

What once was old is new again

By Mickey Shields

If you look close enough, in some cities you can still see a few old brick roads. While these roads are often symbols of the past, some cities are finding that brick roads are a sign of the future. A neighborhood in Charles City was once prone to significant standing water on streets and sidewalks after rainfalls. However, with thoughtful planning and consideration by city leaders, the residents in that part of town now have streets that are the envy of their neighbors.

Permeable paving, often called brick or cobblestone, is quickly becoming a sound alternative for cities when considering their options for a street and storm water management project. Aesthetically pleasing, this type of paving can help lower the amount of rain water runoff, reduce flooding and ponding after heavy rainfalls, and lead to water quality improvements. While construction costs are usually higher than conventional streets that use concrete or asphalt material, permeable paving systems last much longer and require less maintenance, which reduces the long term costs. In addition, these systems allow for easier access to underground pipes and utility lines that need maintenance or replacement.

In 2008, city officials from Charles City attended the Iowa Downtown Summit and learned of alternative solutions to storm water management. As it turned out, this began the process of the city using permeable paving for a major street project in their community. The city had a historic neighborhood that was suffering from poor roads and a storm water system that was undersized or missing in much of the area. As a result, the neighborhood would have significant ponding after rain events. To rectify these issues, the city knew it needed to replace the streets and figure out a way to deal with the storm water.

"We knew our old way of handling storm water – getting it into pipes and off to the river as fast as we can – was flawed," explained Tom Brownlow, City Administrator of Charles City. City officials felt that "going green" and looking at alternative solutions was in the city's best interest and began work on a design that included permeable pavers.

One of the key aspects of permeable pavers is the flow of
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water. These systems are constructed with interlocking paver units that contain openings filled with gravel or rock chips. Rain water flows through the openings and infiltrates the ground, which helps recharge aquifers. As the water moves through several feet of sand, soil and rock, biological organisms neutralize and decompose common pollutants found on streets such as oil, gasoline and antifreeze. The system reduces the amount of water that must go into the storm sewer system and helps clean the water that reaches the aquifers.

Brownlow feels the new streets and storm water system have worked better than expected. "The way rain water disappears from the area has been nothing short of amazing," he said.

The neighborhood's residents have also noticed the improvements and are very pleased with the project. In the past, one resident's property would have several "mosquito ponds" after a storm came through. That is no longer a problem and the city has also received numerous comments on how nice the paving looks. In fact, citizens from other neighborhoods have said they wish the city would do a similar project in their part of town.

As with any major city project, the city had to closely analyze the costs of their options. Permeable paving projects typically have a greater cost than conventional paving. In Charles City, the city weighed the costs of doing a conventional street reconstruction with storm water main installation against the permeable paving system. They estimated that the cost of the permeable paving option was about 20 percent more than a conventional project. While permeable paving can offer a longer life span, lower lifetime maintenance costs and improved water quality, the higher price tag gave the city pause.

"Despite the longer estimated life and the environmental benefits, it is still tough to commit to that additional expense," Brownlow said. Fortunately, the city found help. Charles City was able to obtain federal grant money through the American Recovery and Reinvestment Act which paid for 20 percent of the project costs. The state I-JOBS fund also granted \$100,000 to the city for the project. In the end, the city saved money and got the project they wanted.



A neighborhood in Charles City suffered from poor roads and storm water drainage problems before the city installed permeable pavers.

While permeable pavers have some obvious benefits, it might not always be the best option when a city is preparing for a street project. The cost is typically higher and sometimes conventional street construction is needed depending on the type of project. However, when a city is undergoing a street construction (or reconstruction) and storm water system installation, permeable pavers could be considered. These roads can reduce the amount of rain water entering the city's storm water system, improve water quality and provide a pleasing look to a neighborhood. The next time you see a street lined with bricks, you may be looking at a new road.

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