WATER QUALITY & FLOOD MITIGATION

CASE STUDY | HOWARD COUNTY, MD

BACKGROUND

Located in the Chesapeake Bay watershed, Howard County's Municipal Separate Storm Sewer System (MS4) permit places stringent requirements on municipalities to reduce stormwater pollution into local waterways and the Bay. In addition to water quality challenges, the community of Ellicott City has experienced intense flooding in recent years. As a part of the Clean Water Howard initiative, the County implemented Opti technology at two existing stormwater ponds in order to improve water quality and mitigate peak flows during flood events.

Monitoring and control devices connect to Opti's cloud-based platform for smart active management

CHALLENGE

In 2016 and 2018, extreme thunderstorms caused catastrophic flooding in Ellicott City, wreaking havoc on portions of Main Street. These events prompted urgent action from the County to mitigate flood risk.

In addition to flooding, Howard County was tasked with treating stormwater runoff from approximately 2,000 acres of impervious surfaces by the end of 2019, and complying with future stormwater targets in the next cycle of their MS4 permit.

RESULTS & BENEFITS

ECONOMICAL

70% Savings

$15,000 vs. $50,000 per acre

RESILIENT

90% Peak Flow Reduction

Average annual performance

PEACE OF MIND

Safety & Compliance

Achieve MS4 and Flood Mitigation goals with remote operations

> "We are harnessing technology to meet water quality and quantity goals."

Lindsay DeMarzo
Stormwater Programs Manager,
Howard County Government

SOLUTION

Opti technology was implemented in 2018 at two existing stormwater ponds in Howard County, located on both commercial and public property. The system's software predicts and responds to the weather forecast, enabling it to maximize storage capacity and retention time in each pond. Opti software controls the outlet structures of the ponds, enabling it to draw down volume ahead of wet weather, mitigate peak flows during storms, and retain water for up to two days after a storm.

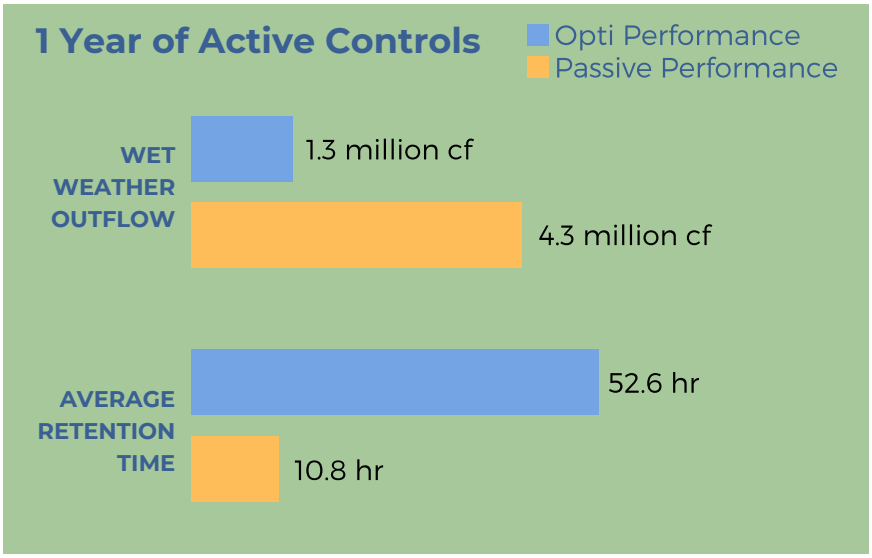
Opti
Optimizing Stormwater Management

PERFORMANCE

Opti technology increased wet weather capture and retention time, mitigating the impacts of downstream flooding.

In addition to flood mitigation, Opti provided $14,000/yr in cost savings to landowners paying Watershed Protection Fees, and delivered an additional 19.4 acres of water quality credits towards Howard County's MS4 permit.

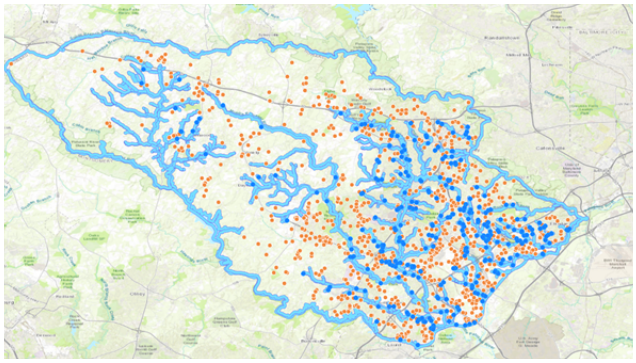
Based on one year of data, Opti's active control system outperformed traditional passive management by 2.3-3.9X.



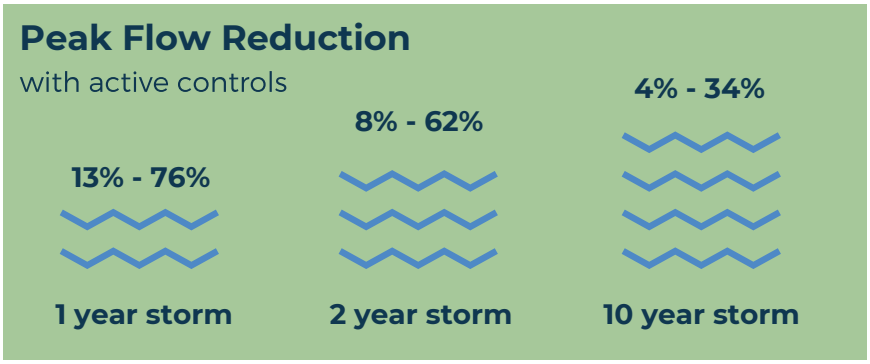
Opti delivered 2.3X more stormwater runoff capture and nearly 3.9X more average retention time

WATERSHED FLOOD ASSESSMENT

After a year of adaptive management at the two Ellicott City ponds, Opti performed an assessment for Howard County. Maryland Department of Natural Resources (DNR) provided support for the project through the Chesapeake Bay Implementation Grant (CBIG), which are EPA funds that DNR administers on behalf of the state of Maryland. Over 1,400 sites were evaluated and ranked based on their downstream flood mitigation potential, providing a critical knowledge base for expanding active stormwater management to the watershed scale. The top six highest-ranked ponds were chosen for further analysis.



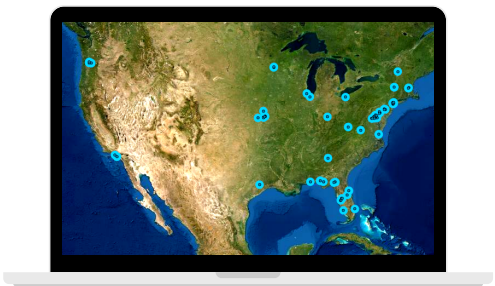
Geospatial Analysis
GIS was used to integrate floodplain and site data during the assessment



Assessment Results
Opti active controls reduced peak flows by as much as 76% during modeled 24-hour storm events at the top six ponds

ABOUT OPTIRTC, INC.

Opti is the world's largest provider of cloud-based stormwater management. Opti enables communities to continuously improve stormwater management by delivering real-time visibility, adaptively controlling assets, and supporting smart city initiatives. Opti manages over 160 commercial deployments and over 100 million gallons of stormwater storage. Opti's solutions have been approved by regulatory authorities, including the EPA Chesapeake Bay Program and its member states, and the Washington State Department of Ecology TAPE program.



Optimizing Stormwater Management

Contact us to learn more: 1-844-678-4782 | sales@optirtc.com | www.optirtc.com