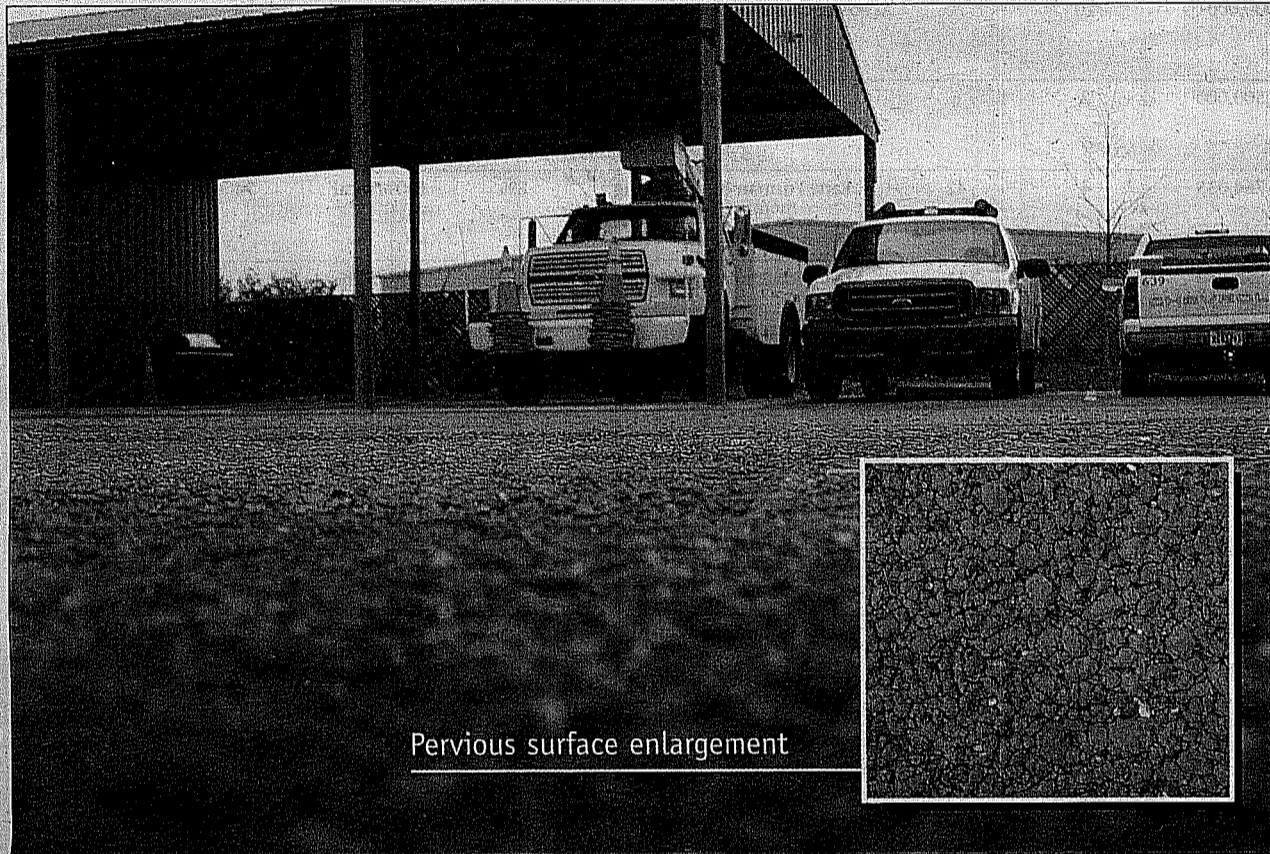


# Technology trickles down to Upstate pavement



Pervious surface enlargement

The city of Greenville is experimenting with pervious concrete at several locations, including its traffic engineering office. The surface allows water to drain through instead of running off.

referring to the sociological and political leanings (red-Republican, blue-Democrat) of particular states. "You can see blue states are embracing it and similar technology more than red states. Some of the exceptions are Georgia and Florida."

Bill Arent, executive director of the Charlotte-based Carolinas Ready Mixed Concrete Association, says there are 50-100 pervious concrete projects under way or in planning stages in the Carolinas.

"If a developer can take the space that they would ordinarily use for a detention pond and build a McDonald's there instead, that's more money for them," he says.

Dr. Liv Haselbach, associate professor of civil and environmental engineering at the University of South Carolina, says the city of Greenville is a forerunner in the state when it comes to pervious concrete.

Greenville started exploring the use of pervious concrete in 2005 when a test pad was poured in Cleveland Park. Haselbach's research team has taken core samples for analysis and testing of infiltration rates from that site and from a 4,000-square-foot pervious concrete parking lot at the city's traffic engineering office.

The city has since used pervious concrete at two fire stations.

Brian Watson, assistant director of Greenville's public works department, says many city officials were reluctant to use pervious concrete. That was before a team of city engineers attended a seminar in Tennessee on its use.

"When we came back, we were sold," Watson says.

Arent says pervious concrete's cost is about 15-20 percent higher than traditional concrete, depending on the market. Watson says he has seen costs per square yard that were 30 percent higher.

"Land in Greenville is becoming a premium, so we've been very proactive," Watson says. "Perhaps, down the road, the city will be able to offer incentives for developers to use it. We have so much construction going on, I would hope that a lot of them would use it for large parking space."

Mark Ashmore, president of Greer-based paving contractor Ashmore Brothers Inc., says new types of asphalt materials and procedures are able to provide effects similar to pervious concrete.

He says that by building parking lots on washed stone and pouring hot-mix porous asphalt on top, water is able to filter through the asphalt and down to pipe, which then drains out the excess storm water runoff.

This process, as with pervious concrete, controls runoff and cleans the water. But it can be expensive as well.

"If you're in an area like Woodruff Road, you can justify doing this a lot more because there's not much space there anymore," Ashmore says. "Using this method to build your parking lot puts your detention area underground and saves you from building a pond."

Haselbach says continued research on new construction materials and methods are necessary, but pervious concrete has a bright future.

"From a science standpoint, things are really starting to take off on it," she says. "Pervious concrete is by far the most promising product right now. I think in 10 years, it will be an everyday term."

Ashmore says that as land availability goes down and land costs go up, pervious materials will become even more attractive. ☐

## Pervious surfaces help prevent runoff, flash flooding

BRIAN FULKERSON, CONTRIBUTING WRITER

City planners of yesteryear knew that rainwater didn't mix with concrete and asphalt. Now, they're learning a different story, as a material that has been around since post-World War II is starting to catch on nationally.

Pervious concrete helps keep storm water in check and optimize future development.

"We're seeing a tremendous interest nationwide for the product," says Dan Huffman, managing director of national resources for the National Ready Mixed Concrete Association. "Pervious concrete limits your runoff to virtually zero and your water is filtered as it goes through also."

The structure of pervious concrete allows water to filter down through it and be cleaned before it passes into the underlying soil. Studies have shown that pervious concrete reduces untreated storm water runoff and minimizes flash flooding and standing water by allowing 3-8 gallons of water per minute to pass through each square foot.

Jason Von Driesche, director of the clean air and water program for Upstate Forever, a local environmental watchdog, says that with the amount of development the Upstate is seeing, effective storm water management needs to be taken into consideration. He says the traditional method has been to direct storm water into a storm drain and place a detention pond onsite.

"The downside is you end up with a big, ugly pond, which all developers complain about," he says. "Plus, constructing a 1-to-3-acre detention basin is expensive."

Les Pritchard, vice-president of Roebuck Buildings Co. in Spartanburg County, says erosion and storm water control is taking on a new importance.

"Obviously, some erosion control materials are better than they used to be," Pritchard says.

Huffman says pervious concrete and the aggregate below act as an underground detention system. When applied correctly, pervious concrete filters about 80 percent of pollutants before it hits the substrate below it.

Pervious concrete complies with federal Phase II storm water regulations. Phase II requires some urban areas to develop a management method to keep storm water from leaving any site larger than one acre.

"It really wasn't until Phase II went into effect that we started pushing pervious concrete," Huffman says.

Von Driesche says he feels it will take a change of mindset.

"Pavement is great, but we have too much of it," he says. "When you compare the Upstate to other regions, we're at the middle of the road to slightly trailing. There are a lot of other places that have grasped this paradigm and started to run with it faster."

Huffman says getting the word out about the material and getting people to use it has been a challenge.

"It seems to be a red state, blue state thing," he says,

Photos by Richard Breen