Flooded with questions: Five years after 2010 floods, repairs still ongoing in the North Shore

By Jeff Rumage

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Whitefish Bay — Robert Crawford is surprisingly optimistic for a person who has been flooded seven times.

The first time he was flooded in 1997, he remembers wading through waist-high sewage water to check on his circuit breaker. His washing machine was floating in the corner of the basement, due to the water surging out of his floor drain and basement toilet. He installed a backflow preventer, but it wouldn't be the last time his basement was flooded.

When he was flooded again on July 15, 2010, he paid $3,600 to repair his hot water heater. One week later, just a couple hours after his hot water heater was repaired, an even bigger storm hit. In total, Crawford has spent about $100,000 in basement repairs, including the replacement of five furnaces and five hot water heaters. He also bought a pricey back-up generator to run heavy-duty sump pumps.

His most recent repairs include the installation of hung plumbing: a series of overhead pipes that rely on gravity to prevent sewage backup from entering his basement. After sustaining basement backups on April 9, 2015, Crawford and four of his neighbors installed hung plumbing this summer and believe they will never see sewage in their basements again.

Having attended nearly every village board and committee meeting in the last five years, Crawford is also optimistic the current village administration is more attentive than ever before to monitoring and repairing the village's sewer system.

"With the hung plumbing and the leadership we have at the village, I decided I want to stay in my house," Crawford said. "If I thought I was going to have to replace my furnace five more times over the next 20 years, I'd have a 'for sale' sign out on my lawn."

Commonly referred to as a "100-year flood," the storm on July 22, 2010, dumped 7 inches of rain in a two-hour period, causing $17.9 million in damage to Milwaukee County's North Shore suburbs. The epic deluge was felt across metro-Milwaukee, but Shorewood, Whitefish Bay and parts of Glendale were the hardest hit.

Shorewood and Whitefish Bay brought in consultants to assess the scope of sewer fixes, and both received estimates in the tens of millions of dollars. The communities have taken different approaches to fixing their sewers, but neither community has reached the finish line.

Thousands of feet of pipe have been built in both villages, which have reduced the number of basement backups in certain portions of each village. There are other troubled patches throughout both villages that village engineers monitor closely during heavy rains.

Backups in Whitefish Bay

Two years after the flooding, Whitefish Bay adopted an ambitious $105 million plan that would improve sewers over the course of 15 years.

Some of those projects have been completed, including the replacement of sewer infrastructure on large stretches of Hampton Road and Cumberland Boulevard. The village has also constructed a storm water detention basin at Cahill Park, upgraded a storm water outfall to the Milwaukee River at Estabrook Park and made sewer improvements in the 4700 blocks of Woodruff, Idlewild, Sheffield, Wildwood and Hollywood avenues.

While much work has been done, budget constraints will prevent the village from pursuing the full laundry list of projects recommended by engineering consultants in 2012.

To get the most bang for their buck, Whitefish Bay officials have shifted their focus to one goal: eliminating basement backups through incremental repairs to sanitary sewers.

To make repairs more manageable for taxpayers, Village Manager Steve Scheiffer said the village will spend $4 million per year on sewers, which will not raise taxes or sewer rates. He said a lot has been accomplished in the last five years, but the village still needs plenty of work to protect all homes from basement backups in the event that 3.4 inches of rain falls in 24 hours.

“They have spent a lot of money and done major work, but we can’t stop now,” Scheiffer said. “We’re going to continuously be making improvements.”

Mustafa Emir, the engineering consultant for Whitefish Bay and Shorewood, said most backups can be eliminated by building bigger sanitary sewer pipes and rerouting sewer systems to reduce pressure through congested pipelines. The village can also achieve a 20-percent reduction in flows through private lateral lining, mainline sanitary sewer lining and manhole rehabilitation.

Once that low-hanging fruit has been plucked, Emir said they are looking at how they can bypass in extreme situations. The most challenging areas may require private property solutions, like hung plumbing and backflow preventers.

Emir said he is working with other village officials to create a five-year plan to eliminate basement backups during a rain event that dumps 3 inches of rain in a 24-hour period, which is similar to the July 15, 2010, rain storm. Once those plans are developed, they will presented to the public for feedback.

“I think in a place like Whitefish Bay, it’s a fair expectation to not have basement backups,” Emir said.

Emir’s preliminary plans going forward include lining private laterals with financial assistance from MMSD. Whitefish Bay’s previous plans to line 326 private laterals on the south end of the village were killed in 2013, due to residents objecting to special assessments ranging from $2,000 to $7,000. In the future, Emir said MMSD funds will only be used to line failing private laterals in backup-prone areas of the village.

Cahill basin provides relief

Five years after July 2010, flooding is still a hot topic for residents near Woodruff and Fairmount Avenues.

The heavy amount of rain at that intersection in 2010 not only caused basement backups, but also caused water to break through some basement windows. Some homeowners in the area had 6 to 7 feet of water in their basements.

At a recent neighborhood block party, some residents reported basement backups from the rainstorm on April 9, which dumped 3 inches in less than 24 hours. While some homeowners were impacted more than others, they all agreed that a new detention basin at Cahill Park helped mitigate the damage.

Mike Utzinger, who has lived near that intersection for 28 years, said the intersection would have typically flooded during the April 9 rainstorm. Instead, the water drained into the Cahill detention pond, which has a 9-foot grade at its lowest point. The detention pond, which was created in 2013, can hold up to 500,000 cubic feet of rain water for 24 to 48 hours before draining southward through a recessed passageway that empties into the storm sewer system.

Although the Cahill detention basin took some pressure out of the underground system, there was still enough water in the sanitary sewer line to cause basement backups for Crawford and other residents on Woodruff Avenue and Palisades Road. The rain storm prompted a neighborhood meeting with village officials that left Utzinger feeling optimistic about the future.

“The village has a leadership that views a 3-inch rain the same as a 6-inch snowstorm, which is really a change in the way the village has behaved,” he said.

A Shorewood success story

Lynn Belcher was in a yoga class near Shorewood's southern border on July 22. When water started seeping under the door of the studio, she picked up her yoga mat, got in her car and tried to drive home. Within a couple blocks of her house she realized she couldn't drive any further.

As she waded home in the floodwaters, she saw cars under water and garbage cans floating down the street.

"It didn't seem real," she said. "It was like something you would see in a movie."

The Belchers had 8 feet of water in their basement that night, but their flooding fears are now a thing of the past.

New sanitary sewer pipes were installed along Glendale Avenue, Wildwood Avenue and Kensington Boulevard as part of a Basin 6 sewer project funded by the villages of Shorewood and Whitefish Bay. Shorewood also lined private laterals, and terrace drains. These changes have reduced the flows in that sewer basin by 55 percent.

"We can finally stop worrying," the Shorewood woman said. "We can sleep at night without worrying about our homes being damaged. That's huge."

Just south of Basin 6, the Basin 1 area has seen flows reduced by an average of 65 percent. Basin 1, which makes up the majority of the northwestern corner of the village, received a larger sanitary pipe from Newhall Street to Olive Street to Wilson Street. That area also received new a storm sewer system that drains Newhall Street to Capitol Drive.

In 2013, the amount of inflow and infiltration seeping into the village's sewers was less than 2010. To further reduce inflow and infiltration, the village will continue to line 30 private laterals per year until 2021.

"We know that, for a comparable rain event, our flows are lower than they used to be," Emir said.

A nightmare at Nicolet

Just six weeks from the start of the first day of school, Nicolet High School's basement was flooded with 6 feet of water, and another 2 to 6 inches was found on the first floor. About 80 percent of the school was flooded, causing an estimated $14 million in damage.

Nicolet was susceptible to flooding because it is located in a recessed bowl 8 feet lower than the frontage road at Jean Nicolet Road. At the time, Nicolet's drainage system was connected to the same 48-inch-diameter pipe that served subdivisions and businesses in the area. To add drainage capacity, Nicolet built a new pipe of the same size that would only serve the school.

Another piece of Nicolet's $1.2 million plan was regrading the parking lots into v-shaped channels to direct water around the high school into the wooded area to the west. Additionally, a detention pond installed near the main entrance is able to store another 7 inches of rain during heavy storms.

Shorewood's biggest challenge

Bill Cruz's home at 3531 N. Maryland Ave. is not particularly well-positioned for rain events. He's just a block north of Edgewood Avenue, which collects all of the rain water coming from both the north and south. He is also downhill from Downer Avenue on the east.

"We're at the bottom of three places," Cruz said. "Anytime we hear there's rain coming, we start to tremble."

When Cruz heard about the rainfall on July 15, 2010, he and his family tried to get their belongings out of the basement as fast as possible. While they were carrying things upstairs, the flood waters found a weak spot in the brick foundation and caused his basement wall to collapse. Despite his past misfortunes, he said the public works crews and village administration have done a good job of addressing sewer repairs.

Cruz's was among many homes on the south side of Shorewood to incur significant flooding damage. The sewer capacity issues near Edgewood Avenue are best illustrated in a YouTube video with college-aged boys walking through 4 to 5 feet of water near the intersection of Oakland and Edgewood avenues.

That area of the village, south of Capitol Drive and east of Oakland Avenue, poses significant challenges because waste water and rain water are channeled through the same combined sewer system. The village is hiring an engineering consultant this year to study the most effective way to manage flows in this area.

Building a completely separated sewer system would cost $35 million and would be the most time-intensive option. Alternatively, for $30 million, village officials could construct a large storm water pipe from Prospect Avenue to the Milwaukee River along Menlo Boulevard, with three smaller collector pipes branching out from Murray, Maryland and Prospect avenues. For $15 million, the village could construct the large storm water pipe on Menlo Boulevard, but drain the water to the pipe through overland drainage systems.

Shorewood village officials are also partnering with Milwaukee officials to reroute sewers and build larger pipes along their shared border on Edgewood Avenue. Shorewood may also create a bioswale at River Park to absorb rain during extreme storms in the future.

Ultimately, the village hopes to protect homes from basement backups in the event that 4 inches of rain falls within an hour.

"The promise of reduced basement backup risks is well on its way," Emir said. "Especially with our effort in the southeast combined area, the end is in sight."