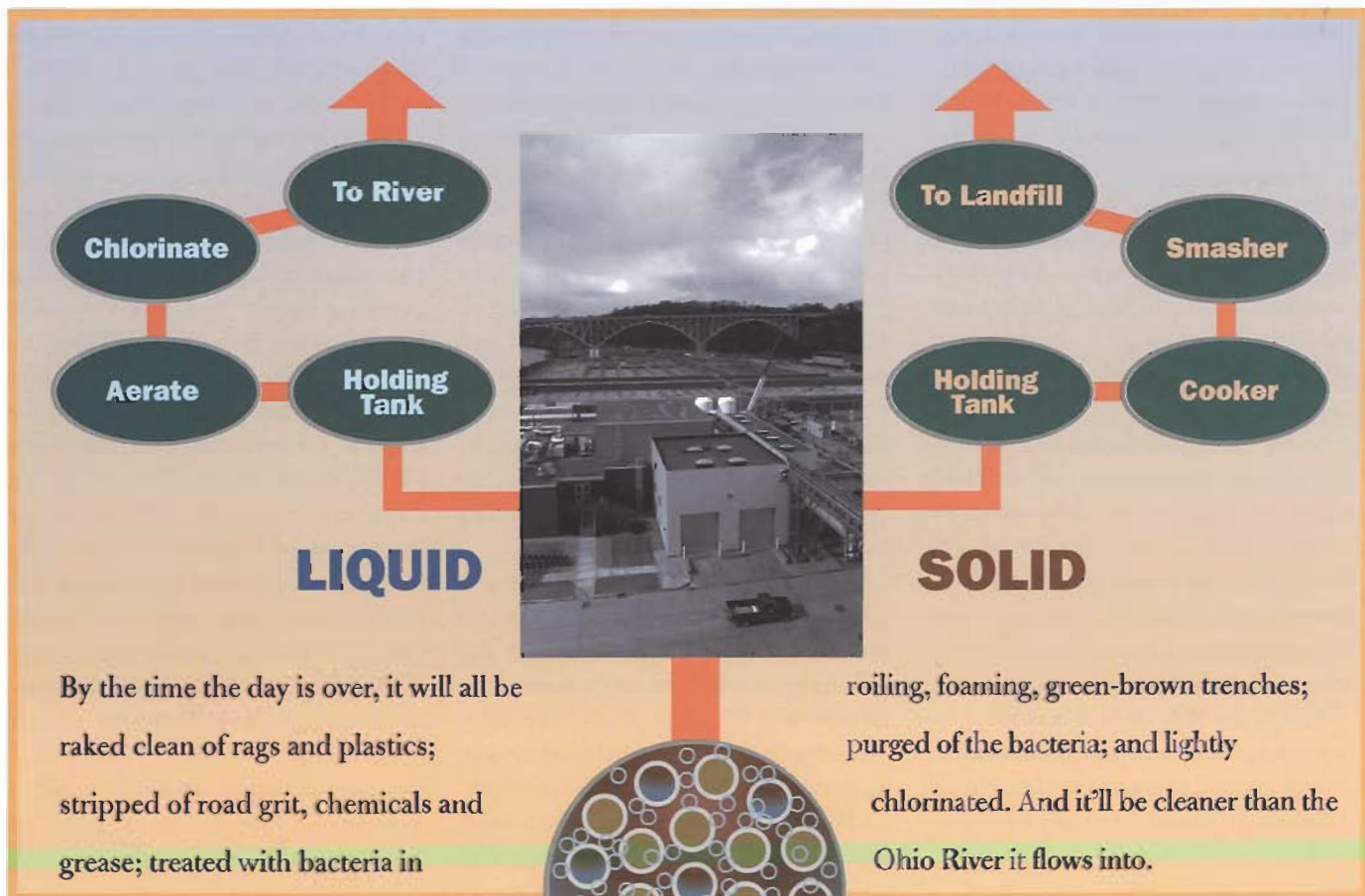
To that end, 3 Rivers Wet Weather has divided Alcosan’s 83 communities into eight “basin groups” and has created task forces of municipal officials, in the Lower Ohio Basin, the Chartiers Creek Basin and

the Thompson Run/Turtle Creek Basin. Those three task forces started meeting in January, and Schombert hopes they’ll eventually craft plans, pool resources and start fixing their systems. If it works, the five other basin groups should follow.

“I think [3 Rivers Wet Weather] is in a good position to sit down with people and encourage more cooperation than there has been in the past,” says Ray George, the EPA’s state liaison officer for Western Pennsylvania and West Virginia. “People are coming together and talking about this problem and acting in good faith.”

Read between the lines, says Sevcik: “John Schombert is the only thing keeping the EPA from whacking everybody with a big stick.”

Since 1998, 3 Rivers Wet Weather has funneled \$5.5 million in state and federal grants to municipalities pursuing innovative solutions to sewerage problems. Schombert’s goal is to give out as much as \$100 million over 10 years.



While that will help defray costs, Schombert says the more important goal is to develop a “toolbox” of technologies, methods and funding mechanisms for municipalities. When it’s done, the toolbox may include everything from technological aids like Geographic Information System mapping software, to sewerage insurance for homeowners with aging laterals, to nuts-and-bolts methods for patching pipes.

For municipalities that are earnest about plugging the sewage problem, 3 Rivers Wet Weather has been a boon. Last year, for instance, the South Fayette Municipal Authority used a \$190,000 grant from 3 Rivers Wet Weather, plus its own funds, to seal connections between the municipal system and 482 house laterals. It used a camera-guided robotic system that crawls through pipes, finds leaks and seals them with grout.

Outside the Alcosan area, a handful of municipalities motivated by both altruism and fear are repairing their systems. Bob Kossak, manager of the Kiski Valley Water Pollution Control Authority, says he told the 13 communities whose sewage he treats that, “Either you can [repair] it on your own, or I’m going to have to build holding tanks all along the rivers and surcharge you for it.” Those communities include: Allegheny Township, Apollo, East Vandergrift, Gilpin Township, Hyde Park, Kiskiminetas Township, Leechburg, North Apollo, Oklahoma, Parks Township, Vandergrift, Washington Township, and West Leechburg.

Apollo Borough responded by launching a \$4 million effort to replace its combined sewer system with separate systems for sewage and rainwater. Starting now, rather than after the EPA’s hammer comes down, gives the borough more time to find funding, line up contractors and control costs, says borough secretary Colleen Milie.

And with Apollo’s developing an industrial park on a 16-acre brownfield, the time to upgrade is now, says Milie. “It will definitely be beneficial to any businesses locating in Apollo.”

**Backing up development** Three years ago, when Baldwin Borough sought to redevelop sites in the Streets Run watershed, it asked the state Department of Environmental Protection for permission to add about 100 new users to its sewer system. The answer: No way. The DEP finally gave permission last year, but only after Baldwin and four neighboring municipalities—Brentwood, Whitehall, West Mifflin and the City of Pittsburgh—banded together on \$2.6 million worth of sewer repairs.

So-called tap-in limits are one way sewerage problems can stifle development. Like roads, bridges and power lines, sewers are crucial to development. No sewers means no growth. And because the DEP sometimes refuses to approve new sewer hook-ups where the pipes are already overflowing, crumbling lines and CSOs can wash away development hopes, too.

Lauer says about 90 communities in Southwestern Pennsylvania already labor under tap-in limits of some kind. That number could rise. DEP has demanded that the Butler Area Sewer Authority eliminate its CSOs or face limits. Similarly, Ellwood City has been informed that if overflows aren’t addressed, it might be banned from new tap-ins altogether. “Eventually, they’ll say no more industrial hook-ups, no more commercial hook-ups, and that’ll stop economic development dead,” says Lawrence County commissioner Roger DiCarbo.

The problem is different in Greene County. With its natural beauty, low land costs and access to interstate highways, the county would seem flush with potential. But it’s the inability to flush that’s choking off development, says Ann Bargerstock, the county’s director of planning and development.

“Over 50 percent of our surface is not served by public sewerage,” Bargerstock says. Steep slopes and clay soils make conventional on-lot septic tanks impractical in many areas, she says. “Residential growth is being stalled in many cases because of the on-lot problems. ... We can’t even accommodate a small business in a place that would require an

on-lot system.”

Greene County, the DEP and the Economy League are now looking at new on-lot technology that might open up development possibilities.

The City of Pittsburgh’s sewers were built for a time when the population was double what it is now, but regional leaders say CSOs are as much of a development issue in the urban core as in the state’s rural corners. New stadiums, an expanded convention center, housing, parks and office complexes are going up all along the rivers, and the waterways are viewed as a key selling point to young professionals and families.

“This is, after all, the city of the three rivers,” says Cohon. “It’s very important that those rivers meet the level of quality to match the image we want.”

Adds the EPA’s George: “How is a community going to promote itself as a great place based on its rivers if it can’t guarantee that those rivers are safe?”

**Hands across the water** “Even if Alcosan were to spend over a billion dollars,” says Cohon, “the major rivers in our area still would not comply with EPA standards, and, furthermore, would not be as clean as we want them to be.

“What sense does it make to invest that kind of money if we’re not going to achieve our goals?”

Just as 3 Rivers Wet Weather seeks to coordinate efforts in the 83 Alcosan-served communities, the Cohon-led Southwestern Pennsylvania Water and Sewer Infrastructure Project Steering Committee hopes to start the search for a solution covering Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Lawrence, Somerset, Washington and Westmoreland counties. That will mean fostering a cooperative spirit among some 850 municipalities and other entities, many of which have traditionally strained to retain their every grain of autonomy. It’s a tough task, but the steering committee has two things going for it: First, the consequences of failure may be catastrophic; second, there are precedents for cooperation.

Within two years, the EPA is expected to start monitoring not just sanitary treatment plants, but municipally owned sewer lines, too, says Brosious of the Pennsylvania Municipal Authorities Association. "Think of all of the little boroughs up and down the rivers that are losing tax base," he says. "You tell them they've got to put in new systems or build [holding] lagoons, and it's going to cost 'X' millions of dollars, and there's going to be a revolt." Such a revolt could lead to hundreds of Penn Hills-like legal battles.

On the other hand, DQE's Marshall, whose company's holdings include power company Duquesne Light, points to another environmental problem—air pollution—that once involved confrontation but that has been mitigated using cooperation. Marshall remembers when regulators required every factory to respect set limits on emissions or face crippling fines. Later, regulators and industry devised a system giving companies "pollution credits," which they could use or sell to others in their region. Because the credits were expensive, industries had strong incentives to limit emissions, and total pollution levels dropped. But the system also gave industry the flexibility to clear the air without shutting factory gates.

Regional cooperation can provide similar flexibility on sewers, allowing dollars to go where they can do the most good. And Marshall says there are other

benefits to working together: "By standardizing engineering, by standardizing equipment, by standardizing processes and eliminating redundancies, we can find cost savings."

Lauer says the sewer steering committee hopes to achieve some of those efficiencies by finding regional organizations to handle three tasks. The first would take on planning and prioritization, making sure funding flows to the projects that will make the biggest dents in the CSO problem. A second would assemble a regional toolbox, containing technical know-how, funding mechanisms and public-relations techniques. The third would lobby the state and federal governments for help.

There's evidence that Washington and Harrisburg are aware of the mounting sewerage problem. In December, Congress authorized \$1.5 billion to help solve CSO problems nationwide. Though the money hasn't yet been allocated, and though it would only be a drop in the bucket, it's a start, says Paul Calamita, general counsel for the CSO Partnership, a Richmond, Va.-based lobbying group representing about 100 communities nationwide. "Our hope is that there will be such demand on that money that it will get the ball rolling," and generate more funding, he says.

In Harrisburg, two pending bills would have the state borrow \$1 billion to help communities pay for sewer repairs. And in March, state Sen. Allen Kukovich (D-39) of

Manor, Westmoreland County, proposed a statewide referendum on whether to borrow \$1.5 billion for sewer repairs and other environmental improvements.

That said, the responsibility for fixing the sewers will fall squarely on the region itself. And handling that responsibility as a region could well have a payoff even beyond cleaner rivers and more development. "Decision-making about sewers [affects] development," says CMU's Cohon. "Developing a regional water and sewer-planning mechanism will be a big step toward bringing us smart development."

Transportation planning is already handled regionally by the Southwestern Pennsylvania Commission. If the region can craft a cooperative solution to the sewerage quandary, Cohon says, that might pave the way for a more collaborative approach to development and land-use planning. "The more tough problems we solve with regional cooperation, the better position we are in."

"Everyone understands that this is not a problem that is going to be solved tomorrow," says George. "It's difficult. It's costly. It's not insurmountable, but it's going to require a lot of cooperation." ■

*Rich Lord, a regular contributor to PITTSBURGH PROSPECTS, last wrote about franchises in April.*