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Newsletter

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2015-16 Theme - Sustaining Clean Water: Driving Global Innovation

Saari Presents Innovative Urban Stormwater Management Practices

by K. Jack Kooyoomjian, Ph.D. and Jewel Lipps



Steve Saari, Interim Chief of the Watershed Protection Division in the District of Columbia Department of the Environment (DDOE) shared ongoing urban stream restoration initiatives with the Federal Water Quality Association (FWQA) during the luncheon discussion on February 25 at the Elephant and Castle restaurant. [Note: See Mr. Saari's professional biography featured in the last newsletter - Vol 40 Number 1]

Attendees heard Mr. Saari talk about three of the DDOE's urban stream restoration projects that address stormwater management problems in the District of Columbia with innovative stormwater and watershed restoration approaches. The three projects included the following: 1) Linnean Park stream restoration; the RiverSmart Washington upland low-impact development (LID); and the Alger Park stream restoration and upland LID. Like most urban areas, stormwater has high temperature, high velocity, and high pollution concentrations which needed to be dealt with for restoration.

In Linnean Park there is a one-thousand foot tributary of Rock Creek. The watershed area is approximately 64 acres and was determined to be in "Patient critical condition." There was the need to stabilize the stream, as well as to retrofit the upstream area. DDOE took the regenerative stormwater conveyance approach to stream restoration for this project. This area had concentrated flow and impervious surfaces upstream that needed to be retrofitted. By filling in the stream using a sand/mulch substrate to make it shallower, they reconnected it to the flood plain to hold stormwater in the park. The stormwater held in the floodplain slows down the

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2015 FWQA Science Fair and Scholarship Award Luncheon attendees listen attentively to winner announcements and event speaker. Thanks to our sponsors (see page 4) we will be awarding scholarships and awards to our 2016 winners on May 19!

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President's Corner

Finally spring has arrived in Washington D.C. and with that FWQA's attention shifts to one of the most important and enjoyable aspects for all of us in the organization....the annual FWQA Scholarship program. The program is coordinated by Sharon Nye who is the energy, organization, and commitment behind this important program. Kudos to Sharon and her team of judges for selecting this year's winner who will be announced at the annual awards luncheon in May. None of this would be possible without contributions to the scholarship fund which have been made by individuals and corporations alike. Special recognition needs to go to several organizations that have each sponsored one of the scholarships to be awarded. These organizations are the Water Environment Federation (WEF), the National Association of Clean Water Agencies (NACWA), and the National Association of Water Companies (NAWC). We thank them for their contributions and we hope other organizations and individuals can contribute to this wonderful program in the future. With additional support our goal is to expand the program and provide additional assistance to more outstanding students as they pursue careers that will contribute to one of the key goals of FWQA which is to facilitate communication and exchange ideas to address ever evolving and complex water quality issues.

Greg Mallon

Watch for Our Upcoming Events

Awards Luncheon - May 19
 Blue Plains Plant Tour - September
 Embassy Events - TBD

Urban Stormwater Management Discussion (continued from page 1)

water and recharges groundwater. The area now has a reconnected floodplain and stormwater recharge to the groundwater table for about 1,000 feet along the streambed. While \$750,000 was spent in the retrofits and stabilization, the District spent an additional \$500,000 to monitor the area to show its efficacy. The restored watershed portions had groundwater increases of up to three feet, which demonstrated verifiable performance improvements. The Linnean Park restoration project has been in place for 2 years and has been relatively stable. There is a need to maintain monitoring for 5 years on the restoration project to demonstrate that the solution is structurally sound (that is, a regenerative structural conveyance has been achieved in the restoration project).

The RiverSmart Washington upland LID project focuses on reducing the volume of stormwater runoff by reducing the impervious surface area in the urban watershed. RiverSmart Washington is based on a green buildout model by LimnoTech, which is funded by the U.S. Environmental Protection Agency. The two project locations discussed by Mr. Saari, Lafayette and MacFarland, have two important differences: Lafayette is on separate sewer system and had 39.7% impervious surface cover, while MacFarland is on combined sewer system and had 60.3% impervious surface cover. After adding bioretention tree boxes and bumpouts, rain gardens, pervious patios and pavers, and porous concrete parking lanes, both project locations now have 15% impervious surface cover. The upland LID project cost (\$3,396,000) is approximately ten-times more than the stream restoration projects. DDOE is spending \$250,000 to monitor stormwater and evaluate the project's effectiveness. DDOE initiated both stream restoration and upland LID approaches for the Alger Park project. At a cost of \$3.8 million, this project involves stream restoration and bump-outs, and wetland creation in lower portions of the watershed. Also, by incentivizing private homeowners to plant trees and raingardens through the RiverSmart Homes Rebate program, they plan to increase low-impact development in neighborhoods near the stream. In cooperation with DDOE, the District Department of Transportation (DDOT) will install low-impact development features in public space, roads, and sidewalks.

Public support of stream restoration and upland LID projects is crucial. The community might accept the concept, but might dislike the construction activity in their neighborhood. Allowing access to the area and educational outreach about connecting homes to streams are two ways DDOE involves the community in their projects.

Steve concluded that the District needs both upland LID and stream restoration approaches to manage urban stormwater runoff. He invited anyone to tour the stormwater projects in Linnean Park, Lafayette, MacFarland, and Alger Park with him.

A lively question and answer session followed. In particular, questions involved the topics of additional maintenance for homeowners to install Best Management Practices (BMP) devices and LID devices. Continuing maintenance information is needed to give better and more targeted advice to homeowners to encourage their use of BMP and LID practices and invest in improvements on their private lots. A question was raised on flooding resilience of a restored watershed. In the case of the Linnean watershed, prior to restoration, it would flood with a 2-year storm event. After restoration, it has handled a 40-year storm event easily. [Note: For visuals of the presentation see http://www.fwqa-dc.org/Documents/2016_SteveSaari_Jan-presentation_UrbanLIDComparision.pdf]

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