

# Better for the Bay

## A Maintenance-Free Green Street



### Quick Information

Intersection of 40th Avenue and Newark Road

**Owner:** Town of Colmar Manor, Maryland  
**Engineer:** Adtek Engineering  
**Manufacturer & Distributor:** Ernest Maier  
**Sensor:** P4 Infrastructure-INFIL-Tracker

**Installation Contractor:** Capitol Hardscapes  
**Application:** Roadway Intersection  
**PaveDrain Quantity:** 2,350 Square Feet  
**Cost of System:** \$107,000 (including design and construction)

### System Performance<sup>1</sup>

	Expected	Actual	Improvement
Peak Infiltration Rate (in/hr)	0.18	5.34	2867 %
48h Infiltration Rate (in/hr)	0.18	0.99	450 %
Drainage Area (sf)	8705 (2.7 to 1)	9400 (3 to 1)	8 %
Annual Cleanings	4-8	0	100 %
ESD Volume (cf <sup>3</sup> )	376	1504	300 %

## 2+ Years No Maintenance

An asphalt traffic intersection in Colmar Manor, MD was replaced with PaveDrain heavy-duty permeable pavement, along with an in-situ water level sensor for performance monitoring. This project was undertaken to address the frequent stormwater challenges in the Town of Colmar Manor in Prince George's County, Maryland. Colmar Manor is one of the Anacostia River's Historic Port Towns. Many of these communities are low-income neighborhoods, and the implementation of this BMP represents restorative environmental justice. As a low-lying area with a high degree of impervious cover it is frequently challenged by poor drainage and pluvial flooding.

In the two years since it was installed the system is functioning as a roadway and stormwater BMP without maintenance, representing a commitment to environmental justice in this economically disadvantaged neighborhood. Furthermore, the use of sensors has documented stormwater performance well in excess of expected, suitable for crediting towards - giving extra credit towards - local stormwater compliance.

Completed site 2021



Completed site during rain 2022



<sup>1</sup>University of Maryland Study (2023)

# ★ ★ ★ BEST ★ ★ ★ ULTRA-URBAN BMP FINALIST

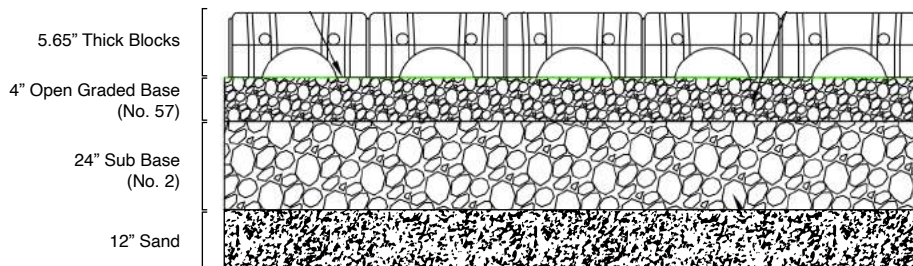
**This system delivered significant ROI, reducing stormwater compliance costs borne by the Town, without requiring maintenance in the existing public right-of-way.**

### PaveDrain's Environmental Value<sup>2</sup>

	Amount	Value
Total Nitrogen (annual)	3.28 lbs	\$ 5,141
Total Phosphorus (annual)	0.36 lbs	\$ 3,740
Total Suspended Solids (annual)	0.09 tons	\$ 3,600
<b>Total (annual)</b>		<b>\$ 12,481</b>
Simple Environmental Payback Period		8.57 Years

- 2 years worth of storms; Never more than 50% full
- Biggest 1-day storm handled: 2.41 in. (August 5, 2022)
- Ability to handle 5.50 in/day (1 in 11.4 years; 90-percentile value)

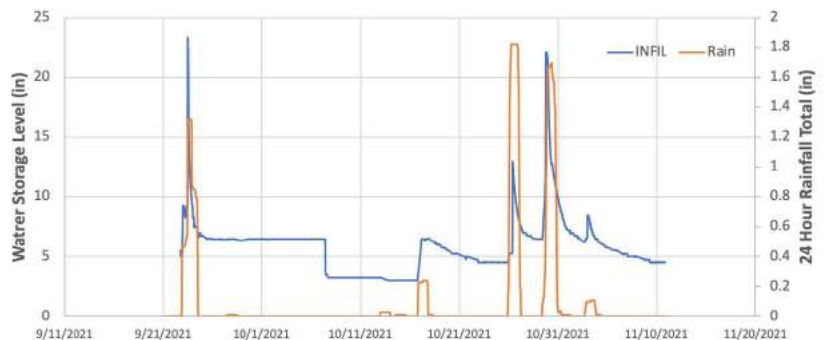
*Placement of PaveDrain system including mid-drain (converted hydraulically to overdrain with standpipe)*



*Placement of PaveDrain surface*



**Rainfall and Water Level Fall 2021**



#### Ready for the Next Event

*The sensor shows the water is quickly captured in the PaveDrain base, and is almost fully infiltrated within 24 hours.*

<sup>2</sup>Values based on Model 5.3.2 of 2014 MDE Guidance for NPDES Stormwater Permits. TN and TP values from Wainger et al 2023. SS value of \$20/lb was sourced from indexing to 2023\$ Lemon Bay Watershed Management Plan (2010)