Accelerating Water Protection by Transforming Stormwater Management

Discussion at

NeBC | northwest environmental business council

December 11, 2019 - Portland, OR

Opti

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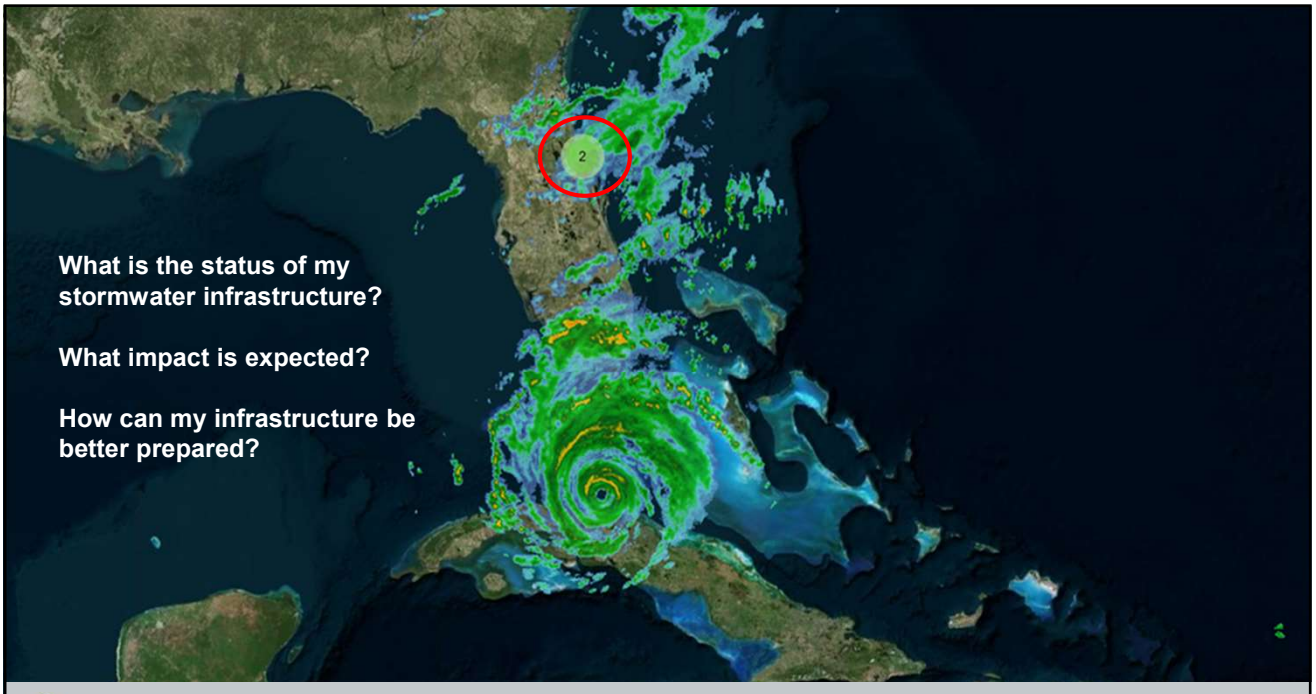

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Stormwater challenges addressed by Opti

Flooding	Erosive Stream Flows	Water Quality
More frequent flooding events Hurricane Harvey caused over **$125Bn in damage**	Urbanization **dramatically** increases the flashiness of discharge **Large** capital expenditures on stream restoration without upstream controls	**7,450 Municipal** Separate Storm Sewer System (MS4) communities in the US Chesapeake Bay Clean-up to exceed **$28Bn** plus **$2.7Bn/yr in O&M**

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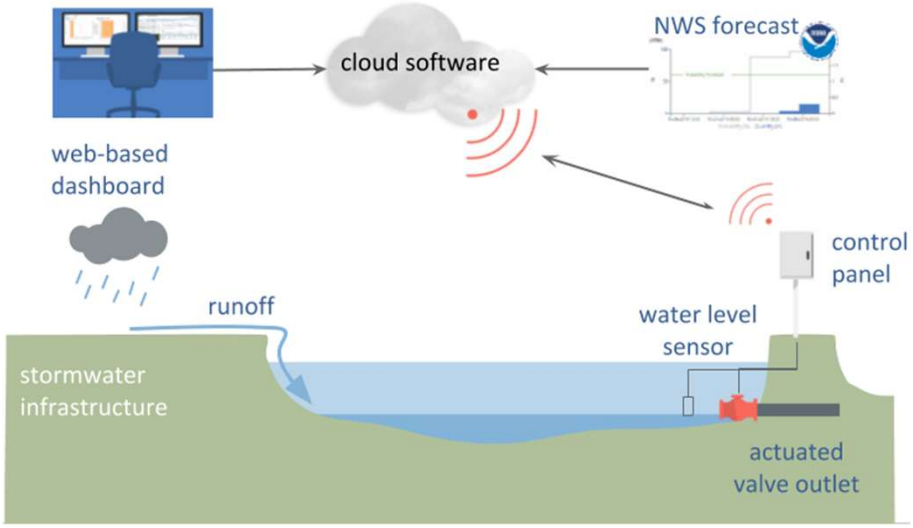
Lakes

Ponds and Wetlands

Detention

Control at the site scale



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Field view of Opti equipment

Opti Control Panel

Water Level Sensor

Actuated Valve

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Building a smart, connected watershed network in the City of Albany, NY

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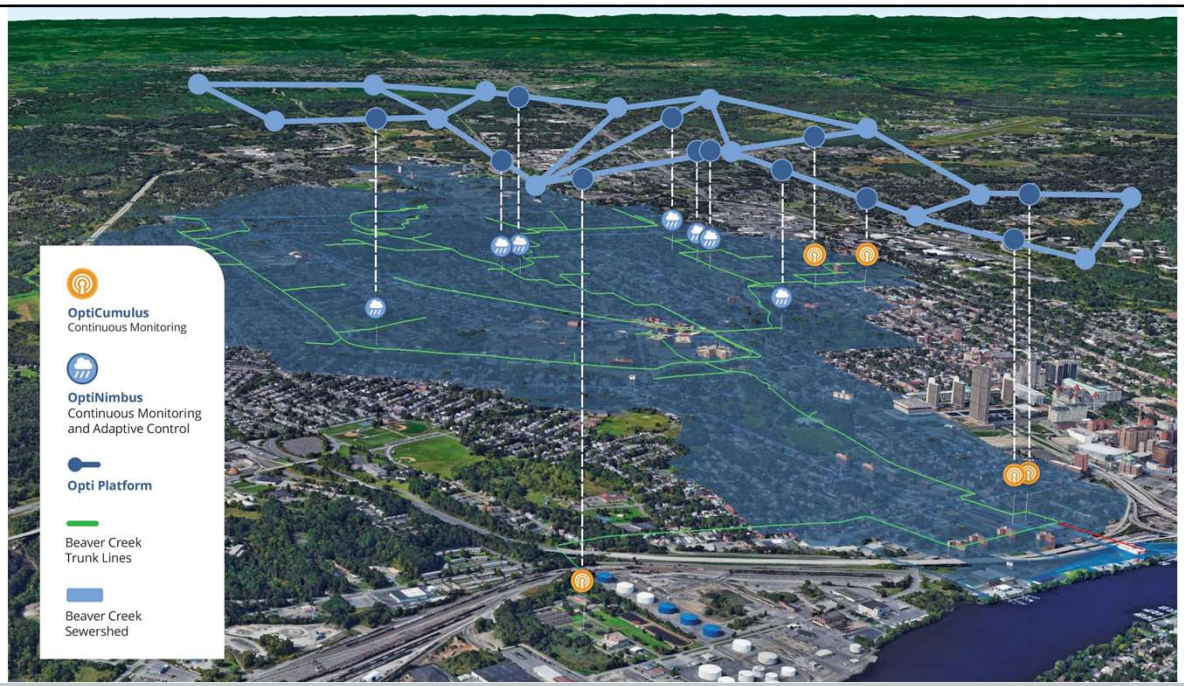

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A **6.5% additional capital investment** has led to a **6.5x improvement in incremental wet weather performance** as compared to passive control.

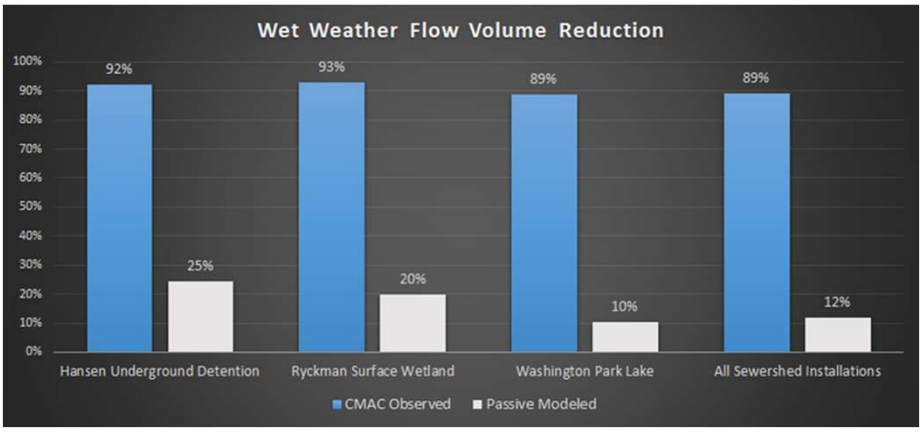
Recipient of 2019 Platinum Award

ACEC New York
American Council of Engineering Companies of New York

2019 Winner in Smart Water Category

IDC Smart City
NORTH AMERICA AWARDS

Opti outperforms passive infrastructure



Dataset taken from March 1, 2018 to March 1, 2019 for all sites above

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TAPE Approval

DEPARTMENT OF ECOLOGY State of Washington

Language	Use Cases
"The Washington State Department of Ecology (Ecology)" has found "that the OptiRTC system for hydraulic control of storm water facilities is functionally equivalent to the standard outlet control structure for wet ponds, retention ponds, and detention ponds as described in the Stormwater Management Manual for Western Washington (SWMMWW) and the Stormwater Management Manual for Eastern Washington (SWMMEW). *OptiRTC is a control approach for stormwater facilities that can be designed to conform to various design criteria." (WA State Dept. of Ecology, 2018)*	*Opti has developed a WWHM tool to assist municipalities and developers on sizing and benefit determination from an Opti installation for:* *Runoff Treatment (Minimum Requirement #6)* *Flow Control (Minimum Requirement #7)*

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Flow Duration and Hydromodification in Oregon

Clean Water Services

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Opti reduces erosive flows by 50%!

Operational Since
February 2014

Type
New Construction Ponds

Drainage Area
108 acres (Falls Pond)
38.6 acres (North Pond)

Metric	Passive	Opti
Average % Reduction in Daily Peak Flowrate (days > 1 inch of precipitation)	35%	71%
Reduction in Volume of Channel Forming Discharges (0.5Q2 to Q10)	6%	54%
Reduction in Peak Flow Pulse Count	45%	86%
Reduction in Average Rate of Rise	3%	53%
Reduction in R-B Flashiness Index	7%	54%

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Flood Mitigation and Water Quality Enhancement

WATER ENVIRONMENT SERVICES

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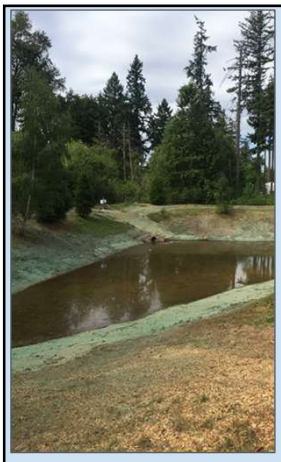

Operational Since
Fall 2016

Type
Pond Retrofits

Opti increases residence time 5-10x

	Sunnyside Pond			Pond A			Pond B		
Metric	*Passive*	*Opti*	***Improvement***	*Passive*	*Opti*	***Improvement***	*Passive*	*Opti*	***Improvement***
Average Retention Time (hrs)	3.25	16.9	+13.7	3.2	33.1	+29.9	1.57	9.57	+8.0
Wet Weather Discharge (CF x10^6)	6.30	4.20	-2.10	2.35	1.19	-1.15	3.74	3.29	-0.45
Average Peak Flow Reduction (%)	43%	46%	+3%	67%	69%	+2%	40%	59%	+19%

Performance analysis period: September 2017 - April 2018

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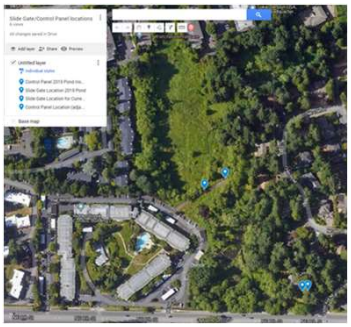
Recent Installation - Opti in Bellevue, WA

- Impoundments in series, with a total drainage area of 1,086 acres
- Dual existing actuated slides gates (48”x48” & 30”x30”) now controlled with Opti
- Flow managed for erosion control and flood risk mitigation



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Contact

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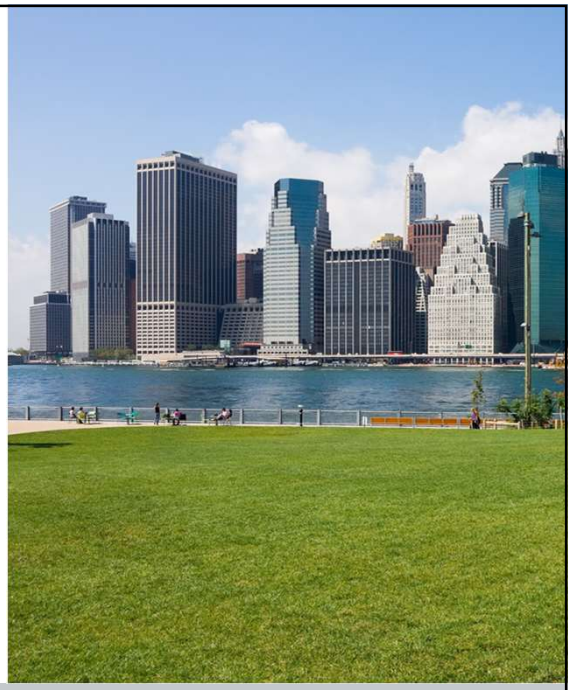

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