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## **Creek Restoration Keys Cincinnati's Battle Against Urban Blight, Stormwater**

By AMANDA PETERKA of

CINCINNATI -- As the road dips down into the South Fairmount neighborhood here, the rusted skeleton of a valve factory from the days of the Industrial Revolution rises high in front of a weed-strewn gravel lot.

"Welcome to South Fairmount -- Gateway to the West," reads a low sign along the road.

The contrast between the sign's promise for the future and the reality of the once working-class neighborhood is stark. Like the factory, most of the neighborhood's buildings have boarded-up doors and cracked windows. Orange spray paint on a brick home tells would-be thieves that there's no copper to steal inside. Litter lines the streets.

Only a smattering of small businesses are left in the neighborhood about a five minutes' drive from downtown Cincinnati, and the few inhabited houses -- some dating as far back as the 1850s -- belong to some of the city's poorest residents.

The neighborhood has grown steadily vacant and has been largely ignored throughout the decade due to the removal of public housing, a recession, suburban flight and a lack of a strong sense of community.

The population has declined 1.7 percent between 2000 and 2008, and the median household income is just above \$27,000, about \$10,000 less than the rest of the city. Almost half -- 44 percent -- of the housing is estimated to be worth less than \$50,000, according to a document prepared for sewer officials by AECOM Economics.

It's a "black eye for our area of town," said Pete Witte, a local community advocate.

South Fairmount may have stayed ignored if it did not also contain one of the nation's worst combined sewer overflows.

But because of the 3,700-foot-long, 19.5-foot-wide pipe underneath the area, the decaying neighborhood is now part of one of the largest public works projects in Cincinnati's history and one of the nation's biggest experiments in green infrastructure.

The city's sewer district has been buying up property in the neighborhood -- \$2 million worth or about 30 parcels, as of this month -- and plans to knock down many of South Fairmount's dilapidated buildings,

replacing them with the stream that once flowed through the area. Stormwater from the surrounding hills will be funneled into the waterway and away from the pipe leading to a nearby waterway.

The plan is part of a larger, \$3.2 billion initiative to create natural water-retention systems that will eliminate most of the area's combined sewer overflows and comply with a federal consent decree.

Sewer district and city officials say it will act as a "seed" to help revitalize the area. If it works, the project could shape the way older cities approach aging sewer infrastructure and help U.S. EPA collect data and include green infrastructure in future consent orders.

It is an "opportunity to recapture a neighborhood," Mayor Mark Mallory said in an interview in his downtown office. "It's going to be a model -- I'm convinced of this -- it's going to be a model of what can be done with a sewer separation project around the country."

### **Novel option for a common problem**

Combined sewers were popular around the turn of the 20th century, when large industrial cities were just arising. The systems transport raw sewage, stormwater runoff and industrial wastewater all in one pipe to sewage treatment plants.

When the weather cooperates, the systems work fine. But during periods of heavy rainfall, the volume of the wastewater can overburden the system, releasing excess wastewater, including the raw sewage, into nearby water bodies. This is known as a combined sewer overflow, or CSO.

"At the time, about a hundred years ago, it was seen as expedient to mix septic flows -- basically what comes out of your toilet, showers, etc. -- into the same pipe as wet weather flow," said Bill Shuster, an EPA research hydrologist based in Cincinnati. "And of course as cities grew, the size of the pipes didn't exactly increase with the volume of combined septic sewage and stormwater runoff."

Across the United States, about 720 communities rely on combined sewer systems. With 14 billion gallons discharged a year, Cincinnati has the nation's fifth highest volume of CSOs.

Built in 1906, that 19.5-foot-diameter South Fairmount pipe annually discharges about 1.7 billion gallons of the city's CSOs into the urban Mill Creek. About a quarter of that is raw sewage.

On a recent day, none of the pipe's contents were released into the creek, but a healthy level of muck and trash lay at the bottom of the pipe, the result of a couple of inches of rain the previous day.

Mill Creek, which runs along a railroad just east of South Fairmount, is bordered by concrete, much like the Los Angeles River, as it goes through downtown Cincinnati. In 1997, the group American Rivers named it the "most endangered urban river in North America."

"There have been just tremendous impacts from industry and urbanization," said Mill Creek Restoration Initiative executive director Robin Corathers. "Physical impacts, encroachments into the flood plain, development in known flood hazard areas ... basically what American Rivers saw was that Mill Creek's kind of the epitome of an urban river."

Since 1997, the water quality has improved with the cleanup of landfills and Superfund sites along the river, but CSOs still threaten the ecosystem and public health of surrounding communities.

Residents and business owners have felt the effects.

"I can tell you when I was down there and it would rain hard, right in the alleyway alongside my building there was a manhole, and you know, the odor would come out of there pretty strong," said Reggie Hahn, a retiree who spends his time fixing up British sports cars in a garage along the road that descends into South Fairmount. Hahn owned a building in the neighborhood until the sewer district bought it.

In a 2006 consent decree, EPA ordered Cincinnati to reduce its combined sewer overflows by 85 percent. The city is doing it in a phased approach and must achieve a 2-billion-gallon reduction by 2018 in the lower Mill Creek watershed. The sewer district is focusing on the South Fairmount overflow because it is the largest.

Consent orders are not rare in sewer infrastructure improvements. In fact, they are the norm, as cities and local jurisdictions are hesitant to spend the money unless they are federally mandated.

"The cost of infrastructure is just insurmountable to most American communities," Shuster said.

For Cincinnati, so was EPA's suggestion to reduce its CSOs. EPA wrote a 30-foot-diameter, 1.5-mile-long tunnel into the consent order. The tunnel, to be buried hundreds of feet in the ground, would carry extra water into a new treatment plant.

The cost in 2006 dollars would be \$244 million. The sewer district balked.

EPA, however, gave the city an option: Either build the tunnel or come up with an alternative solution.

The federal agency has not signed off on the proposal yet, but sewer district officials are hoping that the idea to daylight, or recreate, the Lick Run stream that once ran through South Fairmount will comply with the consent order.

Sewer officials do not have exact cost estimates yet but say the natural solution will cost less than half of what EPA suggested. It will be one of the largest-scale tests of the impacts of green infrastructure, both on the public health of a community and on its economic vitality.

Sewer district officials compare the project to giving the area a booster shot.

"We now have the opportunity to try to create something for the future, not necessarily just replacing a pipe and making it bigger," said MaryLynn Lodor, environmental program manager at the Metropolitan Sewer District of Greater Cincinnati.

The Lick Run Alternative, as it is called, will also test the technical feasibility of such an undertaking and the public's receptiveness to a natural sewerage solution.

### **Daylighting and design**

The concept of daylighting a creek is not completely new. A portion of a creek in St. Paul, Minn., was daylighted in 1987 to create a park amenity. In 1995, engineers daylighted a creek through five blocks of Kalamazoo, Mich., to deal with flooding issues. Other daylighting projects have taken place in much smaller municipalities.

The South Fairmount project will require separating combined sewers in the hills that surround the area -- the neighborhood lies in a large bowl -- so that stormwater will flow through natural conduits into the stream.

Some pipes will have to be closed, some new ones built, to assure there will be a steady flow of water down the hills and into Lick Run. The Metropolitan Sewer District will have to take into account the topography of the land, soil quality, maintenance, safety and security issues, any leakages and other utility pipes and cables in the area.

Laith Alfaqih, a project manager at MSD, said he thinks it can be done but acknowledges that it is a tight time frame to meet EPA's deadline.

"We're putting all the resources that we have, our project managers, the engineers, the different divisions at MSD, working together in order for us to make it successful," Alfaqih said on a tour of the watershed area. "So far so good," he added.

EPA has had a twofold role in the process. Its job is to enforce the consent order, but the agency is also using the project as an opportunity to collect data.

Up to now, most consent orders mandate some sort of "gray" solution, or a traditional one, but EPA's Shuster said the trend is changing. He recently helped work out a consent decree with the city of Cleveland that included green improvement, and other agreements, like Cincinnati's, are being reopened to add in natural infrastructure.

EPA and the U.S. Geological Survey are working to develop a portfolio of research on things like bioinfiltration, maintenance and impacts and attempting to build public confidence in green infrastructure through pilot programs.

The data would add to a 2008 EPA study of a different Cincinnati watershed that found homeowners respond to market incentives, such as stormwater fees and rebates for things like rain barrels, to naturally decrease the runoff on their property.

The city of Cincinnati is doing its own experimentation with a pilot project at the St. Francis Court Apartments in South Fairmount, housed in the red-orange building of a former hospital. In front of the building, very visible on a hill along the main thoroughfare, is now a rain garden where two empty parking lots once languished. Lodor said she hopes it will show the public the benefits of green infrastructure.

It has been a little difficult to get the public involved -- "most people are not excited about sewer separation," as Mayor Mallory put it -- but more and more community members and groups are taking tours of the watershed, which include a stop at the school. More than 110 people attended a design workshop on Aug. 11.

### **Local support**

While public response has been a little cautious so far -- all the details are not yet known -- it has also been fairly positive.

"We do view it as an opportunity to leverage all the potential investments that will follow the project," said LaToya Moore, a program officer of the Greater Cincinnati Foundation. Moore has lived in South Fairmount for four years.

"I even don't care if it's the same price -- there's no comparison" between the tunnel and the alternative plan, said Kathy Schwab, executive director of the Local Initiatives Support Corp., which works to improve South Fairmount.

But some of the businesses sandwiched between the two main thoroughfares in the neighborhood have been put in a tough spot.

Bob Voelker of Banacom Signs Ltd. said he understands why the project is needed but that he feels "stabbed in the back" by MSD's plan to buy out his business. Voelker, who has lived in the area all his life, has been paying off his current building for the past decade and was looking forward to having money to retire.

An appraiser came by recently to his building, but Voelker said he has not heard anything since. He feels as if he is in limbo until December 2012, when the sewer district's plan is due to EPA.

"I can't sell my property -- who's going to buy your property knowing it's going to get torn down? I can't make improvements to my property -- why would I put money into my building when I don't know what they're going to give me for the building?" asked Voelker, sitting among vinyl signs behind the counter at his South Fairmount business. "My personal life and my business life is on hold for who knows how long."

The city is offering a number of incentives to help businesses move, said Dwendolyn Chester, deputy director of the Cincinnati Department of Community Development. She pointed to commercial property tax incentives and environmental remediation grants, among others.

"Of course, some businesses do not necessarily want to move," Chester said. But they are "recognizing what the problem is and recognizing that it's going to be an ongoing problem if something is not done. There really is no other option."

Some property owners, like Hahn, said that the sewer district treated him as fairly as possible when he moved from his building in South Fairmount. But Hahn and the 5,500 MSD ratepayers in the area have gripes over the rising sewer rates that will only increase more to foot the \$3.2 billion project.

"Oh, it's killing us," said Witte, the advocate. Sewer increases are especially hurting landlords, he added.

"You've got a combination of just the tanking of property values, which has crimped their ability to get ahead of the game and reinvest in the property, and alongside that they're being slapped with these 8 percent increases in sewer rates."

But most agree the project is necessary to promote the economic development of the area.

"Once we're done," said Metropolitan Sewer District executive director Tony Parrott, "we will be able to work with folks that may be interested, whether it be private developers or other community organizations, to utilize that corridor."

### **'The blight-equals-bulldozer model'**

One person who doesn't see it that way is Paul Willham, president of the Knox Hill Neighborhood Association and a local historic preservationist. His complaints about the project, and his caution of an impending lawsuit against MSD, highlight an obstacle that most aging cities may face in attempting these large-scale green projects.

The buildings in South Fairmount, though old and crumbling, are in fact historic pieces of Cincinnati that should be renovated instead of demolished, Willham argues. Many are even eligible for inclusion on the National Register of Historic Places.

Slated to be demolished for the project is the only art deco building in the neighborhood, built in the 1930s and worth more than \$1 million if located in any other city, according to Willham. Next door stands a building dating to 1909 -- the first building constructed as a funeral home in Cincinnati. Colored stained-glass windows with the funeral-home logo have survived since then.

Other buildings contain finely detailed cast-iron decorations, a little rusty with time. One of the largest buildings, a pink one that is now vacated, was once an inn and tavern for foot traffic headed to and from Cincinnati.

Willham said it is far cheaper to renovate the area rather than to bulldoze the houses. It could cost MSD \$100,000 to tear down some of the larger buildings on the block, and the costs of moving historic buildings could run in the several hundreds of thousands of dollars. Sewer officials are not considering these costs, nor long-term maintenance costs or the carbon footprint of demolition, in its calculations, Willham said.

MSD has been systematically targeting the area for the past decade with its purchase of properties, Willham said, which has decimated the neighborhood. The more properties MSD buys, the more property values decrease and the less chance the neighborhood has to pick itself up.

"We're trying to use the same urban renewal model that's unfortunately been used in the city for years, the blight-equals-bulldozer model," Willham said, who added that he is exploring litigation.

But to most involved in the project, this is a "once-in-a-lifetime investment," as Hamilton County planner Todd Kinsky puts it, that will have benefits lasting for years. Private developers will flock to the area after the stream is daylighted, making the neighborhood once more a gateway to the West.

"It's very exciting for me because when I started working on Mill Creek in 1994 it was just such an enormous challenge, and now I can see the light at the end of the tunnel," said environmentalist Caruthers. "I can see the huge potential for this urban river. I can see how it can be revitalized, how the neighborhoods can be much more vibrant and robust again."

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