A main theme that came out of my reporting on reusing treated wastewater was that it can be expensive to both meet health standards and build a new distribution system for it. But one way to re-use water without building a new set of pipes all over the Twin Cities is to think small and local.

So the University of Minnesota now has stormwater toilets in its new 17th Avenue Residence Hall.

Right now we use water that’s treated to drinking water standards for everything — flushing toilets, washing clothes, watering our lawns. About 65 billion gallons of that drinking water is used once, treated and discharged into the Mississippi River at the state’s largest wastewater treatment plant in St. Paul each year. As water planners think harder about using water treated to lesser standards where it’s appropriate, home rain barrels are becoming more popular, and now some more sophisticated technology at golf courses and parks is capturing stormwater to reuse for irrigation.

At the university, a new source of water for 200 toilets and 600 students is less than a year old but “working better than even we expected it to,” said Cathy Abene, the university’s principal civil engineer.

The system collects stormwater from the roof of the new student housing at 17th Avenue and University Avenue SE in Minneapolis, and a cistern can hold up to 35,000 gallons of water to serve the building.

During dry spells and winter months, the toilet system is supplemented with regular potable water. But Abene said even during those frigid “polar vortex” days last winter, the cistern was still getting water from melted snow.

“The roof was up high enough in the sun to get enough melt into the system,” she said. “We were surprised by that.”

University officials are still crunching the data to find out how much water the system has provided, but Abene said it’s possible university officials will pursue similar technology for other new construction.

And while the system conserves drinking water, that wasn’t the primary driver for the project. It was the state’s stormwater rules, which require new development to capture a portion of their stormwater to reduce runoff into the state’s lakes and rivers.
Abene says the university is now looking at ways to reuse stormwater for building cooling systems. And while stormwater regulations are the primary motivation, she said water conservation is becoming more important in Minnesota.

“We have so much water and everybody values the water we have, but we have lagged on conservation,” she said. “More of these sorts of systems emerging. It’s pretty exciting because it will put us ahead of a lot of places.”