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North Jersey agency proceeds with $100M plan to deal with storm-related sewage overflows

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A tour of the sewer Facility was given by the Passaic Valley Sewerage Commission.

The agency that provides sewage treatment for 27 North Jersey communities along the Passaic River is proceeding with a $100-million project to increase its treatment facility's capacity, aiming to reduce frequent — and health-threatening — flows of raw sewage into rivers during rainstorms.

The Passaic Valley Sewerage Commission, which runs the nation's fifth-largest treatment facility, also has partnered with Rutgers University to promote green

technology in North Jersey municipalities — rain gardens and retention basins, as well as porous pavement and rain barrels — to capture runoff before it invades storm water and sewer systems. Green infrastructure projects also filter and clean water percolating down to recharge groundwater.

Storm-related sewage overflows can cause illnesses such as gastroenteritis — a stomach inflammation that causes vomiting and diarrhea — as well as hepatitis and skin, respiratory and ear infections.

Combined, the treatment facility upgrades and green technology will reduce both pollution in rivers and flooding, which has increased because of impervious surfaces — buildings, roads, parking lots — that cap soil and replace vegetation that naturally absorb runoff.

“It’s not going to do away with flooding, but anything we can do to reduce flooding is important,” said Michael DeFrancisci, the commission’s executive director. DeFrancisci is the former mayor of Little Falls, which has seen significant flooding in recent years.

“The green infrastructure projects can also help municipalities lower the cost of what they’re spending to treat rainwater runoff,” DeFrancisci said.

Storm water pollution

Up to 70 percent of pollution in the region’s rivers and streams is carried there by storm water runoff, said Ashley Slagle, a commission water quality scientist. Such runoff carries not only trash and soda bottles, but fertilizers from lawns, grease and oil dripped from cars onto pavement, copper dust from brake pads, pet waste and whatever people pour down roadway catch basins.

The commission’s Newark facility, which treats sewage for 1.4 million customers in five counties including Bergen and Passaic, is licensed to handle an average daily flow of 330 million gallons, and it can actually accommodate as much as 400 million gallons. The commission plans to increase capacity to 720 million gallons during major storms.

In dry weather, the facility typically processes 225 million gallons a day. During Hurricane Irene in 2011, flow peaked at more than 600 million gallons. The facility could handle 400 million gallons for a short period, but much of the rest flowed into rivers through overflow outlets. Superstorm Sandy knocked out the facility last October,

and billions of gallons of raw or partially treated sewage poured into rivers and bays through those same overflow outlets.

Even without a catastrophe such as Sandy, more than 23 billion gallons of raw sewage and other pollutants are discharged into state waters yearly because many aged sewer systems are overwhelmed by heavy rainfall runoff.

Many communities have separated systems — sewage travels to a treatment facility, while storm water flows into rivers. But some older communities still have combined systems, and when the storm water overwhelms those systems, raw sewage and toxic waste spill from 217 outfall pipes throughout the state.

Repairs unaffordable

Federal law called for such spills to be eliminated by 1985, but the sewage continues to flow because local governments say they can't afford repairs. Ridgefield Park, for instance, says it would require as much as $100 million, and Paterson, which has 26 outfall pipes, would need a project of $1 billion to eliminate those outfalls. By increasing what it's treatment facility can handle during storms, the commission would reduce the overflow of raw sewage from those outfall pipes.

To increase capacity, the commission will need to change the type of weirs and baffles used on secondary settling tanks — tanks where already-filtered sewage water sits to let more small solids settle out, said Bridget McKenna, the commission's chief operating officer.

It also must install new, larger grit-removal equipment. Much of the facility's equipment dates back to the mid-1980s.

In addition, the facility has to install a system that removes chlorine from treated effluent at its backup outfall pipe in Newark Bay so it can use that pipe routinely during rain storms. Currently, nearly all effluent is discharged from a main outfall pipe near the Statue of Liberty in New York Harbor.

The commission would also need new state permits to increase its effluent discharge.

The upgrades will cost more than $100 million, McKenna said.

The commission received a $15-million design grant from the state Department of Environmental Protection, as well as several federal planning grants, McKenna said. The bulk of the project will be covered with low-interest loans from a state revolving loan fund for infrastructure projects.

Meanwhile, green infrastructure projects could reduce runoff volume in storm and sewer systems. This spring, the commission and Christopher Obropta with Rutgers Cooperative Extension will hold meetings in the counties of Bergen and Passaic to educate communities about the benefits of green infrastructure. Rutgers also will develop a website with information on such projects.

Next, they will identify six to eight municipalities best suited to handle green infrastructure demonstration projects. Then the commission and Rutgers will start to implement several of those projects.

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