

Marquette students' green design could catch water on S. 6th St.

By Don Behm
May 31, 2011

One five-block stretch of a south-side street could be transformed into a "green street" and become an urban laboratory for storm-water management practices, under a design proposal from three Marquette University engineering students.

S. 6th St., stretching from Bolivar Ave. south to Armour Ave., would be reconstructed so it could hold rain where it falls and use it in growing trees and flowers and replenishing groundwater.

Paved roads traditionally send rainwater into storm sewers that discharge to creeks, adding to downstream flooding, said Sean Foltz, associate director of the clean water program for American Rivers, a national conservation organization.

A 1-inch rainfall on this section of S. 6th St. would yield 116,000 gallons of storm water, Foltz said. The students' design, incorporating such simple steps as planters for shrubs and flowers between the road and sidewalk, or bioswales that are specially constructed ditches designed to absorb water rather than drain it away, has a much greater capacity for water retention, said Foltz, who acted as a mentor for the students.

Milwaukee Ald. Terry Witkowski said the students' storm-water management practices for this section of street in his district could be installed on any city or suburban road.

Witkowski does not plan to ask for city funds to build the students' proposed design. He expects American Rivers and its local partners - including Southeastern Wisconsin Watersheds Trust, Garden District Neighborhood Association, the Energy Exchange and The Gateway to Milwaukee - to go after grants to pay costs of constructing and maintaining the "green street."

He sees the students' project as one step toward completing a three-mile-long "green corridor" on S. 6th St., all the way from Howard Ave. to College Ave. and the MATC South campus, he said. The alderman plans to ask the Common Council's Public Works Committee to grant the "green corridor" designation at its June 22 meeting.

The corridor plan will be given a boost this summer with the Milwaukee Department of Public Works' planned construction of small bioswales to be scattered along that same three-mile section of S. 6th St. between curbs and sidewalks.

Flood prevention

One goal of the five-block green street project is to reduce storm water into Wilson Park Creek, a narrow stream lined with concrete that flows beneath S. 6th St. south of Armour Ave., Foltz said. The creek is prone to flash floods during heavy rainstorms as it collects water from a south-side neighborhood with more than 80% of its surface area either paved or shingled.

Wilson Park Creek is a tributary of the Kinnickinnic River, so all of that storm water is pushed downstream, adding to the risk of flooding crowded neighborhoods from S. 27th St. to S. 6th St., as the river pushes toward the Milwaukee harbor.

Student engineer Paige Peters said her team exceeded its goals by piecing together a design of water-absorbing swales, planters and porous paving blocks that prevent rain from draining to storm sewers.

"This keeps it all in the ground," she said of the proposal.

Similar bioswales will be constructed along large paved parking lots at a nearby Islamic Society of Milwaukee community center and school in the 800 block of W. Layton Ave., Foltz said. Tens of thousands of gallons of water in a rainstorm flow off the pavement, eroding adjacent soil as it rushes into storm sewers that empty the load into Wilson Park Creek.

Peters and her teammates, Klarissa Keadle and Kyle Hill, completed the S. 6th St. project for a design course required of all senior-year civil and environmental engineering students. Each graduated earlier this month and attained the status of engineer-in-training.

Kate Morgan, water policy director for 1,000 Friends of Wisconsin, asked Clifford Crandall, an associate professor of engineering at Marquette, whether senior students might be interested in participating in her group's student design challenge for storm water best management practices.

The Southeastern Wisconsin Watersheds Trust was seeking designs for projects that could be built either in the Kinnickinnic or Menomonee River watersheds and help improve water quality in those urban streams. The challenge was a good fit for the semester-long course, and the green street team joined 22 other teams with assigned projects, Crandall said.

Bryan Simon, owner of Simon Landscaping on S. 6th St. near Howard Ave., has built several storm-water management practices at his business, such as porous pavement that allows rain to drop into cracks between blocks and bioswales. He topped it all off with a green roof on the building that is covered with water-absorbing plants.

Simon said his property is water-neutral. "All the water that falls here, stays on the site," he said.

Witkowski describes Simon as a "missionary" for such green practices.

After 25 years in the landscaping business, one of the benefits of holding rainwater in place is lower cost of maintaining lawns and gardens, according to Simon.

In the past, landscape designers came up with plans for shedding water from sites, so that it didn't soak into the soil. Then the property owners bought water for lawns, trees and gardens, he said.

Rain should stay where it falls, seeping into the ground and watering roots of trees, grasses and shrubs, rather than being discarded, said Simon, a member of the Garden District Neighborhood Association.

As the rainwater moves down through soil, it also helps replenish local groundwater resources, he said.