



Local News

Purifying pavement

Roads, parking lots and storm sewers affect water quality and cause silt buildup. The solution? Permeable surfaces, which let H2O filter through the natural way. All those parking lots, roads and storm sewers pose threats to bodies of wa

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By WILLIAM F. AST III - H-P Staff Writer

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BERRIEN SPRINGS - From the 1950s through the 1970s, developers built subdivision roads with no curbs or gutters, Lincoln Township Supervisor Dick Stauffer said at a workshop last week.

"Then we got civilized" and built curbs and gutters that directed storm water into storm sewers, Stauffer said. He paused, then added, "Maybe we should take a step back."

"Everything that happens on land can affect water quality," including the way we handle storm water, said Marcy Colclough. She is senior planner for the Southwestern Michigan Planning Commission, which sponsored Tuesday's Transportation & Environment Workshop at Andrews University.

People used to think storm water should be moved off site and into storm sewers as quickly as possible, Colclough told some 45 people at the workshop.

But that results in problems, Colclough continued. The water may be contaminated and filled with silt, and that means pollutants and silt are getting directly into rivers and into Lake Michigan. And a heavy runoff - increasingly likely as severe storms become more frequent - is likely to cause erosion to roads and drains, she said.

It's better to work with nature and handle storm water the way nature intended, Colclough said - "Slow it down, spread it out, soak it in."

Not useless after all

It turns out that all those wetlands once thought useless were very useful after all, Colclough said. They stored storm water and that controlled floods, and they filtered pollutants and contaminants out of the water, she said.

But half of America's wetlands have been lost to development, Colclough said. Along with that, there has been a lot of construction of roads and parking lots in the United States and in Southwest Michigan, which along with wetlands loss has made the storm runoff problem much worse, she said.

"It's absolutely mind-boggling how much car habitat we have in the United States," Colclough said.

When the amount of "impermeable cover" in a watershed reaches 10 percent, that hurts the quality of streams, Colclough said. When the proportion reaches 30 percent, streams become "degraded," she said.

The stakes are high, because good water quality is crucial to the economic well being of Southwest Michigan, Colclough said.

"I don't know about you guys, but I'm living in Southwest Michigan because of the water resources we have," Colclough said.

Kimberly Majerus of the Federal Highway Administration told the people attending the workshop that low-impact development means avoiding conflict with ancient forces.

"When we come in with earth movers, we are reshaping land that developed over geological time," Majerus said. "How can we make these natural systems work for us in transportation so we don't have flooding?"

Flooding is a serious problem for many reasons, including its impact on fish when cold-water streams are warmed up by runoff, Majerus said.

Solutions: Permeable lots, rain gardens

There are a number of ways to solve the problem, according to Chris Wall and Wendy Ogilvie of Fishbeck, Thompson, Carr & Huber in Grand Rapids.

Wall, a civil engineer, said one way is changing hard surfaces into "green spaces that capture water."

Ogilvie, an environmental planner, said there are now permeable surfaces for roads and parking lots that allow water to be absorbed into the soil underneath them.

Those surfaces won't solve all problems, "but if we don't start somewhere, we'll never solve them," Ogilvie said.

Wall said the permeable surfaces start with a layer of sand, then a layer of stones that allow water to drain into the sand.

The surface is hard, but it allows water to run through it into the stones.

Ogilvie said Ann Arbor has transformed its Sylvan Avenue into such a street. Grand Valley State University has a number of permeable-surfaced parking lots and has had great success with them, she said.

As far as maintenance goes, the permeable surfaces need to be vacuumed rather than swept and require plowing in the winter but no road salt as the surface remains warmer than nonporous surfaces, Ogilvie said.

The question of how well the surfaces hold up has been answered, Ogilvie said.

Grand Valley recently had to remove a permeable-surfaced parking lot for construction of a new library building, Ogilvie said.

Engineers checked out the lot and found its "performance was as good as the day it was put down, five years later," she said.

Ogilvie said rain gardens are another solution to runoff. Those are areas along roads with plants and soil areas that absorb water.

Colclough said there are other measures that can be taken.

Swales can be built along roads as well. Swales are shallow ditches that absorb storm water.

In the Benton Harbor Arts District, there are now green areas of plants - "vegetated sites," - that absorb storm water, Colclough said.

A question of money

The permeable roads and parking lots are more expensive to install than traditional surfaces.

Colclough acknowledged that solving the runoff problems will cost money, but the runoff is causing problems up to and including the dredging work necessary in the St. Joseph River Harbor.

More sediment in streams results in more buildup in the river, she said.

"The port brings in a lot of money for our economy," Colclough said.

"We're going to pay later, if we don't pay now."

Putting it into practice

Among those in attendance on Tuesday was Brian Berndt, engineer-manager of the Berrien County Road Commission.

Talking after the workshop, Berndt said the permeable surfaces are a great idea.

However, he said, "I have to find out more about the freeze-thaw cycle" and how it affects the surfaces. Also, the county's roads would have to be rebuilt "from the earth up" to accommodate the stone matrix the roads require, he said.

The permeable surfaces would not work well in some areas of the county where there's a lot of clay, Berndt said.

Clay prevents water from being absorbed into the soil.

As far as diverting storm water off road surfaces onto a roadside swale, the problem is that property owners don't like the swales so they tend to slowly fill them in, Berndt said. "That's one of the reasons we went to the new standards for subdivision streets," he said.

Still, Berndt said the ideas presented at the workshop were well worth considering and are likely to become more workable as time goes by.

"We need to be smart in everything we do, every moment of the day," Berndt said. "And protecting the water of this state is very important."

A growing interest

Attendance at the workshop was heavier than expected, causing organizers to scramble to come up with enough handouts for everyone. Those in attendance included officials from road commissions, townships, villages, the Pokagon Band, the Southwest Michigan Regional Airport, planning organizations and citizens.

"A lot of people came who didn't RSVP, but that's a good thing, in my opinion," Colclough said.

"It shows the interest people have in the water resources in our area and how important it is to our quality of life and our livelihood."

Colclough said she's been working on water quality issues for about 12 years, and she sees interest increasing.

"Water is the one subject that will always bring people out," Colclough said. "It's something that everybody can connect with. When you talk about something like biodiversity, people say, 'That's not important,' or 'I don't get it.' But when you walk about water, well, people drink water, and we have all our lakes and Lake Michigan. Nobody can say, 'I want dirty water.'"

wast@TheH-P.com