

TENNESSEE
STORMWATER
ASSOCIATION



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TNSA Times

Tennessee Stormwater Association News & Information

November/December 2015

Message from the TNSA President

There was a chant our cheerleaders at Red Boiling Springs High School used to scream before, during (*but most of the time NOT after*) the basketball games: "S-U-C-C-E-S-S, that's the way we spell success!"

Not sure this 'cheer' or any verbal encouragement, from the ladies who were tasked to 'lead/evoke' cheers from the crowded, ever accomplished increase 'Success' during the game.

But to get to the point, I think we can all jump up and wave our pom poms and yell S U C C E S S for the Development Symposium that TNSA helped sponsor a couple of weeks ago in Knoxville. For that matter, from my perspective, from the small space where I make an effort to throw back my

share of beached starfish into the ocean, TNSA has had a 'Success'ful Year.

Even though we are in this for the 'long haul', we usually measure our lives in 'years' (not coffee spoons) (though 'years' seem to be such a short time and immeasurable span in our lives anymore). I feel like we have made extraordinary strides this 'year'!

I've been viewing the world from the shoulders of giants: I'd like to recognize the list of exceptional leaders who have held the Presidency of this esteem organization: Andy Best, Chris Granju, Chris Masin, Sandra Knight, and Todd Spangler (and Chris Granju was on-deck for two years when we needed him the most). Andy, Chris G. and Chris M. are still in the middle

of things with valuable input and support. I could start naming names of the members of the Executive Committee, Board and other Committee members (but I'd miss someone)—but if it wasn't for y'all, we'd still be floundering on the beach, so to speak—especially the Conference Planning Committee: Which heralded a Major-Major SUCCESS for the Annual Conference this year also!

Some Major accomplishments this year:

◆ The hiring of Charlene Desha as Executive Director (who has been instrumental in some advancements of our organization);

◆ The every expanding TNSA

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TNSA Quarterly Stormwater Professional Spotlight: John Chlarson

Most of you have the pleasure of knowing and working with our special Quarterly Spotlight nominee, John Chlarson, P.E.. In 2008, John was integral to the successful incorporation of the Tennessee Stormwater Association as a 501(c)3 Not-For-Profit, and has been ad-hoc Secretary ever since.

John continues to solidly support the Association with his professional expertise and his access to academic and legal support for TNSA.

"John Chlarson is a real asset to our organization and we are very fortunate to have his expertise available to our MS4s" stated TNSA President Don Green.

John graduated from Tennessee Technological University in 1983 with a B.S. in Civil Engineering and his full time job is Public Works/Engineering Consultant for the University of Tennessee Municipal Technical Advisory Service (UT-MTAS).

John Chlarson was the lead in UT-MTAS's role as the prime contractor for the Tennessee Department of Environments and Conservation's EPA Construction Stormwater Initiative Grant to develop selection criteria and training programs for stormwater Qualified Local Programs (QLPs). John assisted in developing Tennessee's first Phase II Permit and NOI, and the Annual Report.

John also co-authored a statewide Model Stormwater Ordinance and a statewide Model Stormwater Utility Ordinance for municipalities in the State of Tennessee.

John has also assisted in the presentation of several previous Phase II classes across the State of Tennessee. He is actively involved in monitoring developments in the NPDES Phase II permit regulations, and is the lead contact on Phase II for the Municipal Technical Advisory Service.



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Executive Director
Charlene DeSha
Charlene@tnstormwater.org

TNSA Committees

Regulations & Policy
Chair: [Jennifer Watson](#) & [David Mason](#)

Education Training & Professional Development
Chair: [David Carver](#)

Manufacturer BMP Evaluation
Chair: [Chris Granju](#)

Conference Planning
Chair: [Crystal Piper](#)

We welcome TNSA Members to participate on any of these committees! Please contact the committee chair for additional information.

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2015 TNSA's Exceptional Quality Award Winners

At this year's Annual Conference, TNSA formally recognized individuals that have devoted time and energy into making TNSA a success and also to recognize stormwater professionals behind some of the great work that is getting accomplished in the stormwater arena in Tennessee.

TNSA accepted nominations for three specific Exceptional Quality awards:

- ◆ EQ "Person of the Year" – Given to an individual for displaying Exceptional dedication and commitment to TNSA
- ◆ EQ "MS4 Member of the Year" – Given to an MS4 for displaying Exceptional stewardship of Water Quality in Tennessee and for providing Exceptional education and assistance to other MS4s.
- ◆ "TNSA Lifetime Achievement Award" - This award is TNSA's highest honor. It is reserved for outstanding longtime stormwater professionals. These individuals' long-term contributions have made a noticeable impact on stormwater management efforts in the State of Tennessee.

There are so many deserving MS4 programs and people in Tennessee dedicated to ensuring the protection and preservation of the State's waters while also maintaining vibrant, prosperous, and sustainable communities. It was challenging to narrow the winners down. TNSA managed it through a fair and equitable statewide voting system and three commendable winners rose to the top:

EQ "Person of the Year":

Jennifer Watson. Jennifer has been intimately and enthusiastically involved with TNSA since its formal incorporation in 2008. While at TDEC, she supported TNSA through facilitating a 3-year grant contract between TDEC, TVA ,

TDOT & TNSA for TNSA to manage the Green Development Grant Awards and funds. In 2014, Jennifer served as Executive Coordinator for TNSA , helping to move TNSA into the next professional level. Jennifer was successful in further developing the brand name for TNSA and actively involving the Association as a partner in National Stormwater Associations and Networks. Jennifer continues to support TNSA with the TNSA Times Newsletters and policy and leading education efforts, such as the Karst Workshops held earlier this year.

EQ "MS4 Member of the Year":

City of Goodlettsville. The City of Goodlettsville utilizes Vol State, Austin Peay State, and Western Kentucky University faculty and students to educate them with hands-on field assessments and monitoring. They have been working with the colleges since 2007 and have developed curriculum in their classrooms, taught in their classrooms, held field exercises and more. They use students to receive hands-on training and in turn, receive compliance monitoring for their annual permit requirements.

The city brought together water-related utility managers and stormwater managers to build a Tennessee Board of Regents-approved program at Vol State with the option of carrying it to all community colleges within the State of Tennessee. This is a certificate program that when students complete, they are ready for a career in a water-related field (drinking water, surface water/stormwater, waste water, groundwater).

Additionally, the City of Goodlettsville, led by Stormwater Manager Amy Murray, regularly scheduled lunch meetings with surrounding city and county MS4s, bringing in relevant presenters and encouraging discussion on ways to collaborate on meeting permit requirements. Amy and the City of Goodlettsville made a big difference in improving the team work and compliance rate for the surrounding MS4 group.

"TNSA Lifetime Achievement Award":

Don Green. As TNSA's President, Don has served on the Executive Board for 3 years and has helped grow and lead TNSA into a successful, relevant organization.

His work in Water Quality began many moons ago (1977 to be exact) chasing turtles at MTSU, and as a field biologist with TDOT. From there, he worked for TDEC's 319 Grant program before moving to the TN Department of Agriculture as Assistant Manager.

In 2003, he took the challenge to develop the City of Franklin's Stormwater Program, where he worked for 5 years. During his tenure in Franklin, he helped organize the MS4 Working Group, which would later develop into the Tennessee Stormwater Association.

He has been with the City of Chattanooga since 2009 as Water Quality Supervisor where he had spearheaded many innovative projects such as the LID/Green Infrastructure Design Competition and Excellence Awards.

Don's heart is truly rooted in environmental advocacy and it is hard to imagine TNSA without his experience, foresight and dedication.



A Middle Tennessee Karst Field Trip with Renowned Karst Expert Dr. Albert Ogden, Ph.D.

By Josh Upham, City of Murfreesboro MS4

Cool air seeped from the joints in the limestone as a group of stormwater professionals visited some unique karst features during a Murfreesboro field trip on a warm early November day. The field trip led by retired hydrogeology professor emeritus Albert Ogden, Ph.D. and organized by the MTSU and Murfreesboro stormwater programs presented the beauty and complexity of a karst terrain. Ten sites were selected because they demonstrate some of the challenges stormwater programs located in a karst terrain may face when complying with permit requirements.

The first stop was an observation deck overlooking the boiling emerald colored water of Murfree Spring where Smyrna Stormwater Program Coordinator and geology instructor Greg Upham gave an introduction to the geology of Tennessee.



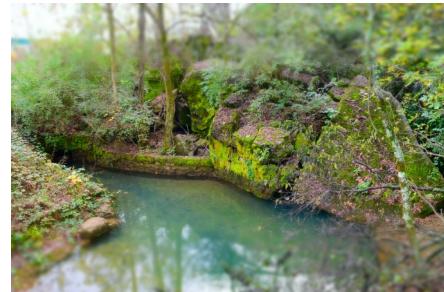
Dr. Ogden then explained how important understanding hydrogeologic factors such as joint orientation, dip, and location of confining units are to tracking pollutants in springs like Murfree Spring. Next the group stayed in the recharge basin of Murfree Spring and

visited a karst window that offered a glimpse into the subterranean network that drains to Murfree Spring. Sometimes karst windows are the only accessible groundwater sampling locations from the surface.

The group then loaded up and traveled to Old Fort Park where Murfreesboro Stormwater Coordinator Robert Haley told how karst features, encountered during construction, resulted in alterations to two of six stormwater control measures installed in 2009. A simple pre-design field investigation would have indicated places to avoid in siting of the controls. Site 4 featured an example of an injection well in a detention pond receiving runoff from a commercial development. Dr. Ogden explained the importance of connecting spring elevations with planned injection wells in order to prevent sinkhole flooding.

After lunch at the MTSU Student Union, the group saw drainage modifications and SCM installations that improved parking lot runoff and sinkhole flooding issues around campus. Later the group climbed down into the damp confines of Jones Sink. Its sheer limestone walls and thick canopy house a micro ecosystem hidden within a residential neighborhood to where diverted stormwater runoff disappears.

Dye tracing by Dr. Ogden revealed that this water travels many miles to discharge at York spring. As the sun began to fall behind the horizon, Dr Ogden described how water sinking in the bed of Bear Branch travels under two surface divides to be detected in Black Cat Cave undermining the assumed validity of surface watershed boundaries.



Bear Branch, like other karst streams, loses definition and habitat characteristics after the sink points where flow is lost to the subsurface. In other places, where geologic conditions are favorable, Bear Branch gains flow again. This pattern is very common in karst and should be noted when selecting monitoring sites.

The trip ended with a stop at the mysterious Black Cat Cave. Nate Williams of Murfreesboro Parks guided the group through the gated door of the old speakeasy and into a room of cracked concrete floors and old fireplaces. But as Williams described, it may be the recent archeological finds that make the cave so special.

Some ventured beyond the echoes of the dance floor and down a flowstone formation where cave salamanders crawl. There they found the cave stream that drains part of North Murfreesboro. While the stream may never be seen by most people, it serves as an example of how important it is to understand karst.

Josh Upham *Josh Upham* is a Water Quality Specialist with the City of Murfreesboro. He may be reached at 615-848-3200 or by email at jupham@murfreesborotn.gov

TNSA Quarterly Stormwater Professional Spotlight: John Chlarsen

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John tirelessly travels statewide to help municipalities meet their NPDES permit requirements. He hosts training classes on a wide variety of subjects including Best Municipal Housekeeping Practices, Administrative Hearings, Setting up an Appeals Board, and he is happy to work with any municipality on tailoring the model stormwater ordinance for their benefit.

"John is always interested in helping us all with any MS4 issue that may arise and is generous with his time and attention" said Crystal Piper, incoming TNSA President.

Please don't hesitate to contact John with any questions you have or training sessions you are interested in – he is most interested in helping all MS4s be successful! He may be reached by email at john.chlarsen@tennessee.edu or by phone: 731-425-4785



Stormwater Systems Benefit from Green Roofs

[Article reprinted from Forester Daily News](#)

With their myriad benefits, green roofs are becoming increasingly incorporated into new and existing projects. The International Green Roofs and Walls Project Database lists 1,599 projects totaling 33,334,677 square feet, and the number is growing!

Green roofs—also known as vegetated roofs or garden roofs—are key green infrastructure elements being increasingly recognized for their “valuable ability to absorb, reduce, and delay stormwater from reaching sewers or other grey infrastructure systems,” says Richard Hayden, garden roof product manager with Chicago-based American Hydrotech.

Green roofs work by storing rainwater in a layered assembly: in open pore spaces of the growing media and within the drainage and water retention system that underlies



the growing media and plantings. Rainwater is retained until the assembly is completely saturated, and excess water is

slowly released from the roof into the site’s stormwater system. Stormwater runoff volume also is reduced thanks to evapotranspiration, which cools the surrounding air. Green roofs filter particulate matter and chemicals through the plants, growing media, system filter, and drainage layers, mimicking natural hydrology systems such as wetlands.

In summer, most green roofs stay cooler than conventional rooftops, thus helping buildings stay cooler. Lower green roof temperatures result in less heat transfer to the air above the roof, keeping urban air temperatures lower as well.

Green roofs are an option for stormwater management that not only reduces the volume of stormwater, but improves the quality of water coming off rooftops, notes Dr. Marty Wanielista, director of the Stormwater Management Academy at the University of Central Florida. “As another major benefit, green roofs put more oxygen into the atmosphere and reduce temperatures around the building site,” he says.

The Stormwater Management Academy serves as a research source for education and training programs in nationwide partnership with governments, non-governmental organizations, and industry. Green roof technology is one of the research areas at the Stormwater Management Academy, which also studies low impact development technologies, water quality management, and pollution control technologies to reduce receiving water impacts, erosion, and sediment control with smart sensors and materi-

als and system analysis, climate change impacts and urbanization efforts on flood and drought, and stormwater treatment and reuse.

What started as an effort to add green space on buildings for purely aesthetic purposes has become a Best Management Practices option for handling rainwater at the point where it lands on the roof, Hayden points out.

American Hydrotech manufactures and supplies waterproofing and roofing components for projects worldwide. Its flagship product is the original hot, fluid-applied rubberized asphalt, Monolithic Membrane 6125. Originally developed in the 1960s as a waterproofing element for bridge structures in Canada, MM6125 is now used for creating green roofs. In 1996, Hydrotech introduced the Garden Roof Assembly and has since supplied waterproofing, drainage materials, lightweight growing media, and plants for more than 2,000 projects in the United States and Canada.

“There are many municipalities like New York; Chicago; Philadelphia; Washington, D.C.; and Portland, Oregon, where green roofs are being encouraged through incentives of various types,” says Hayden. “These cities are part of a significant and growing group seeking out innovative ways to minimize or slow down stormwater reaching already overtaxed sewers.”

To read the full article, [Click Here](#)

Message from the TNSA President

continued from Pg. 1:

- ◆ Annual Conference at Fall Creek Falls;
- ◆ Knoxville Development Symposium; several TNSA-TDEC meetings.
- ◆ A newsletter *par excellence* (Jennifer, You’re the Best!);
- ◆ Forward advancement on TNSA Sponsored Classes (think-you David Carver and Education Training and Professional Development Committee members);
- ◆ Successful Karst Workshops

- ◆ Third year of our Urban Runoff 5K Run;
- ◆ The Tennessee Association of Broadcasters (TAB) PSAs (thank you Tom Lawrence)

And so many other things, my small brain can not hold them all!!

We continue to try and create Value for our members!

Please be part of the process. Join on a committee. Come to our regional meetings. Be on the board.

I do not plan to graciously relinquish my baton to the capable hands of Crystal Piper at the first of year or to go gently, but to rage rage at my abdication: it’s been too much fun!

I do plan on being a part of a committee or two and maybe buy a set of pom poms and join in on the SUCCESS Chant for next year!

*Don Green, LEED AP
President, TNSA*

TDEC Offering \$1.75 million in Clean Tennessee Energy Grants

Tennessee Governor Bill Haslam and the Tennessee Department of Environment and Conservation (TDEC) Commissioner Bob Martineau earlier this month announced the availability of \$1.75 million in [Clean Tennessee Energy Grants](#).

The funds support projects aimed at renewable energy and energy efficiency and conservation undertaken by municipal governments, county governments, utility districts, and other entities created by statute in Tennessee. Eligible projects under the Clean Tennessee Energy Grant must focus on one or more of the following categories:

- Cleaner Alternative Energy—biomass, geothermal, solar, wind

- Energy Conservation—lighting, HVAC improvements, improved fuel efficiency, insulation, idling minimization
- Air Quality Improvement—reduction in greenhouse gases, sulfur dioxide, volatile organic compounds, oxides of nitrogen, and hazardous air pollutants

“Clean Tennessee Energy Grants fund projects that help our communities become more energy efficient while providing long-term cost savings for taxpayers,” Haslam said. Projects funded by previous grants are expected to improve air quality by eliminating roughly 80 million pounds of pollutants from the atmosphere annually, as well as reduce

yearly operating costs by an estimated \$3.6 million.

“We are pleased to announce the fifth and final round of Clean Tennessee Energy Grants and look forward to receiving an equally impressive array of projects as we’ve seen in the past,” Martineau said.

The maximum grant amount per project is \$250,000 and requires a 50 percent match or better from the applicant. Grant applications are available on TDEC’s website and will be accepted through January 29th, 2016. Applications are available [Here](#). For additional questions, please contact Kathy Glapa at (615) 253-8780 .

TDEC Parks and Recreation Grants Available to Local Communities

TDEC will Host Grant Workshops Dec. 7-9

TDEC announced the 2016 grant cycle for the Local Parks and Recreation Fund, the Land and Water Conservation Fund and the Recreational Trails Program.

The department is contacting local communities about the grant availability, and will host a series of workshops throughout the state on Monday, December 7, Tuesday, December 8 and Wednesday, December 9, 2015.

Local Parks and Recreation Fund (LPRF) Grants provide state funding for the purchase of land for parks, natural areas, greenways and the purchase of land for recreational facilities. Funds also may be used for trail development and capital projects in parks, natural areas and greenways.

The Land and Water Conservation Fund (LWCF) Grants provide matching grants to states, local governments and state agencies that provide recreation and parks, for the acquisition and development of public outdoor recreation areas and facilities.

Recreational Trails Program (RTP) Grants are provided through the federal Safe, Accountable, Flexible, and Efficient Transportation Equity Act. TDEC administers this program in Tennessee and the grants may be used for non-routine maintenance and restoration of existing trails, development and rehabilitation trailside or for trailhead facilities such as restrooms, shelters and parking lots, construction of new trails and acquisition of land for recreational trails or corridors.

TDEC’s Division of Recreation Educational Services will host three workshops across the

state to assist communities interested in the grant application process. Workshops include (local times apply):

Monday, December 7, 2015 | p.m. Jackson Environmental Field Office 1625 Hollywood Drive Jackson, TN 38305

Tuesday, December 8, 2015 | p.m. Fleming Training Center 2022 Blanton Dr. Murfreesboro, TN 37129

Wednesday, December 9, 2015 10 a.m. Knoxville Environmental Field Office 3711 Middlebrook Pike Knoxville, TN 38921

To register for a workshop please contact: Carol Thompson :615-532-0208 Email: carol.h.thompson@tn.gov For more information about the grants, [Click Here](#).

Native Plants Available for Riparian Restoration Projects

[Nashville Natives, LLC](#), has native riparian tree species available in #7 containers that were originally purchased as seedlings from the TN state nursery and grown out for a year. The company grew these trees specifically for riparian restoration projects. Last year alone, Nashville Natives provided hundreds of trees for dozens of Tennessee restoration projects. Hundreds of native grasses and wildflower species are available in #1 containers as well. The following species

are available in their Fairview, Tennessee, nursery :

Grasses & Wildflowers

Switchgrass
River Oats
Bee Balm/Monarda
Swamp Milkweed
Butterfly Milkweed

Grasses & Wildflowers

Common Milkweed

Dense Blazingstar
False Blue Indigo
Wild Columbine
Stiff Goldenrod

Trees

Swamp White Oak
Northern Red Oak
Southern Pin Oak
American Sycamore
Sweet Pecan

Grant Opportunity: Five Star and Urban Waters Restoration Grant Program

The Five Star and Urban Waters Restoration Program seeks to develop nationwide-community stewardship of local natural resources, preserving these resources for future generations and enhancing habitat for local wildlife. Projects seek to address water quality issues in priority watersheds, such as erosion due to unstable streambanks, pollution from stormwater runoff, and degraded shorelines caused by development.

The program focuses on the stewardship and restoration of coastal, wetland and riparian ecosystems across the country. Its goal is to meet the conservation needs of important species and habitats, providing measurable and meaningful conservation and educational outcomes. The program requires the establishment and/or enhancement of diverse partnerships and an education/outreach component that will help shape and sustain behavior to achieve conservation goals.

Funding priorities for this program include:

- ◆ On-the-ground wetland, riparian, instream and/or coastal habitat restoration
- ◆ Meaningful education and training activities, either through community outreach, participation and/or integration with K-12 environmental curriculum

- ◆ Measurable ecological, educational and community benefits
- ◆ Partnerships: Five Star projects should engage a diverse group of community partners to achieve ecological and educational outcomes

FUNDING AVAILABILITY

Approximately \$2,450,000 is available nationwide for projects meeting program priorities. There is one round of full proposals annually for this program. Awards range from \$20,000* to \$50,000 with an average size of \$30,000 and 40-50 grants awarded per year. Grants should span one to two years in length with a start date in July 2016. Applications requesting more than \$30,000 should propose projects longer than one year. (Additional private funding is also available in select geographical areas [Click Here](#)).

TIMELINE

Dates of activities are subject to change. Please check the Program page of the NFWF website for the most current dates and information ([Five Star and Urban Waters program website](#)).

[Archived Applicant Webinar](#)

Full Proposal Due Date: February 3, 2016, 11:59pm, Eastern Time

Review Period: February to June 2016

Awards Announced:

July 2016



HOW TO APPLY

All application materials must be submitted online through National Fish and Wildlife Foundation's Easygrants system:

www.nfwf.org/easygrants

APPLICATION ASSISTANCE

A PDF version of this RFP can be downloaded at the [Five Star and Urban Waters program website](#).

A Tip Sheet is available for quick reference while you are working through your application. This document can be downloaded at the [Five Star and Urban Waters program website](#). Additional information to support the application process can be accessed on the NFWF website's "Applicant Information" page (<http://www.nfwf.org/whatwedo/grants/applicants/Pages/home.aspx>).

For more information or questions about this RFP, please contact:

Sarah McIntosh (All Geographies)
Coordinator, Community-Based Conservation
202-595-2434

EPA Announces New Environmental Justice Collaborative Problem Solving Grants

U.S. Environmental Protection Agency (U.S. EPA) is seeking applicants for a total of \$1.2 million in Environmental Justice Collaborative Problem-Solving (EJPS) cooperative agreements to be awarded in 2016. Environmental justice is defined as the fair treatment and meaningful involvement of all people, regardless of race or income, in the environmental decision-making process. Cooperative agreements will be awarded to local community-based organizations seeking to address environmental and/or public health concerns in their communities through collaboration with other

stakeholders, such as state and local governments, industry, academia, and non-governmental organizations. Organizations are encouraged to have a connection between the proposed project activities and applicable neighborhood, local, city, or regional land use planning efforts.

This RFP closes on February 12, 2016, at 11:59 p.m. Eastern time. One award will be made per region in amounts of up to \$120,000 per award for a 2-year project period. Pre-Assistance calls have been scheduled to assist applicants. Read more about how to apply at <http://www.grants.gov/web/grants/search-grants.html?keywords=EPA-OECA-OEJ-16-01>

www.grants.gov/web/grants/search-grants.html?keywords=EPA-OECA-OEJ-16-01

To receive a Spanish translation of the Request for Proposals, call the U.S. EPA Office of Environmental Justice (OEJ) at 1-800-962-6215 or via email at lewis.sheila@epa.gov. Please note that applications must be written in English only. Applications written in languages other than English will not be considered for award.

Municipal Wet Weather Stormwater Conference



Call For Presentations!

The EPA Region 4 and the Southeast Chapter of the International Erosion Control Association (IECA) are hosting their third annual Municipal Wet Weather Stormwater Conference in Nashville, Tennessee May 16-18, 2016.

Presentations will inform and educate MS4 operators, consultants, contractors and others practicing in the discipline of stormwater management, stormwater quality and erosion and sediment control. [Click here to download a flyer with more information](#)

Presentation Topics

Presentation(s) should include, but not limited to one or more of the following conference topics, and each presentation will be limited to 45 minutes unless approved in advance by IECA for a longer timeframe:

- ◆ Integrated or Watershed based Permitting
- ◆ Sustainable Development, LID and Green Infrastructure
- ◆ TMDLs and Watershed Implementation Plans
- ◆ Stormwater Funding, program management
- ◆ Legal, Ordinances and Regulations

- ◆ Public Education and Outreach
- ◆ Erosion and Sediment Control
- ◆ Evaluation of Stormwater Practices and Devices
- ◆ Inspection Methods and Technologies
- ◆ Stream Evaluation, Restoration, and Monitoring

Deadline for abstracts is March 31, 2016. [Click Here for more info.](#)

Meeting & Parking Location

Holiday Inn Nashville Airport
220 Elm Hill Pike
Nashville, TN 37214

TDOT and Chattanooga Win Silver Awards for WEF/U.S. EPA's Inaugural MS4 Award Competition

Congratulations to TDOT and the City of Chattanooga for winning the Silver Award each...Great Job!

The National Municipal Stormwater and Green Infrastructure Awards program, led by the Water Environment Federation (WEF) through a cooperative agreement with the U.S. Environmental Protection Agency (U.S. EPA), was established to recognize high-performing regulated Municipal Separate Storm Sewer System (MS4) programs.

The objective of the program is to recognize high-performing, regulated Phase I and Phase II MS4 communities that meet and exceed regulatory requirements in innovative ways that are effective and cost efficient.

In response to the 2015 call for applications, WEF received 8 Phase I and 22 Phase II applications. Three winners from both groups were selected in the categories of program management, innovation, and overall highest score.

Winners were selected by a diverse steering committee that included WEF's stormwater and watershed national committees, as well as representatives from the Association of Clean Water Administrators, American Rivers, American Society of Civil Engineers, American Society of Landscape Architects, National Association of Clean Water Agencies, National Association of Flood

and Stormwater Management Agencies, and Water Environment Research Foundation.

The award winners were celebrated at the 2015 WEFTEC Stormwater Congress Luncheon on Monday, September 28, 2015, in Chicago. All participants received certificates highlighting their level of achievement. Based on steering committee review scores, each application was categorized as a Bronze, Silver, or Gold-level community within both program management and innovation categories.

[Click Here to view all applicant info](#)

Look for the next Award application opportunity in early 2016!

Meeting your Public Education Minimum Measure: Join the Tennessee Association of Broadcasters: TAB Program!



TNSA is continuing to work with the Tennessee Association of Broadcasters (TAB) and Stormwater Consultant, Tom Lawrence, P.E., to provide the TAB Stormwater Education Program for the 2015-2016 year.

The program works with TAB to distribute professionally developed radio and television Non-Commercial Sustaining Announcements (NCSAs) to television and radio stations throughout the State. TAB has over 330 television and radio station members in Tennessee.

Due to TNSA's relationship with TAB, all participating MS4s will be provided with

NCSA airtime reporting, which can be included in your annual report as credit toward your stormwater education and outreach program. TAB states that the return-on-investment in the average NCSA program can deliver 4 to 10 times the annual expenditures!

The cost of participation is based on the population within the MS4 (see table below). TAB uses the money received from TNSA for distribution, promotion, and tracking of the NCSAs. TNSA pools the money from the individual MS4s to contract with TAB for the program to negotiate additional airtime at lower costs.

Chris Masin, Shelby CountyMS4, enthusiasti-

cally promotes TAB: " Of course Shelby County MS4 would like to participate in the TAB program for 2015. The exposure that the radio ads give the stormwater program is invaluable. The effort level to receive TDEC accepted public education credits is as simple as approving the invoice and downloading the efficiently-sent, timely reports. And the amount of value that the airtime is worth compared to the minuscule cost is absolutely mind-blowing. Count me in!"

If you would like to get an invoice for the TAB Program and receive monthly airtime reports, please contact Tom Lawrence (901-237-4819) or Charlene DeSha (615-926-7094).

Tier Level	Population	Yearly Rate	Tier Level	Population	Yearly Rate
1	25,000 or less	\$400	4	100,000 or less	\$1,600
2	50,000 or less	\$800	5	Greater than 100,000	\$2,000
3	75,000 or less	\$1,200			

Evolving Green Infrastructure Through Asset Management

WEF Stormwater Report

DC Water, Washington, D.C.'s water and wastewater utility, has embarked on a long-term effort to reduce combined sewer overflows to the area's Anacostia and Potomac rivers and Rock Creek through its long-term control plan, the DC Clean Rivers Project. In combination with a tunnel system that temporarily stores and conveys combined sewer flows for treatment, the DC Clean Rivers Project will incorporate green infrastructure to man-

age rain events 30 mm (1.2 in.) or greater on nearly 202 ha (500 ac) of impervious land in two D.C. neighborhoods.

With upcoming large-scale investments in green infrastructure and construction on the first contracts beginning in 2017, DC Water is developing a robust asset management program with an adaptive framework to plan proactively for green infrastructure maintenance. The utility began developing its green infrastructure asset management program in



2013. Now it manages existing assets with the threefold goal of ensuring performance, public and maintenance crew safety, and aesthetics.

To read the full article, [Click Here](#)

The Real Cost of Green Infrastructure

In the U.S., funding and valuation of green infrastructure is one of the most significant barriers to implementation of this stormwater management approach. However, there are ways to reduce capital costs and plan more effectively for long-term operations and maintenance (O&M).

In a study of hundreds of built projects from across the U.S., CH2M water resources consultants Andrew Potts, Brian Marengo, and Dan Wible examined proven

strategies for reducing green infrastructure costs.

As presented at WEFTEC 2015 in Chicago, they dissected green infrastructure program data to generate new insights on significant factors that influence cost.

These insights can help stormwater program managers not only save money but also better evaluate the cost-effectiveness of green infrastructure approaches. Reliable costing information helps communities



adequately plan for green infrastructure implementation and long-term O&M. As green infrastructure programs mature, there is more data available about the life-cycle costs of this approach. Looking at this data in new ways can reveal the real costs of green infrastructure.

To read the full article, [Click Here](#)

Metro Nashville Water Services Public Education Videos

Metro Nashville Water Services' latest Public Education video is officially out. It speaks to proper placement of brush in yards when staging materials for MPDW pickup (as the City receives a lot of complaints about improper staging/dumping of such materials). This was a cooperative effort between Metro Water Services (Stormwater) and Metro Public Works.

[Proper brush placement for pickup](#)

Past videos:

- ◆ [Illicit discharges](#)
- ◆ [Proper use of lawn chemicals](#)
- ◆ [Storm Water Management | Volunteer Gardener](#)
- ◆ [Pervious pavers parking lot](#) at Metro Office

Building (building where everyone comes to get Metro permits, vehicle tags, etc.)

All videos may be viewed on [Metro Water Services Community Education Page](#)



EPA Releases Small Lot Tool for Construction General Permit

Tennessee also has a SWPPP template for Single Family Residential Homebuilding Sites

EPA recently released a new tool to assist small residential lot builders in developing their required stormwater pollution prevention plan, or SWPPP document, for EPA's Construction General Permit (CGP).

The Small Residential Lot SWPPP Template is an optional, easy-to-complete document

that streamlines SWPPP development and is fully compliant with SWPPP requirements in EPA's CGP. States can modify the template if they wish to use it for their CGPs.

The template is accompanied by an educational brochure that provides basic sediment and erosion control and stormwater pollu-

tion prevention guidance common to all small residential lot projects. [Learn more Here.](#)

Tennessee has developed a SWPPP [template](#) for single family residential homebuilding sites that corresponds with Tennessee's [Construction General Permit](#).

EPA's New RE-Powering America Electronic Decision Tree Tool

EPA's RE-Powering America's Land Initiative is pleased to announce its release of an Electronic Decision Tree tool that will help communities, local governments, site owners, and other stakeholders explore the feasibility of solar and wind energy on formerly contaminated properties and underutilized sites.

The electronic decision tree is a downloadable computer app that:

- Explores potentially contaminated sites (e.g., brownfields, RCRA permitted, Superfund sites), landfills, underutilized sites and rooftops
- Walks users through a series of Yes/No/

Skip questions supplemented by tips and links to relevant tools and information

- Screens for site characteristics, redevelopment considerations, criteria specific to landfills and contaminated sites, energy load, policies and financial considerations
- Generates reports of the screening results and user annotations, which can be printed and/or copied into another document

In addition to serving as a screening tool, the EPA's Electronic Decision Tree app offers context-specific information regarding the various considerations that go into such screening. Decision Tree is intended to engage non-experts in renewable energy to screen potentially contaminated or underuti-

lized sites or landfills for whether they are good candidates for solar, photovoltaic, or wind projects. It is built so that experienced professionals can quickly navigate through the decision tree, while less experienced stakeholders can access additional information as they make their way through the questions. The tool is not intended to replace a detailed site-specific assessment that would follow this kind of initial screening.

For additional information, [Click Here](#) to download the tool, see the program's website, or contact Adam Klinger at klinger.adam@epa.gov.

Streamside Forest Buffer Width Needed to Protect Stream Water Quality, Habitat, and Organisms: A Literature Review

This paper synthesizes all recent buffer literature in terms of widths needed to restore and maintain streambank health.

A minimum buffer of 30 meters (100 feet) is needed for nutrient removal, ecology, and many other buffer functions that pro-

tect the physical, chemical, and biological integrity of small streams.

The literature review can be accessed [Here](#)

Get Your Family Moving with NEEF's Apps for Outdoor Activity

A supplement to the Get into Nature for Better Health brochure, the [National Environmental Education Foundation's](#) (NEEF's) Apps for Outdoor Activity lists 10 free apps

that children and their families can use to get ideas on where to go and what to do for fun in the outdoors.

To download the apps and find out more about what NEEF has to offer, [Click Here!](#)

Public-Private Partnerships Beneficial for Implementing Green Infrastructure

Green infrastructure and other retention-based practices are key to the health of our urban waterways and communities. Large-scale investments are needed to address the impacts of excessive stormwater runoff and associated pollutants. However, traditional investment in green infrastructure is often undertaken in a piecemeal and inefficient manner.

A new approach, referred to as Community-Based Public-Private Partnerships

(CBP3s), can disrupt the status quo by increasing cost efficiencies and focusing on local economic development and social benefits associated with large-scale green stormwater infrastructure investments.

Authors Dominique Lueckenhoff and Seth Brown explore new ways to accelerate the rate and reduce the cost of green infrastructure investment by highlighting key sections of a recently released publication,

"Community Based Public-Private Partnerships (CBP3s) and Alternative Market-Based Tools for Integrated Green Stormwater Infrastructure: A Guide for Local Governments," from U.S. Environmental Protection Agency Region 3.

[To read the full article, Click Here!](#)

[The CBP3 Guide for Local Governments is available online Here!](#)

TDEC's Solid Waste Assistance Program Gets New Name: Materials Management Program

The Division of Solid Waste Management (DSWM) is proud to announce that the Solid Waste Assistance Program will be changing its name to better identify its evolving role as evidenced in the 2025 Solid Waste and Materials Management Plan. The program's new name will be the **Materials Management Program**. This name change will take effect November 15, 2015, in conjunction with America Recycles Day.

The name Materials Management better aligns with industry standards, expectations, and outcomes as DSWM manages materials into the next decade with its goal being the best usage of materials. The name Materials Management is also more suitable to the technical nature of directing materials to better support Tennessee's manufacturing economy, supporting a planned and developed

material handling infrastructure, and adjusting to the challenges of the "evolving ton."

The Planning, Reporting, and Waste Reduction Section will also receive a name change, now known as the **Recovered Materials section**. This name will also better align with the expectations and goals identified in the newly adopted 2025 Plan. The Problem Waste section will continue to manage the Used Oil Program, Household Hazardous Waste Program, and Tennessee's other hard to manage materials.

Although the program has a new name, its goal is the same: to provide the highest quality customer service that meets the varied needs of its broad customer base. While "assistance" may not be in the program's

name any longer, it is a vital part of the program and what it aims to provide to its clients/customers. To better meet this vision, clients will see a unified technical group of subject matter experts ready to assist its customers to meet their needs.

The Grants Administration team will complement the technical team of materials management specialists to support the improvement of solid waste infrastructure across Tennessee. The cohesion of these sections and the addition of new subject matter experts in their technical programs make this an exciting time for Materials Management in Tennessee.

For more information, visit: <http://www.tn.gov/news/20113#sthash.NMjsIjns.dpuf>

Facebook Inc.'s New Office Complete with Sprawling Rooftop Garden

[Article reprinted from Financial Post](#)

Facebook Inc. has moved into its new 430,000-square-foot complex in Menlo Park, California, which chief executive Mark Zuckerberg says features "the largest open floor plan in the world."

The office is called MPK 20 (for "Menlo Park, Building 20") and was designed by Canadian-born Frank Gehry—the renowned architect behind the Guggenheim Bilbao in Spain and Los Angeles' Walt Disney Concert Hall.

For Facebook's new office, Gehry created a space with "lots of small spaces where people can work together... move around and collaborate with anyone here," Zuckerberg wrote in a Facebook post. The social media giant's vice president of global real estate, John Tenanes, [told](#) *Wired* that "you can pretty much see all the way down the building."

The building is topped with a 9-acre park, complete with walking trails and green spaces. According to *Wired*, it blends with the lowlands of Menlo Park, similar to how New York City's High Line garden comple-

ments the urban landscape in Chelsea and the Manhattan Meatpacking District.



USDA Invests \$30 Million to Improve Water Quality in Mississippi River Basin

73 projects will help farmers, ranchers target conservation in high-priority watersheds

U.S. Department of Agriculture (USDA) Secretary Tom Vilsack in early November announced that USDA's Natural Resources Conservation Service (NRCS) will invest \$30 million this year in 33 new projects and 40 existing projects to improve water quality in high-priority watersheds in the Mississippi River Basin.

These projects aim to reduce loss of nutrients and sediment to waters that eventually flow into the Gulf of Mexico.

"By targeting small priority watersheds within the Mississippi River basin, we are helping to deliver local water quality benefits and contributing to large-scale improvements for the Basin as a whole," Secretary Vilsack said. "Water quality is important to everyone, at all levels of government, to private landowners, and in rural and urban areas alike. The many partnerships created

through this initiative are both impressive and promising to the future of these watersheds."

These projects are funded through NRCS' Mississippi River Basin Healthy Watersheds Initiative (MRBI), which uses several 2014 Farm Bill conservation programs, including the Environmental Quality Incentives Program, to help farmers adopt conservation systems to improve water quality, enhance wildlife habitat, and restore wetlands. Since MRBI's start in 2009, NRCS has worked with more than 600 partners and 5,000 farmers to make conservation improvements on more than 1 million acres in the region.

Through these partnerships, the initiative more than quadrupled the number of contracts addressing water quality concerns in targeted project areas. NRCS will invest

\$30 million per year over the next 3 years, as part of a \$100 million commitment resulting from the 2014 Farm Bill.

One watershed in Tennessee was a new awardee this year: The South Fork/Forked Deer watershed touches Haywood, Madison, and Chester Counties. **One existing watershed in Tennessee received 2016 funding:** The Middle Fork/Forked Deer watershed touches Dyer, Crockett, Gibson, Henderson, and Madison Counties. **Three existing Tennessee projects also received funding through the USDA initiative:** Obion River watershed, which touches Dyer, Gibson, Henry, Lake, Lauderdale, Obion, and Weakley Counties; Red River watershed, which touches Robertson County; and the South Fork/Obion watershed, which touches Carroll, Gibson, Henderson, Heney, Obion, and Weakley Counties.

Cities Going Underground to Look for Nutrient Reduction Credits

Fixing illicit discharges from storm, sewer networks goes a long way to prevent pollution

Bay Journal

If you are a stormwater system manager and want to find illicit, illegal, and unintentional discharges of pollutants, go looking in the fall.

It's not too cold, the vegetation has died, and groundwater influences are minimal. In addition, there's less rain than most times of the year. Dry weather makes it easier to find discharges like soapy wash water from an incorrectly plumbed private home or raw sewage leaking from a pipe at an industrial site or from a broken pipe in the storm sewer system.

These sources can contribute as much as 40 percent of the annual load of nutrients found in urban watersheds, as well as bacteria from sewage leaks or chemicals such as laundry whiteners. These pollutants are

also flushed into streams and rivers during wet weather, but because they are diluted by the rain, it is difficult to detect and measure them.

Finding and fixing problems in the underground network of sewer, water, and storm drain pipes that serve a community could be a cost-effective way for many cities, especially older ones, to clean up local streams and meet the nutrient reductions required under the Chesapeake Bay Total Maximum Daily Load program. The program is made available by Chesapeake Stormwater Network.

Many municipal discharges have long gone undiscovered and, therefore, not fixed — because until now, many cities only implemented the minimum measures necessary to comply with their stormwater permits. A credit program approved by the Chesa-

peake Bay program in November 2014 may change that. It offers cities nutrient reduction credits when they go beyond the minimum requirements of their stormwater permits.

Whether the new credits provide enough incentive for cities to do that depends on multiple factors: the city's size and resources, the age and condition of its infrastructure, and whether or not it has already invested in other practices, such as urban stormwater retrofits or stream restoration.

"This is not a theoretical percent removal—you get credit for what you actually find and fix," said Tom Schueler, executive director of the Chesapeake Stormwater Network.

[To read the full article, Click Here!](#)

Job Opportunity! Water Quality Specialist I, City of Franklin, TN

Purpose of Job: Assists with the operations of the Stormwater Division of the Engineering Department under the direct supervision of the Stormwater Management Coordinator. Assists in the administration and management of the Water Quality section of the Stormwater Management Program, in order to meet the goals and objectives of the City's MS4 NPDES permit and best management practices
Deadline to apply: Open Until Filled, Salary: \$1,702.91/bi-weekly [Click Here to Apply](#)

Ohio Supreme Court Rules in Favor of Sewer District in Stormwater Fee Case

On September 15, 2015, the Ohio Supreme Court ruled that the Northeast Ohio Regional Sewer District (NEORSD) is authorized to manage stormwater and can impose a fee for that purpose.

"This is a great victory for the region," said Darnell Brown, NEORSD's Board of Trustees president. "Stormwater is causing damage and inter-community flooding problems, and we can now tackle this growing problem with a regional solution."

NEORSD is now authorized to manage stormwater, including flows not combined with sewage. It can operate stormwater facilities, create and implement a regional program, and charge fees to implement that program, including fees for the use or

service of water resources projects as well as benefits provided by those projects.

The sewer district can move forward with its Regional Stormwater Management Program, which is designed to address flooding, streambank erosion, and water quality issues throughout much of northeast Ohio. A prior court ruling suspended the sewer district's program, effectively terminating construction projects and maintenance work. All billing was suspended, and collected funds were placed into escrow.

"We are pleased with the Ohio Supreme Court's decision and the statewide impact it has for other similarly governed agencies across the state," said NEORSD's Chief

Legal Officer Marlene Sundheimer. "The Ohio Eighth District Court of Appeals' prior ruling jeopardized stormwater programs throughout Ohio, and now, without a doubt, we can continue to address large-scale stormwater problems on a regional basis."

NEORSD has not set a specific date to restart its program. "There is a tremendous amount of work required to resurrect this vital program," said Frank Greenland, Director of Watershed Programs. "Twenty million dollars in fees was collected before the program was suspended, and we will work diligently to prioritize projects and resolve regional flooding and erosion problems."



Property Owners Can Make More Money From Green Buildings, Study Finds

Landlords can put a little more green in their pockets if they have green buildings, according to a new study.

The study examined 10 years of data across 58 million square feet of property managed by Bentall Kennedy and found landlords with environmentally friendly buildings received higher rents; made fewer rent concessions; had higher occupancy rates, better tenant renewals, and improved ener-

gy consumption; and received higher ratings for tenant satisfaction.

"This is the most in-depth and conclusive analysis conducted to date of the link between responsible property investment practices and financial returns," said Gary Whitelaw, chief executive of the Bentall Kennedy Group,

in a release. "By examining a large North American portfolio with consistent data

across multiple market cycles, the results validate Bentall Kennedy's focus on energy and sustainability improvement in buildings, not only as a socially responsible strategy but also as a way to enhance property income for our clients."



To read the entire article, [Click Here!](#)

Nashville's Urban Green Lab Wins U.S. EPA Environmental Education Award

Urban Green Lab (UGL) will launch a mobile laboratory to serve 5th through 12th graders in the Metro Nashville Public School (MNPS) system. The mobile lab will reach culturally diverse and underserved populations to enhance schools' science and technology curricula.

The project is designed to teach students how living a more sustainable lifestyle can

make people healthier and more financially stable while making the local and global environments healthier.

The lab will be outfitted with interactive exhibits and green technologies to help students develop critical thinking, problem solving, and decision making skills. The lab will allow students to gain environmental awareness, translate that to action and, ultimately, become environmental stew-

Short Green Videos: Greenshortz.com

There are so many factors that can make our lives green--or not. Going green can be a little overwhelming. [Greenshortz](http://Greenshortz.com) helps you look at "green" in its smallest pieces and then decide how you want to begin the process of living more sustainably...in simple

easy steps. Watch a few videos. Pick one concept to start. [Put your green on, one leg at a time](#). Greenshortz.com is the brainchild of a former environmental engineer and long-time media professional who decided to go green and make informative,

thought-provoking videos for like-minded individuals. Topics range from "Ten Ways to Green Your Workday" to "Leading with LEED" and "Holding Water in High Regard."



Archived Webinars



The following three webcasts in the Faster Cheaper Greener series have been posted for archived viewing. Note that the posting location provided below is temporary. Archived files will be available at the locations below for the next several months before the files are moved to a permanent location. When the files are moved, a separate notification will be sent.

Webcast #1, Ecological Built Environments, October 21, 2015

Webcast #2, Biophilic Design for Human Health, November 5, 2015

Webcast #3, Tapping into Nature: Bioinspired Innovation, November 18, 2015

If the webcast archive does not automatically launch, please follow the directions provided on the right. If you have any questions, please contact Stefanie Gera at Stefanie.Gera@tetratech.com.

For viewers who pre-registered for the webcast, visit the URL provided and click the "play" button:



For viewers who did not pre-register for the webcast, visit the URL provided, register by entering the required fields, and then click the "play" button that appears on the second screen:



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"Gaining this GISP certification recognizes and validates all my years of hard work to reach this accomplishment. I foresee GIS becoming even more integrated into both the public and private sectors as a way to improve services and save money."

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Purpose

The mission of the Tennessee Stormwater Association (TNSA) is to assist local government entities in their efforts to comply with State and Federal clean water laws and Stormwater Regulations promulgated by the Environmental Protection Agency and the Tennessee Department of Environment and Conservation; and through such assistance, to protect and improve the quality of the waters of Tennessee. This mission will be accomplished through TNSA members' exchange of information and knowledge regarding the design, construction, maintenance, administration and operation of stormwater facilities. The TNSA will promote the dissemination of information in stormwater control measures and the adoption of improved practices in stormwater administration.

Members

TNSA membership is composed of designated Municipal Separate Storm Sewer Systems (MS4s) including local governments (city and county), universities, military installations, and other entities such as TN Department of Transportation (TDOT). Associate members include environmental advocacy groups, non-profits, Tennessee State, sub-state or federal government entities consultants. Private sector membership is available to for-profit engineering, scientific and management firms or other organizations with an interest in stormwater.

Free Downloadable Report on Paying for Stormwater Management

[The Forester Network](#) provides a free report titled Stormwater Funding: Successfully Establishing a Stormwater Management Utility. Designed to help

municipal official considering a stormwater utility to pay for stormwater management and comply with federal law, the report is available [Here](#).

Stormwater Funding
 Successfully Establishing a Stormwater Management Utility

FORESTER Network



The summer cave and karst courses are for those with an academic, professional, or personal interest in all aspects of caves and karst systems.

The Hoffman Environmental Re-

WKU Summer Karst Field Studies

search Institute through its Center for Cave and Karst Studies and in cooperation with Mammoth Cave International Center for Science and Learning, and Western Kentucky University, offers a series of week-long field classes focusing on cave and karst science, and caving.

The classes cover topics such as karst geology and geomorphology (landscapes), speleology, history of exploration in the Mammoth Cave System, karst hydrology in urban areas, cave survey/cartography and GIS, cave photography, and

cave and karst resources management. Though some of the classes do require previous subject knowledge, others are designed for individuals who are purely interested in caves and caving.

Classes can be taken for academic credit (undergraduate and graduate), for continuing education credits (CEU), or as non-credit workshops. For more information go to www.karstfieldstudies.com or on [Facebook](#), or contact Dr. Leslie North: leslie.north@wku.edu

WEF Stormwater Runoff Bill Stuffer Available

Educate your community with this [informative new bill stuffer](#) developed by water quality experts at Water Environment Federation.

It details the environmental impacts of polluted stormwater runoff and what communities can do to prevent this major source of water pollution. These inexpensive items make

useful mailers, bill inserts, and handouts for meetings, exhibits, plant tours, and school programs.

Sold in a pack of 100. Shipping rate is \$9.95 per product. For a complimentary sample of any brochure or bill stuffer, call 1-800-666-0206 or e-mail csc@wef.org

Stormwater Runoff:
 Take It Personally!



Be the Solution to Stormwater Pollution.