

Why Evansville's sewers are so easily overloaded

Combined problems

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VINCENT PUGLIESE / Courier & Press A combined sewer outfall, is a giant pipe that dumps sewer overflows at certain locations, at the north end of Garvin Park.

-HIDE CAPTION

During a recent debate between City Council candidates, each was asked to prioritize the top issues facing local government. All, both Democrats and Republicans, agreed the No. 1 issue is fixing the city's sewers.

But the similarities stop there. The majority of Republican candidates believe a greater emphasis should be placed on addressing the city's sewer and flooding problems. Democrats quickly point to the projects started and planned under Mayor Jonathan Weinzapfel.

- Q: What is the capacity of Evansville's two wastewater treatment plants?
- A: The East Side plant has a capacity of 18 million gallons per day. The West Side plant has a capacity of 20.6 million gallons per day. It is currently under an expansion, which will increase its capacity to 40 million gallons per day.
- Q: How much sewage do the plants treat on an average day?
- A: The totals vary, based on the season. The East Side plant treats an average of 14 million gallons per day and the West Side plant treats an average of 16 million gallons per day.
- Q: How old are the wastewater treatment plants?
- A: The East Side plant was built by 1955. The West Side plant followed a year later.
- Q: How old are the oldest sewer lines still in use?
- A: The oldest sewer lines are located Downtown and are around 100 years old. Those sewers have been relined to make them stronger and prevent leaks.

The problem with the city's sewers, however, is much bigger than the political debate over them. Actually, there are two separate problems, one with flooding on the city's Southeast Side and a much larger one of how to replace half of the city's antiquated sewer systems. The latter is a vast project that could cost taxpayers hundreds of millions.

Both problems, although separate, meet on Madison Avenue and other Southeast Side streets.

About a year ago, dozens of families from those neighborhoods were recovering from massive flooding that, in some cases, brought several feet of water into their homes. Officials placed some of the blame on the local combined sewer system, which carries rainfall runoff and wastewater, all in one pipe.

That pipe carries the mixture to a wastewater treatment plant. A combined sewer overflow occurs during heavy rain when the influx of combined wastewater exceeds the capacity of the combined sewer system and the wastewater treatment plant. The overflow discharges into a waterway such as the Ohio River or Pigeon Creek, dumping raw sewage into waterways. The system was designed to help reduce the frequency and severity of sewer backups and flooding.

Half of the city uses such a system, which the federal government eliminated because of the pollution to waterways. In most of Evansville, combined sewers are primarily an environmental concern. But on the Southeast Side, the combination sewers contributed to flooding. The combined system there was too small to move the waste and water during heavy rains, concluded consulting firm Clark Dietz, a Champaign, Ill.-based firm with offices in Evansville. The city hired the firm to develop a plan to deal

with storm water. The firm concluded that the combination sewers were ineffective in the flooded area because of "continued growth and service-area expansion" during the last 40 years.

There are too few areas to discharge storm water, as several creeks in the older part of the city were filled in decades ago, replaced by the combination sewers.

Earlier this week, Weinzapfel described the challenge of trying to address both problems: Flooding and the environmental problem with combined sewers.

The mayor drew two overlapping circles on a sheet of paper, and filled in the middle. The area in the middle, he explained, is the Southeast Side. Improvements for that area, he said, will do two things: alleviate flooding by creating a separated sewer system. Secondly, it will nip at the much larger, citywide issue of replacing combined sewers.

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Amy Brown is a program manager for Wesselman Nature Society's Canoe Evansville program, so she's often on Pigeon Creek, the channel that cuts through the city.

She's had to cancel some of the group's canoe trips because of combined sewer discharges and the health risks the sewer overflows present.

"I kind of watch and see if it's been a major rain event in a short period of time," Brown said. "We stay off the creek for up to 48 hours. I've canceled programs, even if it's a beautiful day and people are like, 'Why can't we go?'"

Combined sewer discharges contain municipal and industrial wastes, floating debris and disease-causing pathogens. Brown said combined sewer overflows are primarily a threat to people who live near Pigeon Creek, and swim and fish in the water. "They think of it as part of their back yard, so they're in it," she said.

Brown said she has been near the creek during a combined sewer overflow. "You see the water change, primarily from oil and runoff from the roads. That's what the water change is. I can't say that you can tell when there's fecal matter in the water ... but you see all the trash come in from the roads ... that happens with even a little bit of rain."

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To understand today's sewer and flooding problems requires a knowledge of the system's history.

Around 100 years ago, the city began building a sewer system to carry storm water away from homes, businesses and streets. When home and business owners added indoor plumbing, they connected their sewage lines into the storm sewers, creating a combined sewer system. "At the time, it was acceptable," said Harry Lawson, general manager of the Evansville Water and Sewer Utility. "That was the best practice."

Combined sewers were a staple of the country's early infrastructure and serve more than 770 communities, mostly in the Midwest and Northeast, according to the Environmental Protection Agency. There are more than 100 cities with combined sewer systems in Indiana alone.

Most sewer systems built after the 1950s have separate pipes for rainfall runoff and wastewater. Roughly half of Evansville's 500 miles of sanitary sewers are combined sewers.

Evansville took its first major step toward reducing waterway pollution in the 1950s, when two wastewater treatment plants were built on the city's East and West sides.

The plants reduced the direct discharge of raw sewage into the Ohio River and Pigeon Creek.

In 1972, the federal government passed the Clean Water Act to regulate pollution discharges into the country's waterways.

The act required cities with combined sewer systems to develop long-term plans first to curb but ultimately eliminate combined sewer overflows.

Each city must negotiate an agreement with the EPA and the U.S. Department of Justice. Evansville began negotiating with government officials around two years ago.

- Combined sewers handle storm water, sanitary waste and industrial wastewater in a single pipe.
- In dry weather, the sewers take the waste to treatment plants to remove contaminants.
- Overflows occur when heavy rains bring more water into the sewers than the treatment plants can handle.
- Evansville has about 500 miles of combined sewers.
- Evansville accepted 75 miles of new sewers to its system from 2000 to 2006

Weinzapfel and Lawson said those negotiations will likely last several more years before the two sides reach an agreement.

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Despite some improvement work completed since 1980, streets on the city's Southeast Side have flooded during heavy rains.

On September 12, 2006, a downpour that lasted hours and dumped several inches of rain destroyed 17 homes and heavily damaged 47 more. Some residents used canoes to navigate city streets.

Lawson said the flooding was unavoidable because of the heavy rain that fell in a short amount of time. The Evansville Regional Airport received 2.18 inches of rain, a daily record. But unofficial totals were much higher along the city's Southeast side and the Ohio River, where anywhere from 4 to 8 inches.

On that day, weaknesses of the city's combined sewers were exposed in areas other than the Southeast Side. The West Side, for example, which also utilizes combined sewers, had problems.

Floodwater damaged Ed Creek's garage and car. He lives in the 5500 block of Broadway Avenue.

"In the storm, water went over Broadway," he said. "There were cars that almost had wrecks."

Gov. Mitch Daniels declared a state of emergency for Vanderburgh County, and the federal government declared a disaster area, allowing FEMA to help homeowners with damages.

According to the 2007 Stormwater Master Plan, many of the sewers, especially in the older combined sewer areas, become overloaded with less than one inch of rain.

In the aftermath of the flooding disaster, Weinzapfel formed the Stormwater Task Force to review current projects, identify new ones, prioritize needs and look for funding. Using their findings, Clark Dietz produced an updated storm water plan, released in May.

Projects were ranked in the order of need, with the most important factors being public health and safety, street flooding depth and property damage.

Officials chose to start with four Southeast Side drainage projects. The estimated cost is \$54 million. All four should be completed by 2012, Lawson said.

"As each one of those projects is built, the neighbors in the area are going to benefit too," he said.

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