



CITY OF HARRISONBURG PUBLIC WORKS

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City wins 2021 Gold Medal Governor's Environmental Excellence Award

HARRISONBURG, Va. – The Harrisonburg Public Works Department is being honored across the state this week for a project that you've likely never even noticed while out enjoying Purcell Park.

The Purcell Park Bioreactor Project has been named a recipient of the 2021 Gold Medal Governor's Environmental Excellence Award. The Virginia Department of Environmental Quality award recognizes significant contributions in the areas of environmental and conservation efforts.

Installation Aug 2019



(Above) A collage of photos showing the installation of the Purcell Park Bioreactor Project.

The Purcell Park Bioreactor doesn't look like much – in fact, unless you know what you are looking for, you may not even notice it.

And that is by design.

The bioreactor – the first of its kind on the East Coast – was built so the action takes place below the surface, removing nitrogen from the water as it flows from Blacks Run toward the Chesapeake Bay. Historically, cleaning nitrogen from the waterways has been very expensive, ranging between \$2,000 to \$13,000 per pound of nitrogen. The Purcell Park Bioreactor project costs \$7 to \$10 per pound of nitrogen, providing a significant savings to Harrisonburg citizens, on top of the environmental benefits.

This bioreactor project is one of the most cost-effective Best Management Practices (BMPs) discovered for nitrogen, as well as one of the least intrusive of the BMPs. Other methods, such as bioretention ponds, take up a significant amount of land space and make that space unusable for any other purpose. The Purcell Park

Bioreactor is working hard, underground, where it has little impact on the activities going on the ground above it, such as picnics by the pond, one-year-old photo shoots, games of tag, and frisbee with the dog.

The City of Harrisonburg partnered with nonprofit Ridge to Reefs to install the woodchip bioreactor with funding from a National Fish and Wildlife Foundation grant. Ash trees removed from Westover Park due to emerald ash borer damage were turned into woodchips for the project.

Woodchip bioreactors are designed to mimic wetlands and convert nitrate-nitrogen in the water to harmless nitrogen gas (that makes up 78 percent of the air we breathe). Water is diverted through a large pit filled with woodchips. The woodchips act as a media for bacteria to grow and denitrify the water. The pit is capped and covered with soil and grass, allowing it to blend into the landscape. The Purcell Park Bioreactor removes about 98 percent of the nitrate that enters.

Nitrogen is a source of pollution in surface waters of Virginia and the Chesapeake Bay Watershed. Excessive nitrogen causes large algae blooms in river and streams. When algae blooms die, they decompose, which decreases oxygen levels in rivers and can cause fish kills. The City of Harrisonburg is required to reduce nitrogen levels as a part of the Municipal Separate Storm Sewer System (MS4) permit.

“I have been really excited about this project from start to finish, and the fact that we won such a prestigious award gives me hope that many more bioreactors will be able to be used throughout the Chesapeake Bay watershed,” Wes Runion, environmental specialist for Harrisonburg Public Works, said. “Not only is this project benefiting water quality in our local Blacks Run, but it is ultimately improving the Chesapeake Bay.”

Find more information about this year’s award recipients at [DEQ](#).

***The City of Harrisonburg** is centrally located in the Shenandoah Valley of Virginia. It is home to approximately 54,000 people. More information about the City of Harrisonburg is available online at www.HarrisonburgVA.gov. You can also follow Harrisonburg Public Works on [Facebook](#).*

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