

2018
OHIO STORMWATER
C O N F E R E N C E
11th Annual



*Dedicated to the advancement of stormwater
and natural resources management*



www.ohstormwaterconference.com

REGISTRATION INFORMATION
2018 OHIO STORMWATER CONFERENCE

Kalahari Resort and Conference Center - Sandusky | May 9-11, 2018

11th Annual *Ohio Stormwater Conference*

Conference Overview

Recognizing that watershed and stormwater management involves people of varying disciplines and degrees of experience, our conference engages speakers experienced in many aspects of stormwater or water resource management. Speakers will address: examples of planning and design; new standards being developed; incorporating environmental goals into traditional stormwater areas; practice effectiveness; program administration and management; communications; as well as meeting regulatory requirements. Beyond learning from listening and dialogue with speakers, the conference provides an excellent opportunity to meet, network and collaborate with peers.

Who Should Attend?

Planned by a committee of professionals who deal with stormwater issues on a daily basis, the conference is appropriate for public and private engineers, planners, policy makers, scientists, managers, and elected officials throughout Ohio and the region. Those interested in innovative solutions to common issues relating to stormwater management should attend.

Continuing Education

A Certificate of Attendance will be provided to all individuals who attend the conference. This certificate, along with a copy of the agenda, will assist individuals needing to document professional development hours for their technical profession. We are also seeking to get approved hours from a variety of professions. Please contact Harry Stark with any questions at 216-385-5248 or hstark@ohstormwaterconference.com.

Kalahari Conference Center

Kalahari Resort and Conference Center is located at 7000 Kalahari Drive, Sandusky, Ohio 44870. Complete directions can be found on the conference website.

Hotel Information

The Conference Committee has secured group rates for the Kalahari Resort and Conference Center.

We are pleased to announce that the Conference has secured a group rate of \$124 per night for the conference. These rates are in affect from May 9 – May 11, 2018.

You can make reservations by calling 877-525-2427 on or before Sunday **April 8, 2018**. Please use the code Ohio Stormwater Conference for the room block rate.

The link is: <https://stay.kalahariresorts.com/ohio#groupSignIn>
Group code is: 26829

Put the group code in and hit continue. Follow instructions on website to reserve your rooms.

Note: The Resort Fee has been waived and will not be charged on any guest room. The standard wording on their website and confirmation letters though cannot be changed so it will reference the Resort Fee but no fee will be assessed.

Presented By

The Ohio Stormwater Conference is presented annually by Tinker's Creek Watershed Partners and the Ohio Stormwater Association.



Conference Schedule

Tuesday, May 8, 2018

8:00 a.m. - 4:00 p.m. Envirocert Review Class's

Wednesday, May 9, 2018

8:00 a.m. - Noon 2018 MS4 Training
8:00 a.m. - 4:00 p.m. Envirocert Review Exams
1:00 p.m. - 5:00 p.m. Canoe Tour and Stormwater Best Management Practices at
Old Woman Creek National Estuarine Research Reserve
1:00 p.m. - 5:00 p.m. Sandusky Green Infrastructure Projects
5:30 p.m. - 8:30 p.m. NASA Plum Brook Station Tour and Dinner

Thursday, May 10, 2018

Exhibit Area Open 9:00 a.m. - 12:00 p.m. and 1:00 p.m. - 7:30 p.m.
7:30 a.m. - 8:30 a.m. Registration / Breakfast
8:30 a.m. - 10:00 a.m. Opening Session / Keynote Speaker
10:00 a.m. - 10:30 a.m. Morning Refreshment Break / Exhibits
10:30 a.m. - 12:00 p.m. Concurrent Sessions
12:00 p.m. - 1:30 p.m. Luncheon
1:30 p.m. - 3:00 p.m. Concurrent Sessions
3:00 p.m. - 3:30 p.m. Afternoon Refreshment Break / Exhibits
3:30 p.m. - 5:00 p.m. Concurrent Sessions
5:00 p.m. - 7:00 p.m. Opening Reception

Friday, May 11, 2018

Exhibit Area Open 9:00 a.m. - 1:00 p.m.
7:30 a.m. - 8:30 a.m. Registration / Breakfast
8:30 a.m. - 10:00 a.m. Concurrent Sessions
10:00 a.m. - 10:30 a.m. Morning Refreshment Break / Exhibits
10:30 a.m. - 12:00 p.m. Concurrent Sessions
12:00 p.m. - 1:00 p.m. Luncheon
1:00 p.m. - 2:00 p.m. Concurrent Sessions
2:10 p.m. - 3:10 p.m. Concurrent Sessions

Registration Type/Fee

Attendee	Speaker	Student	Scholarship
\$195.00 (postmarked by April 15, 2018)	\$100.00	\$95.00	\$95.00
\$245.00 (postmarked after April 15, 2018)			

Registration Includes:

- Unlimited admission to the sessions of your choice on both days
- Admission to morning breakfasts on both days and all breaks
- Admission to luncheons on Thursday, May 10 and Friday, May 11, 2018
- Admission to the Reception on Thursday, May 10, 2018

Register online
ohstormwaterconference.com

Questions? Contact us at
216-385-5248 or e-mail at
hstark@ohstormwaterconference.com

Certification Class/Exams and

Certification Class - Tuesday, May 8, 2018

Certification Exams - Wednesday May 9, 2018

EnviroCert International, Inc. (ECI) is a Non-Profit Organization whose purpose is to safeguard life, health, property, and to promote the public welfare. ECI Professionals are distinguished in all 50 states and over 20 countries as leading experts in their respective fields. ECI offers the following professional certifications: Stormwater Quality (CPSWQ), Erosion and Sediment Control (CPESC), Certified Professional in Municipal Stormwater Management (CPMSM), Stormwater Inspections (CESSWI), and Industrial Stormwater Management (CPISM).

EnviroCert will be offering the following certifications and exams at the 2017 Ohio Stormwater Conference.

Tuesday, May 8, 2018, 8:00 a.m.

REVIEW CLASSES: CPESC, CESSWI, CPSWQ, CPMSM

Wednesday, May 9, 2018

EXAMS: CPESC, CESSWI, CPSWQ, CPMSM

Go to <http://booking.envirocertintl.org/> to register for the classes or exams.

Class - 2018 MS4 Bootcamp!

2018 MS4 Training - Managing an Effective Stormwater Program

Date: May 9, 2018 Time: 8-Noon Cost: \$20

New MS4 Community? New Stormwater Staff? All Welcome!

Whether you are a newly regulated MS4 community, a new employee working for an MS4 community, or simply needing an MS4 refresher, this training is for you! Join us for a half day workshop to better understand permit requirements and compliance issues while networking with other MS4 communities and Ohio EPA stormwater staff. Ohio EPA will provide an overview of the NPDES program and requirements of the MS4 communities. Existing successful MS4 communities will share their perspectives on the “must know” and “what’s new” program elements needed to develop a successful Stormwater Management Program and review lessons learned. This training will provide you with all of the information and tools that are needed to manage a successful MS4 program that complies with the latest Ohio stormwater general permit. Lastly, the session will culminate with a panel question and answer session, where you may ask all your program questions and receive program-experienced answers. Cost of the workshop includes refreshments, light snacks, useful handouts and great contacts.

Tours - Wednesday May 9, 2018

Canoe Tour and Stormwater Best Management Practices at Old Woman Creek National Estuarine Research Reserve

Date: May 9, 2018 Time: 1-5 PM Cost: \$25 Max number: 20 Vans leave from: Kalahari
Tour leader: Emily Kuzmick

Old Woman Creek National Estuarine Research Reserve is a 573-acre reserve on the shore of Lake Erie, located 3 miles east of Huron, Ohio. The semi-enclosed wetland is one of the finest natural estuaries in the Great Lakes and an important locale for the study of coastal habitats. Your journey will start with a 2-2.5 hour canoe tour of Old Woman Creek, followed by a tour of stormwater best management practices at the Mike DeWine Center for Coastal Wetland Studies. The Mike DeWine Center for Coastal Wetland Studies, overlooking the estuary's eastern shore, provides laboratories for ecological research and serves as a focal point for public visitation and education programs. A comprehensive renovation completed in 2003 incorporated many green building materials and construction techniques and was followed with stormwater retrofits including permeable pavement and a rain garden. Reserve staff will discuss lessons learned from the permeable pavement/cistern project, the performance of this and other permeable pavement installations on poorly draining soils in Ohio's Lake Erie watershed, and how research results are being used to improve design guidance and support the development of a runoff reduction crediting framework for Ohio.

Sandusky Green Infrastructure Projects

Date: May 9, 2018 Time: 1-5 PM Cost: \$25 Max number: 24 Vans leave from: Kalahari
Tour leaders: Melissa Fetter, Eric Dodrill

Take a tour of green infrastructure around the City of Sandusky and City of Vermilion, including a mix of new and established projects at public sites, commercial facilities, and a school. The tour will begin at in the City of Vermilion at the Main Street Beach bioretention and permeable paver project as well as the Showse Park permeable paver project. Next, we will return to Sandusky to see the Lions Park project, a 2017 green infrastructure project which contains three variations of bioretention. Mills Golf Course bioretention pilot project in Sandusky. This was a collaboration between private and government entities to test if a bi-product from the steel industry utilized in a bioretention system can help capture phosphates. The data from the first year is intriguing and people like traveling on golf carts to get to see it!

Evening Event- NASA Plum Brook Station Tour and Dinner

Date: May 9, 2018 Time: 5:30-8:30 PM Cost: \$50 Max number: 45 Vans leave from: Kalahari
Tour leader: David Taylor, NASA

Take an evening tour of natural areas, stormwater features, and other exciting things at NASA Plum Brook Station in Milan, Ohio. Plum Brook Station is a remote test facility for the NASA Glenn Research Center in Cleveland, Ohio. Located on 6,400 acres in the Lake Erie community of Sandusky, Plum Brook is home to four world-class test facilities, which perform complex and innovative ground tests for the international space community. The Space Power Facility (SPF) houses the world's largest and most powerful space environment simulation facilities including the Space Simulation Vacuum Chamber measuring 100 ft. in diameter by 122 ft. high. Plum Brook managers have completed prairie and wetland restoration projects at the station, which is home to a wide variety of threatened and endangered species. Have a buffet dinner after the tour.

Thursday, May 10, 2018

REGISTRATION / BREAKFAST

WELCOME - 8:30 a.m.

OPENING SPEAKER - 8:45 a.m. - To Be Announced

KEYNOTE SPEAKER - 9:00 a.m. - To Be Announced

BREAK / VISIT EXHIBITORS - 10:00 to 10:30 a.m.

SESSIONS / TRACKS - 10:30 to 12:00 p.m.

T1A: Stormwater Practices and BMPs Planning and Design

Calculating Ohio's Water Quality Volume (30 min.)

Justin Reinhart, Ohio EPA

Re-issuance of Ohio EPA's NPDES General Permit for Construction Activities in April, 2018 may bring along fundamental changes to Ohio's water quality volume. This presentation will be a tutorial for design professionals and practitioners on calculating Ohio's Water Quality Volume by working through typical development site examples.

Reducing the Water Quality Volume (WQv) through Green Infrastructure Practices (60 min.)

Jay Dorsey, Ohio State University

Ohio EPA promotes the implementation of green infrastructure to lessen the impacts of stormwater runoff. Previously, the NPDES stormwater permit provided little incentive to choose a green infrastructure approach. By offering a mechanism for crediting volume reduction provided by GI toward water quality and peak discharge requirements, Ohio EPA hopes to encourage more widespread adoption of green stormwater infrastructure.

T1B: Green Infrastructure

Results for Stormwater Infiltration in Combined Sewer Systems (30 min.)

Kimberly Colich, NEORS

Performance of three (3) stormwater infiltration projects will be discussed and include Fleet Avenue Green Infrastructure, UCI Marriott Hotel Parking Lot, and Public Square, all within the City of Cleveland. Post-construction monitoring data will be reviewed and actual performance of these systems will be presented.

Leveraging Private Capital for Great Lakes Green Infrastructure Implementation (60 min.)

Jeff Odefey, American Rivers

Janet Clements, Corona Environmental Consulting

This presentation will discuss the background that led Grand Rapids, MI and NEORS to consider a stormwater volumetric trading program, targeted grant programs and private sector capital as a means to address stormwater issues; a primer on stormwater exchange markets; and explore the various approaches to optimize grant programs.

T1C: Watershed Planning and Restoration

Stabilization Along the Cuyahoga River: Avoiding a "Tow Away Zone" (30 min.)

Kristen Buccier, NEORS

Shannon Conway, Stantec

The Northeast Ohio Regional Sewer District completed a streambank stabilization project along 1,100 linear feet of the Cuyahoga River in Cuyahoga

Valley National Park in the Village of Valley View. Many site constraints were considered throughout the design and construction of the project.

Dredge Material: a Solution to Restore Toledo's Cullen Park Bay (60 min.)

Sally Gladwell, Manick Smith

Lisa Ward, City of Toledo

Learn how the City of Toledo and its project partners employed Healthy Lake Erie funding to use our state's abundant dredge material to design coastal wetlands, create important habitat, develop passive and active recreational opportunities, improve water quality, and, connect the bay to the adjacent successful transformation of Cullen Park.

T1D: MS4 Program Management

City of Newark - Log Pond Run Diversion Channel Restoration (30 min.)

Tom Dietrich, Gresham, Smith and Partners and John Trujillo, City of Newark

This presentation will provide an overview of the back story of the restoration project, identification and securing of grant dollars and design and construction challenges overcome to restore 1,200' of an armored channel in an urban setting.

A National Review of Innovative and Integrated Stormwater Management Initiatives (60 min.)

Pinar Balci, NYC Environmental Protection

Steve Sands, Hazen and Sawyer

New York City Environmental Protection (DEP) compiled information on stormwater programs in 34 communities. The effort focused on lessons-learned, challenges, and experiences with NPDES MS4 compliance, Consent Decree compliance, flood reduction programs, and other stormwater initiatives. Insights inform the development of DEP's programs, as well as a resource for other municipalities to manage stormwater in an innovative and integrated manner.

T1E: Transportation

Stormwater Treatment in an Urban Corridor- Hydrodynamic Separators for I-70-71 (30 min.)

Chad Boyer, MS consultants

Dana Hinaman, Contech Engineered Solutions

Running through a central business district of Columbus, the I-70/I-71 Interchange is a two-mile stretch of highway that has been going through a \$1.5 billion, multi-year modernization to improve the corridor through the downtown area. The preferred water quality treatment included a system of four, 10-ft diameter hydrodynamic separators.

Time of Concentration Assessment for Rainfall Runoff on Small Watersheds (60 min.)

Kenneth O. Kagy, Milton, City Engineer

This presentation explores an Innovative approach to a fundamental technique used in all hydrology evaluations. Time of concentration graphs are created to demonstrate how watershed characteristics effect storm water runoff. These comparisons employ empirical equations and SCS's velocity equations used in time computations for storm water runoff. The study compares manning's sheet flow coefficients with watershed impervious surface, rational method coefficients, and NRCS's soil curve numbers.

T1F: Modeling and Research

Real-Time Control of Bioretention Cells for Enhanced Phosphorus Removal (30 min.)

Brooke Mason, University of Toledo

Green infrastructure combats stormwater impacts by retaining flows and

improving water quality. However, green infrastructure is static. Benefits result from transforming infrastructure to dynamic and adaptive systems by adding real-time controls. A traditional bioretention cell was modeled to determine if a real-time controlled underdrain could optimize phosphorus removal.

Hydrology: Old Science, New Applications for the Blanchard River (60 min.)

Erman Caudill, Stantec

A discussion on some limitations of TR-55 Hydrology along with applications of temporal and spatial patterns for storms commonly used in hydrologic modeling. Stream and precipitation gages are used with radar data and modeling for a case study on the Blanchard River in Findlay and Hancock County, Ohio.

T1G: Legal

Ohio Water Law 101 (30 min.)

Louis L. McMahon, McMahon DeGulis LLP

The goal of this presentation is to enable community leaders, engineers, and stormwater professionals to be aware of the interplay between complex stormwater planning and related legal issues. By becoming aware of these issues, attendees can make more informed choices that will benefit their communities.

Managing Liability by Keeping the Peace in the Utility Corridor (60 min.)

Louis L. McMahon and Andrea M. Salimbene, McMahon DeGulis LLP

Alana R. Shockey, City of Columbus; Katie Schaad, T&M Associates

This panel will discuss stormwater projects intersecting private property, the law surrounding these public-private "collaborations," what is a taking, use of easements, and best practices such as contractor training and grievance resolution to keep the peace and manage liability when stormwater management gets up close and personal with the public.

LUNCH - 12:00 to 1:30 p.m.

SESSIONS / TRACKS - 1:30 to 3:00 p.m.

T2A: Stormwater Practices and BMPs Planning and Design

The \$218 Million Watershed Solution for Bee Branch in Dubuque Iowa (60 min.)

Eric Vieth, Strand Associates, Inc.

John Lyons, Strand Associates, Inc.

The City of Dubuque Iowa was experiencing severe flooding of more than 1,000 properties including 6 presidential disaster declarations. The \$218 Million Bee Branch solution restored an enclosed stream to an urban waterway providing a fiscally responsible investment to mitigate flooding, improve water quality, stimulate investment, and enhance quality of life.

City of Montgomery Public Works Rain Harvesting System (30 min.)

Gary Heitkamp, City of Montgomery

Aspects of the system design and important design components will be provided, stressing the simplicity and affordability of the system so that others will consider one for their facility. Successful outcomes resulted from coordination of the design with public works service workers.

T2B: Green Infrastructure

Trees: The Overlooked Giants of Stormwater Management (60 min.)

John Kusnier and Jenny Gulick, Davey Resource Group

Healthy, diverse plant communities provide the natural line of defense that protect our rivers, lakes, and streams from excessive stormwater runoff. When natural plant communities are compromised, our communities can be negatively affected by increased flooding, property destruction, poor water quality, and negative aesthetic impacts

Saving Money with Permeable Pavers: a Case Study (30 min.)

Paul C Cureton

Permeable pavers and green infrastructure can reduce both development and life-cycle costs if incorporated early into projects. Woodridge School District 68's Green Campus Initiative began in 2011 with the goal of reducing maintenance costs across the District by replacing the asphalt parking lots at all seven schools in the District with permeable pavers and creating outdoor educational space at every school.

T2C: Watershed Planning and Restoration

Fore to Forest for Fins & Feathers: transforming Acacia Country Club (60 min.)

Jennifer Grieser, Cleveland Metroparks

Suzanne Hoehne, Biohabitats

Large and complex – restoring everything from a headwater system to a highly impacted urban stream – Acacia Reservation Restoration offers a comprehensive look at the challenges and benefits of different types of restoration in one setting. This presentation will step the audience through the entire process from beginning to end.

NPS-IS Development in Northeast Ohio (30 min.)

Christina Znidarsic, Chagrin River Watershed Partners, Inc.

Nonpoint Source Implementation Strategy (NPS-IS) plans are required by Ohio EPA to maintain compliance with USEPA's 9-Element framework for watershed planning. Chagrin River Watershed Partners (CRWP) will walk through the NPS-IS process, including available tools for plan development that simplify the process, conducting public input, and collection of baseline data and sources for watershed characterization. Understanding water quality metrics for goal-setting, identification of critical areas, and tying in causes and sources of pollution to development of priority projects will be discussed. CRWP will also give an overview of NPS-IS planning efforts in Northeast Ohio through their work with the Central Lake Erie Basin collaborative group.

T2D: MS4 Program Management

Learning from Challenges Faced by Others – Reflections for Ohio MS4s (60 min.)

Jennifer Missett, Biohabitats, Inc.

MS4 programs in the mid-Atlantic continue to grow and evolve. This presentation will provide an overview of the state of the practice, an update to issues discussed at the 2017 Ohio Stormwater Conference, and further lessons learned that may allow Ohio communities to streamline enhanced programs in the future.

Impervious Surface Delineation - How Feature Extraction Provides Return on Investment (30 min.)

Brian Stevens, Woolpert, Inc

Presentation will center on the use of geospatial data in a remote sensing environment to extract impervious surfaces.

T2E: Transportation

Rethinking Construction Stormwater Management (60 min.)

Barry Fagan, Volkert, Inc

The most widely accepted, installed, and specified construction site BMPs also happen to be the least effective and most expensive. In this session, we will explore and demonstrate a much more holistic approach to construction stormwater management that focuses on effectiveness over compliance.

E&SC Compost-Based BMPs: Is Compost Quality Important? (30 min.)

Dr. Britt Faucette, Filtrexx International

Compost-based BMPs for E&SC have become widely accepted, and while detailed specifications exist at the state and federal level, often these are not adhered to in the field. This presentation will focus on federally published specifications, and corresponding research performance data when followed, versus common non-compliance in the field.

2F: Modeling and Research

Wetlands, Bats and Permits, Oh My! Calming your Permitting Fears (60 min.)

Sarah Rehner, NEORSD

Robin Halperin, NEORSD

Regulatory compliance requirements are often viewed as confusing roadblocks and unanticipated permitting can add time and cost to projects. We will guide you through proper site evaluation, assessment of required permits, application preparation, and regulatory agency coordination. Let us provide clarity and instill confidence for efficient permitting and successful projects.

Sandusky Bay 3D Eutrophication Modeling to Support the Sandusky Bay Initiative (30 min.)

Kevin Kratt, Tetra Tech

Lynn Garrity, ODNR

This presentation will explain how eutrophication modeling is being used to support the Sandusky Bay Initiative. The modeling effort is helping to guide management decisions, such as how to best control tributary loadings, how to assess the importance of internal loading, and how to select and design optimal living shoreline, wetland, and other types of restoration projects.

T2G: Legal

Stormwater Litigation and Legal Hot Topics (60 min.)

Andrea M. Salimbene, McMahon DeGulis LLP

Get informed on the latest stormwater-related litigation and other timely, hot topics on the legal front. Join us as we present the factual and procedural history of key cases and outcomes to date, then discuss how this translates into legal trends and best practices for stormwater professionals.

The Acts of God Defense in the Face of Flooding (30 min.)

Lauryn Kitchen, McMahon DeGulis

Flooding is becoming a stark reality across Ohio and eroding sovereign immunity places governments at greater risk of liability. Learn how sovereign immunity works, how courts have interpreted it as it relates to flooding, and how the "Acts of God" defense may be argued as another means of pushing back.

BREAK / VISIT EXHIBITORS - 3:00 to 3:30 p.m.

SESSIONS / TRACKS - 3:30 to 5:00 p.m.

T3A: Stormwater Practices and BMPs Planning and Design

Tools and Case Studies for Green-Gray Infrastructure Lifecycle Cost Analysis (30 min.)

Justin Kerns, ms consultants, inc.

Designers, developers, municipalities, regulatory agencies are asking the same question; green or gray? This presentation will discuss green and gray infrastructure benefit cost analysis and long term performance utilizing

enhanced software tools by introducing economic projections and climate change forecasting. Project case studies will be presented to demonstrate these tools.

More Than A Hole in the Ground (30 min.)

Taymour El-Hosseiny, HDR

Ron Geiger, HDR

Storing 500-yr runoff volume from site development is an engineering challenge. The City of Calgary, Alberta required using 55-years of rainfall to determine runoff volumes. A collaboration between City, Consultant, and Developer brought the pond shape, and vision of a park that meets design requirements, and provides a park aesthetic.

Managing Conflict at Public Meetings (30 min.)

Julie Lawson, Environmental Design Group

Public Meetings are most effective when information and ideas are freely exchanged. However, conflict can prevent dialogue and a project suffers from the lack of collaboration. This session will present strategies to implement for conflict management for the benefit of the project and to maintain positive relationships with the public.

T3B: Green Infrastructure

Designing Green Infrastructure for Climate Resiliency (30 min.)

Michael J. Cook, Advanced Drainage Systems, Inc.

How do we account for climate change when designing green infrastructure? In this presentation, we'll explore the design service life of current design practices and how we can be better prepared for future climate conditions. Local and regional project examples will be highlighted that meet these new challenges.

Encouraging Green Infrastructure with Mayfield Village and Oberlin (30 min.)

Keely Davidson-Bennett, Chagrin River Watershed Partners

This presentation will share lessons learned through working with the City of Oberlin, Mayfield Village, and other Central Lake Erie Basin communities to increase green infrastructure implementation through incentive programs, regulations, and outreach to property owners.

The National Green Infrastructure Certification Program – A Focus on Workforce Development (30 min.)

Claudio H. Ternieden, Water Environment Federation

The National Green Infrastructure (GI) Certification Program's primary objectives are to provide a pool of skilled workers to construct, inspect, and maintain GI in accordance with best practices to support long-term system performance and support the nation's cities in efforts to encourage, through GI program investments, the establishment of local sustainable employment opportunities that provide livable wages. This workshop will include a program overview and highlight how a variety of different utilities and municipalities are using the NGICP to support their stormwater management and green infrastructure programs.

T3C: Watershed Planning and Restoration

Regional Collaboration for Resiliency Planning, Sustaining Scioto Study Phase 2 (30 min.)

Lisa Jeffrey, Hazen and Sawyer

Rachael Beeman, MORPC ; Mike Andrako, Marysville; Mark McCabe, Gresham Smith

Large-scale issues associated with climate change, including both increases in temperature and in the volatility in rainfall, are best addressed on a regional basis. Vulnerabilities include degradation of water quality, increased potential for algal blooms and increased incidence of both extended droughts and extreme storms and flooding.

Stream and Wetland Restoration Performance Assessment Project (30 min.) Kimberly Brewster, Chagrin River Watershed Partners

Chagrin River Watershed Partners (CRWP) conducted assessments of long term performance for previously completed stream and wetland restoration projects in northern Ohio. Lessons learned from these assessments will be helpful for communities and natural resource managers involved in stream and wetland restoration.

East Sandusky Bay Nature-Based Shoreline and Coastal Wetland Restoration Project (30 min.)

Tom Denbow, Biohabitats

Aaron Klein, City of Sandusky

Understanding nearshore hydrodynamics are essential when restoring coastal wetlands and designing for nature-based shoreline restoration. Restoration of Sandusky Bay is a dynamic process extending over multiple years. A systems approach is necessary to design of nearshore coastal systems. Understanding coastal watershed hydrology and sedimentation loads play a very critical role in restoring coastal wetlands and designing nature-based shoreline projects.

T3D: MS4 Program Management

Lessons Learned: Stream Restoration TMDL Load Reductions in Chesapeake Bay (30 min.)

Bob Siegfried, RES

Heather Haynes-Long, RES

The Chesapeake Bay TMDL set load reduction goals for TN, TP and TSS for MS4 permittees, and an expert panel developed protocols for calculating load reductions. Improvements to protocols for stream restoration load reduction should be considered prior to adoption by other regional TMDL programs.

OEPA Panel Updates and Discussion (60 min.)

T3E: Transportation

Re-evaluation of Ohio Precipitation and Post-construction Water Quality Volume (WQv) (30 min.)

Jay Dorsey, Ohio State University

Ryan Winston, Ohio State University

In 2003, Ohio EPA added post-construction detention/treatment requirements to the NPDES stormwater permit to address water quality and stream stability concerns associated with new development. NPDES post-construction water quality volume criteria were re-evaluated in light of updated precipitation data and advances in stormwater management.

From Volume Based to Peak Flow Design Example Successes (30 min.)

Mike Kusch, Bio Cleant

Designing projects to Peak Flows can create some unique advantages to not only the contractor but the owner as well. Join the Chairman as he looks into a challenging project solution.

ODOT Cost Benefit Analysis for Culvert Replacement (30 min.)

Katie Nolan, Gresham Smith & Partners

ODOT conducted a cost benefit analysis of its 82,000 culvert database to determine replacement methods available on a statewide basis. The results of the analysis provided the bases of justifying the purchase of equipment and training staff.

T3F: Modeling and Research

Beyond Runoff Reduction - Thorough Green Infrastructure Design (30 min.)

Zach Sample, Innovyze

Runoff Reduction and Water Quality Volume calculation practices are very useful in the design process - but can do little to help create healthy, long

term stormwater systems unless a direct and holistic approach to stormwater design is taken. This presentation will include a case study on this topic.

Downsizing Stormwater Management Facilities with Forecast-Based Real Time Controls (30 min.)

Dayton Marchese, Opti

Stormwater facilities are traditionally sized based on contributing drainage area and static capture volume. With the use of continuous monitoring and adaptive control (CMAC), stormwater facilities can modify their storage capacity in real-time in response to the weather forecast, allowing smaller facilities to outperform the statically-sized alternatives.

Advanced DEM Application to Enhance Stormwater Modeling (30 min.)

Julie Qiuli Lu, Arcadis

- High resolution DEM data is now available;
- DEM data is used to derive street cross sections to model street channels;
- DEM data is used to define points of interest (POIs) and storage curves. The POIs are used to evaluate the surface flooding depth;
- Enhanced physical based stormwater model can be used for Green Infrastructure planning.c.

T3G: SLegal

Environmental and Stormwater Permitting of Oil & Gas Pipelines (60 min.)

Cynthia Paschke, BL Companies

James Jones, PE, BL Companies

Pipeline construction in Ohio is frequently viewed by the public as the "wild west" and not perceived as being regulated. BL Companies has conducted permitting, prepared E&S Plans, and SWPPP plans for numerous pipelines in Ohio. The implementation of these stormwater plans during construction and lessons learned will be discussed.

Legal Roundtable (30 min.)

Andrea M. Salimbene, McMahon DeGulis LLP

Communities face a number of legal issues related to stormwater management: from assessing the authority to regulate, to the right to inspect and maintain control measures. In this session, facilitated by attorneys but engaged by conference participants, we'll discuss and address topics and compare notes on legal issues top-of-mind for participants.

RECEPTION - 5:00 to 7:00 p.m.

A casual networking opportunity and time to gather while enjoying appetizers and drinks.

Friday, May 11, 2018

REGISTRATION / BREAKFAST - 7:30 to 8:30 a.m.

SESSIONS / TRACKS - 8:30 to 10:00 a.m.

F1A: Stormwater Practices and BMPs Planning and Design

Stormwater Mitigation Utilizing Suspended Pavement in Uptown Normal, IL (30 min.)

Rob Gray, and Al Key,

Wofs.

Pollution Prevention/Good Housekeeping Assessments for Over 1000 Municipal (60 min.)

John Aldrich, CDM Smith

Patrick Parault, Arcadis

New York City developed a pollution prevention / good housekeeping program for a variety of on-site and off-site operations associated with over 1,000 municipal facilities. This presentation will describe how fifteen independent agencies, collaborating through a Stormwater Controls Working Group, worked together with two independent consultant teams to develop and implement this program.

F1B: Green Infrastructure

Benefits of Active Control of Green Stormwater Infrastructure using Hydrologic Models (30 min.)

Bernard Bahaya, University of Toledo

Abhiram Mullapudi, University of Michigan

EPA's Stormwater Management Model (SWMM) was used to represent an existing green stormwater infrastructure site i.e. a vegetative swale, with active control. A valve and electric actuator were added to the swale's underdrain to provide the capability for active control i.e. real-time control (open or close) in response to ambient conditions. Initial SWMM simulations were carried out for selected design storms and continuous rain gage data with the underdrain valve open or closed.

Creating Green Networks of Community Assets in our Post-Industrial Cities (60 min.)

Jennifer Missett, Biohabitats, Inc.

The Baltimore City Department of Planning is creating a Green Network Plan that will transform vacant lands into community assets –parks, trails, urban forest, stormwater practices, complete streets, economic redevelopment zones, and urban farms. This presentation will describe the planning process and how it is applicable to Midwestern cities.

F1C: Watershed Planning and Restoration

Lessons Learned on Dam Removal Projects - Adapting to Changing Conditions! (30 min.)

Troy Naperala, AECOM

The Boardman River Restoration project has been an ongoing effort since 2006. Since then, design and permitting and construction efforts have culminated in a new Cass Road Bridge and removal of two dams. This presentation will highlight the work completed to date, the challenges faced, and the lessons learned.

Highland Park Golf Course Stream Restoration – Restoration to a Resilient System (60 min.)

Ivan Valentic, GPD Group

Matt Lascola PE, Joel Bingham, Paul Kovalcik, Shannon Carneal, GPD Group

The goal of this presentation is to provide an overview of goal setting, floodplain connection as a component of natural channel design while balancing the stakeholder needs; as well as a performance update in year two, post-construction.

F1DCSO/SSO/I&I

Private Property I/I: Data Collection, Construction, Lessons Learned (30 Min)

Chris Rybak, CT Consultants, Inc.

Mark Delisio, P.E., CT Consultants, Inc.

Lessons learned from a public and private I/I removal pilot study will be examined. The project included 2 phases of construction, consistent communication with the contractor and client, continuous flow data collection, and in-depth field investigations with the end goal of reducing wet weather flows.

Leveraging Clean Water Act Compliance to Maximize Community Benefits (60 min.)

John Lyons, Strand Associates

Today's increasingly challenging regulatory environment combined with a growing demand for efficient and meaningful spending of rate-payer dollars, warrants a more creative approach to compliance. This presentation will focus on approaches that consider a community's overall needs, and maximize the value of each investment to accomplish multiple objectives.

F1E: Transportation

ODOT's Updated Storm Water Management Plan (45 min.)

Mark McCabe, Gresham Smith & Partners

Kathryn Gruver, Gresham, Smith and Partners

ODOT's SWMP impacts project delivery, maintenance on system assets and requirements for ODOT's annual report.

Transportation Roundtable (45 min.)

F1F: Stormwater Retrofits

Bending Weir Retrofit Allows Clyde to Maximize Stormwater Capture (30 min.)

Richard Lesiecki, Environmental Design Engineer

Discover the power of the Bending Weir! They can reduce the footprint, maximize the storage, and provide a precise hydraulic grade line in your storage basin and collection system projects. They're perfect for both new construction and retrofit projects.

ProLogis Park 70 E-Commerce Site (Amazon Distribution Center (60 min.)

Justin Lowe, Hull & Associates, Inc.

Amanda Spencer and Jim Roberts, Hull & Associates, Inc.

Amazon's new Distribution Center in Etna, Ohio included construction of a 900,000 square foot industrial building and over 2,500 parking spaces. The team in charge of this massive site design will provide an overview of the project, challenges involved, and creative solutions developed to properly drain the project area.

F1G: MS4 Program Management

Union/Mulberry (Glassco Park) Area Drainage Study & Improvements (30 min.)

Scott Haines, Hull Assoc.

Denise Crews, P.E., City of Lancaster

The City of Lancaster experienced drainage complaints in the Union/Mulberry area for many years. After a citizen survey revealed the type, frequency, magnitude, and impact of the drainage problems in the area, the city allocated funds to perform a drainage study to target issues and find possible solutions.

Predicting Hydromodification Impacts Using a Four Factor Approach (60 min.)

Matt Bardol, Geosyntec

Considering just the pre-development frequency distribution of run-off may not adequately control the impacts of hydromodification. Additional factors should be considered as part of stream enhancement efforts.

SESSIONS / TRACKS - 10:30 to 12:00 p.m.

F2A: Stormwater Practices and BMPs Planning and Design

Incorporating Ohio Stormwater Requirements Into Your Projects - SWPPPs and BMPs (60 min.)

Jennifer Conroy, Burgess & Niple, Inc.

Brian W. Tornes, PE, Brian Yates, PE, and Kevin Hutchens, PE, Burgess & Niple, Inc.

Applying stormwater regulations for quality and quantity control in a cost-effective way is challenging. It requires a design that works with the existing and final site grading plan, stormwater collection system, and construction sequencing. Presenters will use a variety of site development projects to show how this can be accomplished.

Tree Filter Systems for Stormwater Management and Streetscape Design (30 min.)

Paul Iorio, StormTree

Tree filter systems integrate common street trees with stormwater collection as a viable and sustainable alternative to traditional "end of pipe" systems in achieving stormwater management and non-point source pollutant remediation goals. These systems are also suited for complete streets/streetscape programs for the development of healthy trees.

F2B: Green Infrastructure

Lessons Learned While Constructing A Wetland In an Urban Environment (30 min.)

Kathryn E. DeMuesy, H.R. Gray and Jason Zajac, City of Akron

Green infrastructure can be implemented in the designs of new construction, but can also be used in retrofits of existing public development. This presentation will highlight how The City of Akron, Ohio integrated the construction of a wetland retention area for stormwater runoff in this urban environment.

Measuring the Impacts of Green Infrastructure Implementation: Blueprint Columbus (30 min.)

Ryan Winston, Ohio State University

The City of Columbus is implementing green infrastructure in the municipal right-of-way through the Blueprint Columbus program. This presentation will summarize the findings thus far of intensive monitoring of this project by Ohio State University, including stormwater benefits and other co-benefits of green infrastructure.

Helping Green Stormwater Infrastructure Take Root in Detroit Through Partnerships (30 min.)

Kellie DuBay, Tetra Tech

Lisa Wallick and Valerie Novaes, DWSD

The Detroit Water and Sewerage Department (DWSD) invests not only in the design and implementation of green stormwater infrastructure practices, but also in the partnerships and outreach needed to ensure these projects provide multiple benefits. This presentation examines partnership lessons learned for four DWSD GSI projects.

F2C: Watershed Planning and Restoration

Water Resources Plan for Southeast Michigan: Infrastructure, Natural Resources, and the Blue Economy (30 min.)

Devan Rostorfer, Southeast Michigan Council of Governments

Kelly Karll, Southeast Michigan Council of Governments

As the leading agency facilitating regional collaboration on water resource management in Southeast Michigan, SEMCOG's 2018 Water Resources Plan establishes the framework for future action and implementation on water resources. This presentation emphasizes the importance of investing in natural resources, infrastructure, and the blue economy to achieve long-term economic prosperity.

Green Infrastructure and Stream Restoration for TMDL Implementation (30 min.)

Troy Naperal, AECOM

In an effort to remove Kids Creek from the State's Impaired Waters List, The Watershed Center has implemented several projects aimed at reducing the peak inflow into Kids Creek, reducing sediment loads and nutrient pollutant loads, and improving instream habitat.

Alternatives and Implementation for Cuyahoga South Watershed Master Plan (30 min.)

Kim Colich, NEORS

Jocelyn Anleitner, PE, CDM Smith

The Northeast Ohio Regional Sewer District is preparing a Stormwater Master Plan for the Cuyahoga River South watershed. The focus is on alternatives development, evaluation, and prioritization to identify projects that promote stream health and protect assets.

F2D: CSO/SSO/I&I

Blueprint Columbus Lessons Learned (30 min.)

Jason Sanson, City of Columbus

Kathleen Smith, PE PMP ENV SP, Hazen and Sawyer

Blueprint Columbus is changing the way the City is addressing overflows, by addressing the source of the problem and adding green infrastructure to neighborhoods. Over 18,000 neighborhood acres are planned for this program. Now with installations in the ground, the city is prepared to share lessons learned and results of pilot efforts..

Alleviating CSOs in St. Louis - Harlem Baden Trunk Sewer Rehabilitation (30 min.)

Melissa Carver, Gresham, Smith and Partners

In order to tackle CSOs, a combination of soft separation, regional detention and rehabilitation was used in the 300-acre Harlem Baden watershed. We'll focus on large diameter sewer rehabilitation and what factors go into choosing the right materials and methods for combined sewer rehabilitation.

Alternatives development for a flood mitigation plan- A Case Study (30)

Anil Tangirala, MS consultants Inc.

This presentation will discuss the development of flood mitigation plan for City of Huntington, WV CSO areas including development of dual drainage models to better predict system deficiencies and the process of development of alternatives to mitigate flooding. Comparisons of alternatives and results from the modeling will be discussed.

F2E: Monitoring, Inspection, Maintenance

Outfall inspections using a Drone (30 min.)

Joseph R. Reitz, City of Avon Lake

Use of a drone for outfall inspections is another tool for program managers where access is limited. The drone has proven to be a helpful tool for the department but

has also brought attention to the City. Avon Lake is a proud coastal community that cherishes its access to Lake Erie. The drone has been a useful tool for inspections of outfall monitoring as well as for other function within the City. The presentation will discuss the positive and negative connotations of using such a tool for the overall program management.

[Do you see what I see? Tools for Stormwater Assessments. \(60 min.\)](#)

[Vicky McCauley, NEORSD](#)

[Ron Maichle, NEORSD](#)

The Northeast Ohio Regional Sewer District (NEORSD) is employing multiple tools to assess stormwater sites that were once difficult to access. This presentation will cover the use of drones, high resolution imagery and trail cameras to capture videos and photos of existing conditions, construction progress, and post-construction monitoring.

[F2F: Stormwater Retrofits](#)

[Curbless Street Infiltration Retrofit Standardization in Toledo \(30 min.\)](#)

[Andy Stepnick, City of Toledo](#)

Through annexation of township land, Toledo has many miles of curbless streets with minimal storm drainage. The relatively low impact drainage plans of yesteryear no longer meet residents' expectations as driveways and front yards are raised and compacted, and as the amount of cars per household increases, bringing wider driveways and parking along the roadside. Parking along the roadside results in homeowners adding stone fill or pavement. Toledo undertook a project to improve the drainage while gathering anecdotes on the pro's and con's of various considerations: cost, system durability, existing land uses, simplicity of construction, and saving existing trees.

[Getting Rain Gardens Built without Lifting a Shovel \(30 min.\)](#)

[Susan Bryan, Washtenaw County Water Resources](#)

Learn about a training program for residents that yields 66 rain gardens a year – without lifting a shovel - known as the Master Rain Gardener Certification class. This program fulfills permit requirements for pollution reduction & public education. It retrofits rain gardens into a community – with no long-term maintenance burden.

[Detention Basin Retrofits Are Not For Just Hydrology Anymore \(30 min.\)](#)

[James A. Goodrich, USEPA/ORD/NHSRC](#)

It will be shown that detention basin retrofits not only reduce downstream erosion and flashiness but can also provide direct water quality improvements from the integration of various filtration media. The retrofits can also be used to decontaminate runoff from natural events and man-made terrorist incidents.

[F2G: Agriculture](#)

[Shifting the Norm -Ohio's Grain Farmers and Water Quality \(30 min.\)](#)

[Tadd Nicholson, Ohio Corn & Wheat Growers Association](#)

[Kirk Merritt, Ohio Soybean Association](#)

The Ohio Corn and Wheat Growers Associations (OCW) and the Ohio Soybean Council (OSC) collectively represent 24,000 of Ohio's grain farmers. There are many misconceptions about what Ohio's growers are doing to address water quality. This presentation help to will set the record straight by providing information regarding the steps that Ohio growers are taking to reduce run-off from fields.

[Ohio's Grain Farmers and Water Quality Research \(30 min.\)](#)

[Tom Fontana, Ohio Soybean Council](#)

[Kirk Merritt, Ohio Soybean Association](#)

From 2011 through today, Ohio's 24,000 grain farmers have funded numerous water quality research programs. This presentation will provide an introduction into the water quality based research being funded by OCW and OSC and a summary of the results as well as a look at some of the unanswered questions.

[Multiple Maumee Watershed Models of Potential Phosphorus Reduction Management Plans \(30 min.\)](#)

[Jay Martin, The Ohio State University](#)

Building upon previous modeling efforts, a multi-university team of modeling experts developed, calibrated and validated six watershed computer models to determine which conservation practices are most likely to lead to target reductions in phosphorus runoff from the Maumee River watershed into Lake Erie. This presentation will present the final results of this modeling effort.

LUNCH - 12:00 to 1:00 p.m.

SESSIONS / TRACKS - 1:00 to 2:00 p.m.

F3A: Stormwater Practices and BMPs Planning and Design

[A New National ASCE/ANSI Standard on Permeable Interlocking Concrete \(60 min.\)](#)

[David R. Smith, Interlocking Concrete Pavement Institute](#)

Four years in the making, you can take advantage of the expert thinking and experience from the committee that created the new ASCE/ANSI standard for permeable interlocking concrete pavements. Learn about site evaluation tools, the latest in structural design, construction QC/QA test methods, and effective maintenance techniques.

F3B: Green Infrastructure

[2-inches DOES matter: GI O&M Lessons Learned \(60 min.\)](#)

[Katherine Holmok, Environmental Design Group](#)

[Robert Misso, E&S Services, LLC](#)

Green Infrastructure is like a child. When it's young, if you nurture it, treat it well, then it will grow more mature with age. But if you don't take care of it from its birth, then it can have temper tantrums, get sick and have a shorter lifespan. Whereas Gray Infrastructure for stormwater control is like a new car – you know what you get, but it depreciates the minute you leave the lot. This presentation will use real world lessons learned performing O&M for large Green Infrastructure programs, medium sized municipal areas and smaller site development areas.

F3C: Watershed Planning and Restoration

[Hancock County Flood Risk Reduction Program – Watershed Planning Case Study \(60 min.\)](#)

[David Hayson, Stantec](#)

Findlay and Hancock County experience frequent overbank flooding from the Blanchard River and its tributaries. In 2016, the Maumee Watershed Conservancy District and local community took on the flood study originated by the USACE. Stantec was hired to review the Recommend Plan and develop an implementable solution for the watershed.

F3D: CSO/SSO/I&I

[The Role of Integrated Planning in Stormwater \(60 min.\)](#)

[Elizabeth Toot-Levy, Geosyntec Consultants](#)

The 2012 Integrated Planning Framework provides guidance to communities looking for flexible, innovative, sustainable, and comprehensive mechanisms to address their Clean Water Act (CWA) requirements. The Water Environment and Reuse Foundation funded a project to collect information from communities undergoing integrated planning, by conducting surveys and case studies.

F3E: Monitoring, Inspection, Maintenance

[Successfully Tracking Difficult and Unusual Illicit Discharges \(60 min.\)](#)

[Brad Johnson, Hamilton County Public Health](#)

[Kyle Dexter, Hamilton County Public Health](#)

Finding the pollution sources from visibly impacted stormwater outfalls is often a challenging and time consuming task. This presentation will examine several innovative approaches implemented by Hamilton County Public Health that have been used to successfully track down and eliminate both point source and non-point source illicit discharges.

F3G: Agriculture

Revising the Ohio Phosphorus Risk Index (60 min.)

Dr. Libby Dayton, The Ohio State University

The Ohio Phosphorus Risk Index has been revised using field-scale, edge-of-field runoff monitoring data. This index provides a long-term estimated of the risk of phosphorus runoff from agricultural lands. The presentation will present an overview of the revisions, a new online tool, and how this information can be used.

SESSIONS / TRACKS - 2:10 to 3:10 p.m.

F4A: Stormwater Practices and BMPs Planning and Design

The Five Fundamentals for Successful Restoration of Construction Sites (30 min.)

Matthew M. Welch, Profile Products LLC

Establishment of sustainable vegetation for land rehabilitation can be highly problematic. In this presentation we discuss the Five Fundamentals that directly affect the success of land restoration or rehabilitation on disturbed areas. Topics include pre-implementation testing, vegetation selection, erosion and sediment control product selection, installation, and inspection and maintenance requirements.

Stormwater Regulations for Shale Oil & Gas Sites in Ohio (30 min.)

A.J. Smith, Hull & Associates, Inc

The oil & gas industry is exempt from NPDES permits for stormwater discharge. Regulations are in place in Ohio regarding well pad design and construction. Regulations are being drafted for treatment facilities. Different stormwater BMPs are currently being used to manage runoff from each type of facility.

F4B: Green Infrastructure

In my backyard –Detention Basin Retrofits and Streambank/Channel Stabilization (60 min.)

Craig Clarkson, Geosyntec Consultants

The St. Peter's Missouri Stormwater Master Plan recommended retrofits to several existing stormwater control features to improve stream water quality and peak flow attenuation. These control features were often in residential neighborhoods and the success of the projects largely hinged on the landowner support of the green infrastructure approach.

F4C: Watershed Planning and Restoration

Planning for Future Development: Opportunity Corridor On-Site Stormwater Management Strategy (30 min.)

Lita Laven, NEORS

Joseph Danyluk, AICP, CH2M

The Northeast Ohio Regional Sewer District studied 1,800 acres surrounding the Opportunity Corridor to understand the impacts of development on the combined sewer system. The District created resources to assist developers with stormwater management compliance, and to support the District and City of Cleveland with plan review and infrastructure planning.

Using Stream Restoration to Enhance A CSO Control Project (30 min.)

Kelly Kuhbander, Strand Associates

Ian Laseke, PE, Metropolitan Sewer District of Greater Cincinnati

Sewer separation is a common approach for CSO compliance, but rarely do municipalities consider the potential negative impacts to the receiving streams. This case study demonstrates how to manage these additional storm flows.

F4D: CSO/SSO/I&I

Fast-Track Design Saves Rate Payers Money (30 min.)

Tony Burgoyne, GPD Group

David Frank, GPD Group

Presenters will share design challenges and creative solutions used to deliver the project within a compressed schedule to save Akron residents money and provide environmental benefits. Storage basin constructed is easily maintained

and set well within the downtown landscape to not distract views from the adjacent hiking trails and nature looks along the river corridor.

Oakland County Water-Energy Nexus: Sustainable Asset Management (30 min.)

Nathan Zgnilec, OHM Advisors

OHM Advisors, in partnership with the Oakland County Water Resources Commissioner, has provided a comprehensive analysis of sustainable wastewater management. The goal of this analysis was to provide the capital cost savings and natural capital valuation from implementing sustainable wastewater infrastructure solutions and downsizing or eliminating traditional grey infrastructure projects

F4E: Monitoring, Inspection, Maintenance

IDDE Sampling: Do Single Grab Samples Tell The Story? (30 min)

Eric Soehnlen and Kelsey Amidon, NEORS

IDDE programs primarily rely on E. coli grab samples and flow measurements. Knowledge of the variation of E. coli densities from an outfall is crucial for interpreting grab sample data. Here we present a study of the discharge variation from three outfalls with various degrees of sanitary contamination.

Gotta be a Better Way: MSDGC's Use of Training and Technology for Green Infrastructure Maintenance (30 min.)

Leslie Schehl, MSDGC

John Hazlett, Williams Cree Consulting

As part of Phase 1 of the consent decree, MSDGC has installed ten SCMs at six different sites. MSDGC's Watershed Operations Division oversees maintenance and inspection of these SCMs and in June 2017 began field testing a new electronic inspection platform called Flowfinity. The Flowfinity application will eventually be integrated into MSDGC's CMMS system and the presentation will summarize current and planned future uses of the application by internal inspection and contracted maintenance staff.

F4G: Agriculture

Review of Ohio Nutrient Management Legislation and Field P Contributions (60 mins)

Greg LaBarge, The Ohio State University Extension

This presentation will provide an overview of current agriculture regulatory climate and science to aid in the understanding of phosphorus contributions from field water flows. It will look at the current structure of regulatory oversight to agriculture and the state of the science regarding current edge-of-field monitoring.

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☐ I am attending Evening Reception, Thursday May 10, 2018
(included in registration fee)

Additional Registration Options (see page 5) - **Wednesday May 9, 2018**

☐ - \$20 per person 2018 MS4 Bootcampe Class

☐ - \$25 per person Canoe Tour and Stormwater Best Management Practices at Old Woman Creek National Estuarine Research Reserve

☐ - \$25 per person Sandusky Green Infrastructure Projects

☐ - \$50 per person Evening Event- NASA Plum Brook Station Tour and Dinner

Vegetarian options at meals will be available. If **Vegan** option is needed, please check box. ☐

Please indicate method of payment:

☐ Check (Please make check payable to **Tinkers Creek Watershed Partners**). Any processing fees will be billed to the registrant.

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(PO number must be enclosed with this form. Fee is to be paid in full prior to the 2018 Ohio Stormwater Conference)

Or, register on-line at www.ohstormwaterconference.com under the conference section of our web site.

If you are paying by check or purchase order, please mail the registration form with your payment.

Cancellation Policy: Cancellations before April 22, 2018, may be subject to a processing fee. After April 22, 2018, registration fees will not be refunded, but may be applied to another individual's registration fees.

**Register on-line at WWW.OHSTORMWATERCONFERENCE.COM or submit this completed form to:
Tinkers Creek Watershed Partners, P.O. Box 444, Twinsburg, Ohio 44087**

Stormwater Awards

Ohio Stormwater Association Awards will be presented at this year's Ohio Stormwater Conference. The purpose of these awards is to recognize outstanding individuals, programs and projects in the profession of stormwater management, and the benefits they provide to the environment and local citizens.

To nominate someone for an award, please go to the Ohio Stormwater Conference website at www.ohstormwaterconference.com. The award nominations are due no later than April 1, 2018.

Visit the Conference website to register online and for updated information on the conference.
www.ohstormwaterconference.com

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