

**County officials tout eco-friendly stormwater fix**

**County officials seek to change developers' hearts and minds as they tout eco-friendly stormwater fix**

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Ever since Anne Arundel County was colonized, its dense forest has been cut to build homes, businesses, roads, farms, and other necessities of civilized life.

Until the 1980s there were no rules governing how rainwater normally absorbed by trees and spongy forest soils should be handled as it ran off roofs and roads into local waterways. The new rules required ponds to capture and hold the rush of stormwater before draining downstream.

But that proscription has caused further damage: Rushing waters pouring out of engineered pipes, called outfalls, have gouged creek beds and carried pollutant-laden, stream-choking sediments downstream.

Last week the county took a first step to change that mind-set.

New techniques, mimicking the forest's absorption, have been shown to work, and county regulators are pushing their use. But the challenge is changing the culture among engineers, who are trained to design systems that collect rainwater in ponds and convey it away in a pipe.

At a series of seminars, followed by "before and after" tours illustrating the problem and touting new solutions, county officials asked engineers, developers and planning officials to take a "leap of faith" with them and start using the more bay-friendly designs.

Instead of running a pipe from ponds to headwaters, Keith Underwood, president of Underwood and Associates, has developed "coastal plain outfalls," using native materials, sand stone and vegetation. Designed for the county, the new method creates a series of descending catch pools, constructed of rock and stone set on a thick base of sand and planted with native vegetation.

Each pool collects rainwater coming off a site. Small amounts of water are absorbed by the underlying sand. Heavier rains fill one pond then the next in descending order, absorbing the energy that would normally flush through piping and plunge downstream.

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"We not only get safe conveyance of stormwater, but water quality improvement too," Public Works Director Ron Bowen told some 80 industry and government officials gathered Thursday at Arlington Echo, the county

school outdoor education center on the banks of the Severn River.

Facing more than \$500 million in repairs to damaged county waterways to meet federal pollution standards, officials are looking at the long-term benefits on top of the immediate results of the new method.

"These systems maintain themselves," said Merrill Plait, the chief environmental engineer at the county Department of Public Works told those gathered.

"They will save us from having to come back and repair damage downstream years down the road."

The seminars attracted engineers, developers and government planners from five Maryland counties, the federal government and four other states.

The right track

"They are driving in the right direction," said civil engineer Dave Hursch of J. A. Chisolm PE, LLC, which designs residential and commercial projects.

"We have to look at natural ways to clean up water outfalls. In the long term they will have to make it worthwhile."

He and others recognized the unlearning curve for industry to come to accept the new thinking.

"People say we should get creative with stormwater solutions," he said. "But engineers and creativity don't usually fit in the same sentence. We are taught to be precise and accurate."

Engineers and developers also learn to provide county planners what they want to get required permits - what has passed before will pass again.

Bruce Oxley, Maryland director of land development for Toll Brothers, one of the major nationwide developer-builders, said the new techniques looked promising after the seminar.

"It's a good concept," he said. "We all live around the Chesapeake because we enjoy the amenities. We need to come up with innovative ideas to help preserve (those) resources."

He said the development community is always wary of new regulations because they usually mean a longer approval process or more costs.

So far the county results are promising, with about 10 projects, a combination of smaller outfalls and larger stream-restoration projects using the same techniques.

But some developers are wondering about the costs and are looking for some incentives. The county is prepared to do just that. First thing is to push the new approach.

"It is not required, but it is the preferred methodology in Anne Arundel County," Mr. Plait told the audience. "We will also expedite the permit process for these applications."

The state Department of the Environment granted the county permission to use the new methods. Next, officials are hoping the department officials recognizes the technique as one of its recommended "best-management practices."

With that designation local jurisdictions would be able to grant developers a "credit" for using the method. In a proposed plan, that would translate to less requirements for stormwater storage.

"If we can use these techniques to (aid) water quality and quantity, why can't we get credit for it," Mr. Plait said.

Ready to go

"The more people who know about it, the more will get done," Mr. Plait said. "The more that get done, the better off we will be."

One thing that worries Mr. Underwood - for whom some say the technique should be named - is that success could spoil the works. He frets that the precise, though simple, techniques required to build the structures won't be followed closely enough.

"That is all we need," he said. "We gave people enough information at the seminar to be dangerous. All we need is a failed implementation and people will say coastal plain outfalls don't work."

That is why seminar participants were urged to attend a follow-up workshop on Feb. 5 to learn the engineering methodology - the specs to build with nature rather than against it.

Workshop participant Tom Anton, an engineering designer with Ronald W. Johnson Associates Inc. in Annapolis, said the state and county have come a long way with stormwater techniques.

"This is the next step toward cleaning up the creeks," he said.