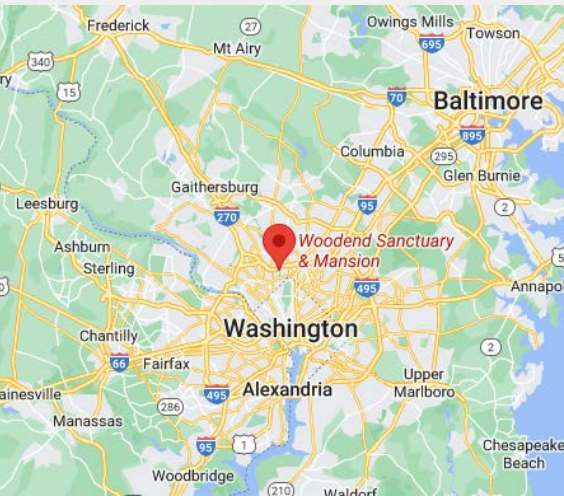




GREEN STREETS | GREEN JOBS | GREEN TOWNS INITIATIVE

The Green Streets, Green Jobs, Green Towns Partnership (G3) aims to stimulate the green jobs market and enable families to work where they live and play. Small to mid-sized communities can boost their local economies and protect water resources through the use of watershed planning, design and construction of stormwater best management practices.



AUDUBON NATURALIST SOCIETY

Stormwater Pavers at Woodend Sanctuary

Through this project, Audubon Naturalist Society (ANS) implemented stormwater paving for two key parking lots at their headquarters at the 40-acre Woodend Nature Sanctuary. The Woodend mansion sits at the highest elevation of the property in an area dominated by impervious roofs and pavement. Replacing the asphalt of these parking lots at the top of the watershed with permeable pavers completed a series of green infrastructure-based stormwater practices that reduce runoff and pollution to Rock Creek.

stormwater management design for the top of Woodend's treatment train.

The Stormwater Pavers project readily illustrates effective stormwater treatment for parking areas to the 60,000 people who visit each year. New wheelchair accessible walkways and garden beds were installed alongside the permeable paver projects, creating an inviting corridor of stormwater management demonstration. The opportunity to divert overflow from a problematic subdrainage was also a tremendous achievement. The flooding of neighbor yards that resulted from the past decisions of Woodend's architect and the developer of the suburban neighborhood is typical of many situations in the region. The permeable pavers are now part of a diverse treatment train that will demonstrate possible solutions to such complex problems.

The project works in concert with existing treatment elements of two large rain gardens, redirected downspouts and driveway trench drains. Any overflow from the inlets during larger storm events is directed toward a bioretention area. In 2015, the Center for Watershed Protection prepared a comprehensive stormwater analysis with concept plans to help meet ANS' goal of 100% stormwater treatment at Woodend. In December of 2018, ANS received a Trust Montgomery County Watershed Restoration Grant to complete the



7 workshops with 90 attendees



4 local green jobs supported during construction



6,800 sq. ft. pervious surface installed



6,800 sq. ft. impervious surface removed



PROJECT ELEMENTS

- **Impervious pavement removal** – Rain hits impervious surfaces such as parking lots and roads, and because it cannot soak through, it instead runs off into storm drains or directly local waterways.
- **Pervious paving** – This alternative to traditional black top allows surface water to flow into the ground where the volume can be held, infiltrate into the lower soil or conveyed through a stormwater system. Pervious paving is a good application for areas that require a hardscape surface and have no viable options for stormwater management.
- **Green jobs and engagement of local businesses**– Local survey, and engineering firms, and suppliers were used to complete the project, supporting local jobs.



SUSTAINABILITY & GROWTH

The permeable paver parking areas at Woodend serve as demonstrations to thousands of people annually who visit the site. At the time of project completion, ANS worked with the Gecko Group on a comprehensive interpretive plan for the nature sanctuary. Permeable pavers as a stormwater solution will be included in passive and active interpretation strategies.

Maintenance will include removing leaves and debris from the parking surface multiple times weekly with a leaf blower, as well as vacuuming the surface twice annually. ANS will also work with downstream neighbors to assess the reduction in flooding frequency and intensity achieved by the project.

Audubon Naturalist Society requested permission from the Montgomery County Board of Appeals for an additional parking area to serve a planned nature play space. That area would be a permeable gravel pave surface, rather than pavers. They will maintain the permeable parking areas with staff and funds included in their property management budget. Information about permeable pavers will be included in Woodend tours of restoration and stormwater management demonstration projects.

The project treats 8000 sq. ft. of impervious surface to be credited toward Montgomery County's MS4 permit requirements. This project serves as a compelling demonstration for the county's Rainscapes rebate program.

Year Awarded: 2019
Award Amount: \$68,067
Match Amount: \$45,572



Storm event runoff in the Audubon Naturalist Shop parking lot



West parking lot near the main entrance door during a rain event

Project installation



Project Partners: Audubon Naturalist Society, Chesapeake Bay Trust, U.S. Environmental Protection Agency

For additional information: visit epa.gov and cbtrust.org