

**2017**  
**OHIO STORMWATER**  
**C O N F E R E N C E**  
10th Anniversary



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



[www.ohstormwaterconference.com](http://www.ohstormwaterconference.com)



**REGISTRATION INFORMATION**  
**2017 OHIO STORMWATER CONFERENCE**

Kalahari Resort and Conference Center - Sandusky | May 10-12, 2017



# 10th 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](mailto: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 \$112 per night for the conference. These rates are in affect from May 10 – May 13, 2017.

You can make reservations by calling 877-525-2427 on or before **Monday April 10, 2017**. Please use the code Ohio Stormwater Conference for the room block rate.

Internet: Please go to: Ohio Stormwater Conference=IND CALL/PAY

Group Access Codes

Group ID: 24251

Password: 38002388

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. Reservations by individuals may be made by calling 330-929-3000 or via their website at <https://www.starwoodmeeting.com/Book/ohiostormwater> The name of the group block is Ohio Stormwater.

## Presented By

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



# Conference Schedule

## Tuesday, May 9, 2017

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

## Wednesday, May 10, 2017

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  
6:30 p.m. - 11:00 p.m. Wine Tour- A Night Out at the Firelands Winery

## Thursday, May 11, 2017

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 12, 2017

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, 2017)	\$100.00	\$95.00	\$95.00
\$245.00 (postmarked after April 15, 2017)			

### 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 11 and Friday, May 12, 2017
- Admission to the Reception on Thursday, May 11, 2017

Register online  
[ohstormwaterconference.com](http://ohstormwaterconference.com)

Questions? Contact us at  
216-385-5248 or e-mail at  
[hstark@ohstormwaterconference.com](mailto:hstark@ohstormwaterconference.com)



# Certification Class/Exams and

## Certification Class - Tuesday, May 9, 2017

## Certification Exams - Wednesday May 10, 2017

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 9, 2017, 8:00 a.m.

REVIEW CLASSES: CPESC, CESSWI, CPSWQ, CPMSM

### Wednesday, May 10, 2017

EXAMS: CPESC, CESSWI, CPSWQ, CPMSM

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

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## Tours - Wednesday May 10, 2017

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

Date: May 10, 2017      Time: 1-5 PM      Cost: \$25      Max number: 24

Buses leave from: Kalahari, 7000 Kalahari Dr., Sandusky OH

Tour leader: Emily Kuzmick, Frank Lopez

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 rain gardens. Reserve managers 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.

### Schedule

- 1 PM- bus leaves Kalahari and travels to Old Woman Creek.
- 1:30-3:45 Canoe Tour
- 3:45-4:45 Mike DeWine Center for Coastal Wetland Studies tour
- 4:45 PM- Bus picks up from OWC and travels back to Kalahari

## Tours - Wednesday May 10, 2017

### *Sandusky Green Infrastructure Projects*

Date: May 10, 2017    Time: 1-5 PM    Cost: \$25    Max number: 24  
Buses leave from: Kalahari, 7000 Kalahari Dr., Sandusky OH  
Tour leaders: Melissa Fetter, Eric Dodrill

Take a tour of green infrastructure around the City of Sandusky, including a mix of projects at public sites, commercial facilities, and a school. The tour will begin at the Jackson Street public parking lot, which includes pervious concrete at the north end, and bioretention at the south end. Following that, we will visit the Sandusky Living Shoreline project which is a demonstration of bioengineering techniques, including a recently constructed floating wetland. Next is an educational rain garden at Meadowlawn Intermediate School, a multi-year project funded through a National Science Foundation Grant held by BGSU. The project has a strong educational component, and engages students from 3rd to 6th grades to discover the benefits of alternative storm water management methods which provide water quality, reduce flooding, and create habitat by planting pollinator plant species in these gardens. The following two stops will include bioretention at the Civista Bank and the Sports Force facilities in downtown Sandusky.

#### **Schedule**

1 PM- bus leaves Kalahari

- Jackson Street Parking: 1:00 – 1:50 (Pervious Pavement, Bioretention, Water Quality Monitoring) Sandusky Living Shoreline: 2:00 – 2:30 (Project establishment, Maintenance, Floating Wetlands, Local Buy-in)
- Meadowlawn Intermediate: 2:45 – 3:15 (Education partnership (iEvolve), Rain Garden, Environmental Benefits, Aesthetics)
- Civista Bank: 3:35 – 4:05 (Soils, Design, Installation, Technical assistance during construction, Plant Species)
- Sports Force: 4:20 – 5:20 (Bioretention, Artificial Turf Storm Water Management, “Bubble-Ups” BMP, Water Quality Protection, Wetland protection)
- 5:20-5:30 return to Kalahari

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### *Wine Tour- A Night Out at the Firelands Winery*

Date: May 10, 2017    Time: 6:30 - 11 PM    Cost: \$50    Max number: 30  
Buses leave from: Kalahari

Firelands Winery is the largest winery in the state of Ohio, and is the winner of national and international awards for the quality of their wine. Start your evening with a tour of the winery, where you will learn how the Firelands Winery creates their award-winning wines. Then enjoy a four-course dinner with complementary wine pairings. Transportation to and from Kalahari is included.

During the Revolutionary War, the Firelands region of north central Ohio was allotted to Connecticut citizens whose homes were burned by the British. As they resettled, they brought with them their wine making heritage, and a love for fine wines. Heritage is important at Firelands. The original wine cellar at Firelands, built in 1880 by the Edward Mantey family, has been incorporated into the present Sandusky facility. In 1979, the Mantey Winery was purchased by Bob Gottesman, owner of Paramount Distillers, who had a vision for a better Ohio wine product. His vision revived the lagging Ohio wine industry, and helped propel it into the future. With the addition of Claudio Salvador as wine maker, the wines have steadily improved and are now National and International award winners.

# Thursday, May 11, 2017

## REGISTRATION / BREAKFAST

WELCOME - 8:30 a.m.

## OPENING SPEAKER - 8:45 a.m.

**Craig W. Butler** Director, Ohio Environmental Protection Agency

On February 21, 2014, the Governor appointed Mr. Butler as Director of Ohio Environmental Protection Agency. Butler has served as interim director of the Agency since early January. He previously served as the Assistant Policy Director for Energy, Agriculture and the Environment in Governor Kasich's administration. A public servant of more than 24 years, he previously served as District Chief of both Ohio EPA's Central District Office and its Southeast District Office. He is a past member of the Board of Directors for the Ohio Alliance for the Environment. Mr. Butler graduated Mansfield University in Mansfield Pennsylvania with honors with a BA in Geography and Environmental Science and has a Masters in Environmental Science from Ohio University.

## 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: Green Infrastructure

**Green Giants: Large-Scale Green Infrastructure Projects to Reduce CSO Volumes (30 min.)**

**Vicky McCauley**, Northeast Ohio Regional Sewer District

The Northeast Ohio Regional Sewer District implemented large-scale green infrastructure projects as part of its Project Clean Lake to reduce CSO volumes. This presentation will highlight the unique challenges associated with projects of this scale as well as lessons learned.

**A Case Study of Green Infrastructure in East Cleveland, Ohio(60 min.)**

**Jeff Jowett**, Northeast Ohio Regional Sewer District

Public outreach for green infrastructure must be specifically tailored to the community that is receiving the project. Preconceived notions can lead to miscommunication, lack of trust and an increased workload. Sensitivity to the background, demographics and political climate of the community is key to an effective outreach plan. Hear the Northeast Ohio Regional Sewer District's lessons regarding this topic.

### T1B: Legal

**Ohio Water Law 101 (30 min.)**

**Louis L. McMahon**, McMahon DeGulis LLP

Participants will gain an understanding of the multiple sources and regulators of water law in Ohio, including the common law property and tort doctrines, local authority, state regulation and federal jurisdiction.

**Stormwater Litigation & Legal Hot Topics (60 min.)**

**Andrea M. Salimbene**, McMahon DeGulis LLP

**Louis L. McMahon**, McMahon DeGulis LLP

Participants will gain an understanding of some of the most current legal issues affecting stormwater professionals in Ohio so they can engage in more informed stormwater planning.

### T1C: Managing Stormwater in Transportation Projects

**Common Errors and Challenges Found in SWPPP Design (30 min.)**

**Brenda VanCleave**, PE, CPESC, ms consultants, inc.

**Mary Sharrett**, PE, CPESC, LEED AP, Stone Environmental Engineering & Science Inc.

Gain better understanding of SWPPP errors commonly found during review, and better understand some of the challenges for large-scale projects.

**ODOT Quick Design Class - Vegetated Biofilter BMPs (60 min.)**

**Jon Prier**, ODOT

Vegetated biofilters (grass swales) are ODOT's most popular post-construction BMP for roadway projects. Learn about ODOT's requirements by following a project design example. Consider simple and effective ways to have a positive impact on performance during design, construction, and maintenance.

### T1D: Modeling and Research

**Metal Accumulation and Hydraulic Performance of Aging Bioretention Cells (30 min.)**

**Erik Hartung**, Master of Ecology

Although bioretention are a widely used stormwater control measure, little is known about how they continue to function for water quality and quantity as they age. Research on performance of aging bioretention and implications for future management.

**Trees and Stormwater: Demonstrating Performance at an NCSU pilot study of Silva Cells (60 min.)**

**Dr. Ryan Winston**, PE, PhD, OSU

**Al Key**, DeepRoot Green Infrastructure, LLC

This presentation will review history, basic applications, notable projects and stormwater mitigation potential of suspended pavement systems and silva cell, based on research conducted by Dr. Ryan Winston while at North Carolina State University and will show that suspended pavement provides stormwater benefits equal to (or better than) traditional bioretention.

### T1E: MS4 Program Management

**Incentivizing Residential Green Infrastructure Based on Municipal and Homeowner Needs (30 min.)**

**Nancy Ellwood**, CDM Smith and **Krista Couch**, CDM Smith

Learn about the tools used in the development of a phased program to incentivize implementation of green infrastructure in urban residential areas that meets the needs of both local officials and homeowners. This effort was conducted as part of a USEPA study focused on a target community in Cincinnati, Ohio.

**Is the Chesapeake Bay TMDL a Harbinger of Things to Come for Ohio? (60 min.)**

**Jennifer Zielinski Missett**, Biohabitats

MS4 permits in the mid-Atlantic have evolved to include the Chesapeake Bay TMDL, impervious cover restoration, and long-term monitoring. Is this a harbinger of things to come in the Great Lakes region? This presentation will focus on the state of the practice and lessons learned for Ohio communities.

### T1F: Stormwater Practices and BMPs Planning and Design

**Correctly Applying Water Quality Volume Requirements (30 min.)**

**Christopher S. Hartman**, NEORSD

The diversity in stormwater management plan designs and reviews that occur within the NEORSD's 62 community region has led to a wide variety of interpretations with regard to how to correctly apply WQv treatment requirements. The purpose of this presentation is to identify the most common mistakes and to provide clear direction on how to avoid them in the future.

#### A Guide to Ohio's Online NPDES Permit Application System (60 min.)

Jamie Roberts, Division of Surface Water

Ohio EPA now accepts electronic application forms for the 21 unique Notice of Intent (NOI) forms for new or renewal coverage under a master general permit, including construction specific co-permittee and individual construction lot coverages, notice of termination, permit transfers and no exposure certificate applications.

#### T1G: Erosion & Sediment Practices

##### Physical And Economic Usage Of Switchgrass As Erosion/Filtration Medium (30 min.)

Joe Greco, BEG Group LLC; Perry Burt, BEG Group LLC

Switchgrass provides a superior, and more efficient material to filter out silt and sediment as well as capturing and neutralizing pollutants. Switchgrass has been shown to have the capability to neutralize mild radioactivity, making it ideal for use in bounding mining operations that may inadvertently expose radioactive materials.

#### Skimmer Basin Design (60 min.)

Jamie McCutchen, SW Products, LLC

Although commonly required, skimmer basin design is often not fully understood. This presentation will include the fundamentals of skimmer basin design, key design criteria and review of common mistakes in design based on comments received from reviewers.

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

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

##### T2A: CSO/SSO/I&I

##### The "Gray Area" of Green – Where Design Meets Public Policy (60 min.)

Jason Borne, PE, ENV SP, LEED AP ND, ms consultants, inc.

Mike Panzitta, PE, ms consultants, inc.

The common public works activity of street reconstruction presents an often untapped opportunity to address the stormwater concerns of multiple stakeholders. The shaping of an integrated stormwater design approach around local public policy will be explored through a case study of the Dellrose Street permeable paver project in Pittsburgh, Pennsylvania.

##### Greening the Grey Pipe: Akron's Middlebury Separation-Green Project (30 min.)

Matthew Jones, Hazen and Sawyer

Installation of a new storm sewer, repurposing the combined sewer for sanitary sewage, and implementation of a subsurface gravel stormwater wetland to treat separated runoff within Akron's Middlebury neighborhood is expected to provide multiple benefits within the dense urban environment through a combined green and grey approach to CSO control.

##### T2B: Legal

##### Infrastructure Funding for the 21st Century (60 min.)

Greg Kacvinsky, OHM Advisors

Our built infrastructure is aging and our urban footprint has expanded much faster than our population. From a tax/financing perspective, this is not sustainable. How can we turn this around and create utility programs that can be sustained for our and future generations?

#### Legal Roundtable (30 min.)

Louis L. McMahon, McMahon DeGulis LLP

Andrea M. Salimbene, McMahon DeGulis LLP

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.

#### T2C: Managing Stormwater in Transportation Projects

##### Transportation Roundtable (60 min.)

Mark McCabe, Gresham, Smith and Partners

Jon Prier, ODOT

The transportation roundtable will present an opportunity for those interested in stormwater management for transportation projects to identify and discuss major issues. A brief overview of current topics associated with stormwater management for transportation projects will be given by the moderators. Then, an open discussion will be held with the attendees.

#### Using US DOTs Vulnerability Assessment Scoring Tool (VAST) Model Scoring

##### Approach for Use on Local Roadway Networks (30 min.)

Mark McCabe, Gresham, Smith and Partners

This presentation will provide an overview of ODOTs recently completed statewide vulnerability assessment outcomes. In addition, this presentation will provide insight into how ODOT will use these model outcomes to further assess system vulnerabilities and how ODOTs approach would be transferrable to local roadway systems and the type of data needed to develop a local roadway vulnerability assessment.

#### T2D: Stream and Wetland Restoration

##### Incorporating Nutrient Reduction Design Into a Maumee Watershed Restoration Project (60 min.)

Joel Bingham, EnviroScience, Inc.,

Anne Jefferson, PhD, Associate Professor

The Black Swamp Conservancy and the design-build team of EnviroScience, Inc., RiverReach Construction and Kent State University collaborated to restore approximately 55 acres of wetlands and 3,500 feet of tributary in Northwest Ohio. This presentation summarizes how multiple habitat improvement and nutrient reduction goals were integrated and monitored for the project.

#### Opportunities for Improved Nutrient Management in Watershed Planning (30 min.)

Jordan Rofkar, Ph.D., Hull & Associates, Inc.

Sandy Bihn, Lake Erie Foundation

A recent analysis completed for the IJC identified critical components of effective watershed management plans to address Lake Erie nutrient loading. This in-depth evaluation found a lack of consistency with plan development and downstream impact linkages. Analysis details, observations and recommendations will be shared to help improve watershed planning, implementation and measurements.

#### T2E: MS4 Program Management

##### When Streams find Pipelines, A Sustainable Exposure Repair Restoration Approach (60 min.)

Matthew D. Gramza, P.E., CFM, Civil & Environmental Consultants, Inc.

This presentation will highlight several successful pipeline stream crossing exposure repairs in Ohio River Valley Tributaries utilizing natural channel/

bioengineering design techniques. Each pipeline crossing and stream reach is unique and warrants the linking of stream restoration goals to functional improvement. The discussion will include pre-project constraints and post-project lessons learned.

#### Urban Stream Restorations: Between a Rock and a Hard Place (30 min.)

Kristen Buccier, Northeast Ohio Regional Sewer District

NEORSO is implementing stream restoration and stabilization projects on stream segments near infrastructure or other physical constraints. This presentation will highlight the design considerations associated with multiple District projects including projects on the Cuyahoga River, Doan Brook, and others.

#### T2F: Stormwater Practices and BMPs Planning and Design

##### Updating Ohio's Rainwater and Land Development Manual (60 min.)

John Mathews, Ohio EPA

Hear changes planned for Ohio's stormwater guidance. Ten practices are being updated or added including: infiltration trench, underground retention, infiltration basin, extended detention basin, grass swale, impervious area disconnection, filter strip, soil preservation and renovation. Changes address expected runoff and nutrients reduction and the lessons learned as post-construction practices have been implemented.

#### A Co-benefit Design Tool (30 min.)

Reid Coffman, Kent State University

A design decision tool was created to assist multidisciplinary teams select, implement and steward green infrastructure projects for co-benefits. Using the ecosystem services theory, the tool aims to be useful in a range of public and private stormwater design and planning projects.

#### T2G: Stormwater Practices and BMPs Planning and Design

##### Traversing Stormwater Treatment Technologies – Which do I choose? (60 min.)

Samantha Brown, Contech Engineered Solutions

As state and local stormwater quality regulations continue to evolve, so do the available technologies that are utilized for treatment. Stormwater management regulations vary from city to city across the region, and treatment methods that may be accepted in one are often times not accepted in another. Runoff reduction, hydrodynamic separation, filtration...what do they all mean, and where are they accepted? This presentation will review various regulations in the region, the basic principles of multiple types of treatment technologies and where they are applicable.

#### Overcoming Design Waste with Clear Visualization of Green Infrastructure Design (30 min.)

Zach Sample, PE, XP Solutions

This will be a discussion of the shortcomings of current design approaches, where mistakes can be made due to gaps in the design process. It will include a discussion of how these gaps can be overcome using visualization tools and a case study presentation demonstrating implementation of this approach.

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

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

#### T3A: CSO/SSO/I&I, Modeling

##### Importance of Field Reconnaissance to Flood Reduction for Development Preservation (30 min.)

James Demboski, Environmental Design Group

Andy Long, Environmental Design Group,

A study of the Pigeon and Wolf Creek Watersheds was authorized to determine options that could alleviate flooding of suburban/rural areas in Barberton, Norton, Fairlawn, and Copley. This presentation will cover the challenges of the unsteady hydraulic modeling, the recommendations based on the study, and lessons learned.

#### Achieving Optimal Combination of RDII Technologies Using H/H Modeling and Field Conditions (30 min.)

Neila Salvadori

Blueprint Program of the City of Columbus targets RDII reduction at the source to solve sanitary sewers overflows and water in basement back-ups. This presentation details the approach developed to identify the optimal combination of sewer rehabilitation through lining, redirection of roof drainage from splashing around the building to the street, and participation target for the voluntary sump pump program.

#### Using SWMM LID Tools to Calibrate Existing Conditions (30 min.)

Chris Rybak, Project Engineer;

Robert Greytak, Project Manager, Principal

This presentation shows how LID tools in SWMM can be used to model existing conditions on residential property including roofs, driveways, and laterals.

#### T3B: Monitoring, Inspection and Maintenance; Watershed Planning; Asset Management

##### When Does Maintenance of a Permeable Pavement Begin? (30 min.)

Charles Taylor, Oldcastle APG

A look at design/build means and methods that will enhance performance and reduce maintenance of permeable pavement systems. Examples of best practices during construction and the use of inspection guidelines for construction and as an O&M manual for the operator of this stormwater control measure with annual costs.

#### Stream Assessments to Identify Potential Stormwater-Related Water Quality Impairment (30 min.)

Matthew Petty, PWS, CDM Smith

John Aldrich, P.E., D.WRE, CDM Smith

This presentation will summarize nationwide trends toward stringent MS4 permit requirements and regulations, and present case studies describing how permittees are identifying problem hotspots; prioritizing them based on severity, accessibility, and ease of correction; and identifying possible options for stream restoration and riparian management.

#### A Comprehensive Approach to Stormwater Infrastructure Condition Assessment (30 min.)

Troy McPherson, PE, Hazen and Sawyer

Defect codes for CCTV stormwater condition assessment and a unique above ground defect coding system were developed to analyze the relationship between buried storm water infrastructure and above-ground documented defects. The applied coding system and analysis were utilized to generate a risk-based asset condition grading system.

#### T3C: Managing Stormwater in Transportation Projects

##### I-75 Corridor Conservation Plan in Monroe County: Stormwater Considerations (30 min.)

Mike O'Malley, Michigan Department of Transportation

Devan Rostorfer, Southeast Michigan Council of Governments

MDOT has targeted the I-75 corridor in Monroe County for a full reconstruction. Given its close proximity to Lake Erie, planners recognized the importance of addressing potential environmental impacts within the project. This presentation focuses on the process utilized to identify environmental priorities and strategies to address stormwater runoff.

#### Road Infrastructure meets Green Infrastructure (30 min.)

Doug Beisch, Principal, Stantec

Presentation will discuss some approaches used in transportation projects and programs in the Chesapeake Bay with a focus on lessons learned in streamlining screening and selection of BMPs, the diversity of new tools and quantitative approaches involving pollutant trading, ecological restoration

approaches, and innovative distributed stormwater practices in a linear environment. The presentation will discuss infrastructure standards, acceptance criteria and administrative challenges.

#### SWPPP Implementation for the Portsmouth Bypass (30 min.)

Mary Sharrett, PE, CPESC, Stone Environmental Engineering & Science Inc.

Samantha Givens, CESSWI-T, Beaver Excavating Company

Gain an understanding of the SWPPP challenges involved with the 16-mile Southern Ohio Veterans Memorial Highway (aka Portsmouth Bypass), from daily plan modifications due to significant fills, to meeting the environmental commitments for stormwater, to SWPPP inspection practices for this large corridor project.

#### T3D: Stream and Wetland Restoration

##### Engineering Challenges and Insights from Michigan's Largest Dam Removal Project (30 min.)

Troy Naperala, AECOM

Dams are one of the greatest impediments to ecosystem restoration on Great Lakes tributaries, disrupting the natural flow regime of thousands of miles of waterway. This presentation presents a dam removal case study highlighting innovative approaches to restoring and reconnecting fragmented habitat to realize ecological and socio-economic benefits.

#### Alternative Stream Channel Maintenance at Bridge Crossings (30 min.)

Holly Yaryan Hall, EMH&T

Jon Witter, Ohio State University

Miles Hebert, PE, CFM, EMH&T

Where streams threaten infrastructure, typical responses can lead to the over-application of rock or concrete and unnecessary costs. A natural channel design (NCD) approach considers bank stability while also limiting the degree of deposition or downcutting that impact the bridge opening. Hear real-world applications, and lessons learned from research case studies.

#### Stream Daylighting at Cottage Grove Park (30 min.)

Judith Mitchell, Davey Resource Group

Ken Christensen, LEED AP, Davey Resource Group

A small headwater stream was piped many years ago to build a community park and to address flooding issues; however it was found that this actually exacerbated flooding and negatively impacted water quality. A grant was obtained to provide funds to implement a design/build restoration project to remove the undersized storm sewers, restore a natural channel, and establish a native riparian corridor.

#### T3E: MS4 Program Management

##### A GIS Approach to Screening GI Locations in Developed Areas (30 min.)

Vinnie Tremante, Ecologist; Kurt Kinney, Brian Webb, Arcadis

To provide high-level evaluation of favorable potential GI locations in advance of modeling, Arcadis developed a screening approach in GIS using readily available infrastructure data. This approach reduces time in the field to prioritize which areas are best suited for GI implementation and provides a defensible baseline for design.

#### Delineation of Impervious Surfaces through Remote Sensing (30 min.)

Mike Merchant, GISP, Woolpert

The presentation will provide the audience with a unique solution to stormwater utility needs, by providing accurate measurement of impervious surface areas and a fair and defensible analysis.

#### Time Savings with ESRI Collector Application for Stormwater Management (30 min.)

Chad A. Boyer, ms consultants, inc.; Justin Kerns, ms consultants

Data collection and asset management in residential areas can be challenging in highly urbanized and densely populated neighborhoods. Advancements in mobile technology and the rise of cloud storage have provided new methods to make data collection more efficient and require less post processing of data once back in the office.

#### T3F: Stormwater Practices and BMPs Planning and Design

##### Multi-Stakeholder Stormwater Wetland Projects: Managing Run-off by Partnering with Nature (30 min.)

Brett Joseph, LL.M., Ph.D, Ohio Wetlands Association

Mark A. Dilley, Ohio Wetlands Association

This presentation will share how multi-stakeholder stormwater wetland projects implemented by a private landowners, community organizations, other institutional landowners within a framework of partnership-based strategic design and management can slow surface runoff, restore ecological services that benefit humans, wildlife, and the environment, and improve water quality within the urban landscape.

#### Lifecycle of Urban Green Infrastructure: 5 Years after Pilot Implementation in New York City (30 min.)

Matthew Jones, Hazen and Sawyer

Building upon previous post-construction monitoring efforts, site evaluations were conducted at green infrastructure pilot controls throughout New York City, many now in place for more than 5 years. These assessments provided valuable insight into changes in green infrastructure appearance and functionality over time, as well as long-term maintenance requirements.

#### T3G: Stormwater Practices and BMPs Planning and Design

##### How to capitalize on audits to improve your Stormwater program (30 min.)

Todd G. Williams, M.Sc., Michael Baker International

This presentation highlights DOT and municipal MS4 program progress made after audits conducted by State and Federal regulators. Case studies will focus on how audits have promoted the improvement of stormwater programs through a variety of techniques including organizational changes, improvement in the oversight and documentation of the stormwater program and sometimes better relationships with regulators.

#### Nine-Element Watershed Plan Updates: A Collaborative Effort (30 min.)

Patekka Pope Bannister, City of Toledo and Regina S. Collins, City of Toledo

Nine Element Watershed Plans are consistent with the EPA's framework to develop watershed-based plans. The City of Toledo and the University of Toledo collaborated to complete Nine-Element Watershed Plans within the Maumee Area of Concern for Heilman Ditch-Swan Creek, Delaware Creek-Maumee River, and Otter Creek – Frontal Lake Erie.

#### Floodplain Restoration – Green Infrastructure for Water Quality and Quantity Control (30 min.)

Jeremy Koser, JMT; Andrew Birmingham, JMT

An alternative green infrastructure stream restoration approach known as floodplain restoration is a cost effective and sustainable solution to reduce nutrient and sediment pollutant loads and significantly lower peak discharges from the watershed. Legacy sediment impacts, restoration project examples and commonly perceived obstacles will be discussed.

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

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

# Friday, May 12, 2017

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

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

## F1A: Green Infrastructure

Evaluating Bioretention Cell and Green Roof Performance in Parma, Ohio (30 min.)  
Laura Sugano, Kent State University

We compared the effectiveness of a co-located green roof and bioretention cell at Cleveland Metroparks' Watershed Stewardship Center to understand their capacities to decrease runoff and nitrogen and phosphorus loads. Our study suggests that bioretention cells decrease stormwater volume and N and P concentrations more effectively than green roofs.

Integrating Trees into Stormwater Management Design and Policy – A Guide for Local Decision Makers (60 min.)

David Rutter, Ohio Kentucky Indiana Regional Council of Governments

This online interactive tool will enable community planners, engineers and policy makers to better capitalize on trees when investing or reinvesting in their stormwater systems.

## F1B: Monitoring, Inspection and Maintenance

Morley Road Project - Innovative Pond Sediment Stabilization Through Ecological Restoration (30 min.)

Tom Denbow, Biohabitats, Inc.; Kevin Grieser, Biohabitats, Inc.

This design/build project required an innovative design to stabilize sediments left behind in drainage pond, meet site restoration goals, and meet budget limitations. Because of mucky conditions at the site, contractor was required to use innovative techniques to gain access to the site and complete restoration of the stream.

Unique Wetland Restoration Considerations in the Maumee River and Bay (60 min.)

Phil Hicks, P.E., Hull, Inc.

Unique opportunities for wetland restoration exist in the Maumee River and Bay within Toledo and Oregon, including Penn 7 and the Facility 3 CDF backbay area. Speakers will discuss restoration potential analysis at Penn 7, a former CDF, and the significant evaluations necessary for the potential wetland restoration behind Facility 3.

## F1C: Monitoring, Inspection and Maintenance

Green Infrastructure Inspection and Maintenance in Cleveland: A Property Management Model (30 min.)

Ray Hyland, Brown and Caldwell

Michael S. Blair, Northeast Ohio Regional Sewer District

With a growing number of GI facilities, the District looked to a third party to achieve their goal of functional performance, aesthetics, and community engagement. This presentation will highlight the GI projects, their maintenance needs and costs, and how the property manager maintenance model provides the best solution for the District's needs.

Living Assets: MSDGC's Green Infrastructure Maintenance Program and Use of Performance Indicators (60 min.)

Leslie Schehl, Metropolitan Sewer District of Greater Cincinnati

John Hazlett, Williams Creek Consulting

The Metropolitan Sewer District of Greater Cincinnati (MSDGC) is under a federally-mandated consent decree to address combined sewer overflows and is maintaining ten Stormwater Control Measures at six different sites. The presentation will summarize MSDGC's current green infrastructure maintenance program and use of performance indicators to ensure long term success.

## F1D: Modeling and Research

Heights Hilltop Interceptor SSES – Improving Urban Stormwater Quality in a 100-year-old System (30 Min)

Kevin Vander Tuig, PE, Wade Trim and Imad Salim, PE, Wade Trim  
Scott Broski, Northeast Ohio Regional Sewer District

The Heights Hilltop Interceptor Local Sanitary Sewer Evaluation Study project is conducting dry and wet weather storm sewer grab sampling at over 60 locations within the Heights Hilltop Interceptor (HHI) service area which is part of the Northeast Ohio Regional Sewer System. The goals of sampling are to screen for presence of illicit connections, assess the impact of failing septic systems on streams' water quality, and determine water quality of wet weather overflows to support development and recommendation of improvement alternatives.

Stormwater Master Plans - How Many Model Runs Does it Take?, (60 min.)

Elizabeth Toot-Levy, Geosyntec

Craig Clarkson, Geosyntec

As communities search for economic, effective solutions to urban flooding budget and time constraints limit their ability to truly understand all of the interactions occurring across a full system. New modeling techniques are allowing communities to evaluate and systematically compare hundreds of thousands of solutions.

## F1E: MS4 Program Management

Underwater, but Digging in the Dry: A Unique Culvert Repair (30 min.)

Vicky McCauley, Northeast Ohio Regional Sewer District

Site conditions can have a major impact on the repair of aging and damaged stormwater infrastructure. NEORSD undertook a challenging project that utilized its wastewater expertise to repair a collapsed 11-foot diameter culvert that had created a more than 40-foot impoundment.

A Flood of Problems: Modern Urban Watersheds (60 min.)

Kathy Allen, Stantec

This presentation shows how the City identifies, prioritizes, and creates capital projects to address the drainage problem areas. Case studies will highlight common problems with aging infrastructure, solutions that fit within the existing limited rights-of-way and ongoing maintenance considerations.

## F1F: Stormwater Practices and BMPs Planning and Design

Water Stress Builds Character and Soils: Improving Drainage with Plants (30 min.)

Scott Dierks, GEI Consultants, Inc.

This presentation summarizes recent field work from rain garden monitoring in SE Michigan, providing extensive research on plant impacts on soil water properties and, how native plants can significantly improve infiltration. The presentation will also provide guidance for predicting and improving planted BMP performance even in clay soils.

Grey Pipe Matters – an Internal Discussion on the Implementation of Green Infrastructure (60 min.)

John Herchl, LEED AP, Davey Resource Group

Josh Herchl, Advanced Drainage Systems, Inc.

One presenter will alternate between the personalities of a green infrastructure designer and a grey infrastructure product manufacturer volleying between the merits of green and grey infrastructure. Discussion includes technical challenges, environmental benefits, community and socio-economic interests, asset management, and the overall bottom-line on a stormwater infrastructure project.

### F1G: Stormwater Practices and BMPs Planning and Design

Scaling up residential green infrastructure: Lessons from the Mid-Atlantic (30 min.)  
Peter Hill, Great Lakes Watershed Opportunities

Residential stormwater incentive programs are frequently lumped into the category of outreach efforts due to an assumption that potential volume capture is not significant. Several programs in the mid-Atlantic have been fine-tuning their programs over the past 3-8 years with varying results and provide important lessons for other municipalities.

Using Municipal Roadways to Control Stormwater in Urban Environments (60 min.)  
Kevin Earley, Oldcastle

The use of permeable interlocking concrete pavement (PICP) has grown. Some municipalities now recognize that roadways can be designed to handle vehicular traffic while functioning as a stormwater control measure. This presentation describes how Atlanta converted six miles of impervious roadway to PICP to reduce flooding and combined sewer overflows.

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

#### F2A: Green Infrastructure

Is Green Infrastructure Cost Effective? A Cost/Benefit Analysis Case Study (30 min.)

Chad A. Boyer, ms consultants, inc.

With the recent shifts toward integrated low impact designs and using green infrastructure to manage stormwater runoff, a balance between stormwater grey infrastructure and green infrastructure can be difficult to find common ground. This presentation will show that if considered at an early design stage and looking at lifecycle costs green infrastructure can present savings.

Revisiting Green Bulkheads in the Cuyahoga River Navigation Channel (30 min.)

Jennifer Zielinski Missett, Biohabitats

This session will provide an update on the Cuyahoga County Planning Commission efforts to retrofit bulkheads in the Cuyahoga River navigation channel with habitat for larval and juvenile fish. Using the biomimicry process, habitats were designed and installed at two locations in 2015, and were monitored for the past year.

Infrastructure for Green and Accessibility Goals – Community Garden Case Study (30 min.)

Kristen Keane, PE, LEED AP, CFM, Construction Process Solutions, Ltd

Ameen Bakarè, LEED AP, Consultant CT Consultants

Lessons learned from a garden project with goals of green design and full site accessibility. The normal go-to materials and designs for hardscape and storm drainage systems can work against accessibility. Will address stormwater capture systems, underground storage, accessible hardscape surfaces, raised accessible planters, irrigation, and site layout.

#### F2B: MS4 Program Management; Climate Change

When a Bandaid's Not Enough: Implementing Stormwater Utilities in the Great Lakes Basin (30 min.)

Malcolm Mossman, Bluestem Communications

Katie Rousseau, American Rivers

Stormwater infrastructure repairs are no longer a luxury for many communities; they are a necessity to reduce chronic flooding. A stormwater utility is an equitable way for communities to raise the money needed to fix immediate stormwater problems. American Rivers has developed a toolkit to help local leaders, government staff and partners have the necessary tools to create a stormwater utility that is supported by the entire community.

Stormwater Utility Fee Credit Programs (30 min.)

Keely Davidson-Bennett, Chagrin River Watershed Partners

This presentation will provide an overview of stormwater utility fee credit programs highlighting features that managers may wish to consider when designing and implementing fee credit programs. Results from a literature review of the fee credit manuals of Ohio stormwater utilities will be shared.

Stormwater Management and Climate Change: An Assessment of Community Vulnerability (30 min.)

Scott D. Hardy, Ph.D., Ohio Sea Grant College Program

Climate change is increasing the number of the most extreme storm events in northeast Ohio that cause flooding, erosion, and combined sewer overflows. This project aims to identify communities that are increasingly vulnerable to stormwater hazards, and to support municipal officials and local residents with building capacity for resilience.

#### F2C: Watershed Planning

Piloting a Risk-Based Master Plan for the Cuyahoga Watershed (30 min.)

Lita Laven, PE, NEORSD and Jocelyn Anleitner, CDM Smith

NEORSD is preparing a Stormwater Master Plan for the Cuyahoga River South watershed. A case study is presented for a small, urban pilot area to illustrate the risk-based Master Planning process to address flooding, erosion, debris blockage, and infrastructure deterioration.

China's Sponge Cities Initiative (30 min.)

Kari Mackenbach, ms consultants

Chinese cities are suffering from catastrophic floods and in most cities water quality is poor. An initiative known as "Sponge Cities," was started in 2013. The goal is to translate some of our lessons learned here in the US to cities in China wanting to learn about integrated solutions.

Identifying Priority Green Infrastructure Opportunities to Restore Local Streams (30 min.)

Bruce Cleland, Tetra Tech and Kevin Kratt, Tetra Tech

This presentation describes an approach that demonstrates how bioassessment metrics were connected to hydrologic conditions which, in turn, connect to implementation needs. The methodology can help guide local governments towards priority areas for green infrastructure implementation that can build partnerships and pool resources while working toward common desired outcomes.

#### F2D: Modeling and Research

Moving from Design Storms to Historical Storms (30 min.)

Qiuli Julie Lu, ARCADIS

The presentation will focus on application of Historical Storms (HS) on municipality planning projects. HS overcome the limitations of Design Storms by considering seasonal changes with various evapotranspiration, considering back to back storms for proper soil moisture condition, and using actual responses for recurrence instead of fake uniformly distributed rainfall.

Runoff Reduction with Neighborhood-Scale Green Infrastructure: Insights from Modeling (30 min.)

Anne J. Jefferson and Pedro M. Avellaneda, Kent State University

A green infrastructure retrofit in Parma, Ohio provided a basis for a calibrated SWMM model exploration of bioretention cell, rain garden, and rain barrel effectiveness at the neighborhood scale. The voluntary project resulted in decreasing stormflow by ~21% for 0.5-5 year return period events, with an overall 13.1% runoff decrease.

## Explicit Simulation and Analysis of Green Infrastructure for Flood Control (30)

Nicholas J Stepina, PE, MWH, Civil/Hydraulic Engineer

This experimental study simulated green infrastructure explicitly and examined its effectiveness for flood control. A neighborhood-wide GI scheme was created in an integrated catchment model with rainfall applied directly to the ground, allowing identification and characterization of sources, pathways, and receptors of the surface runoff system and targeted GI improvements.

## F2E: MS4 Program Management

Proactive MS4 Programs = Enhanced Goal Achievement (30 min.)

Elizabeth Hiser, CSWCD; Brent Eysenbach, CSWCD

Cuyahoga Soil & Water Conservation District (SWCD) will present information on MS4 program successes in Cuyahoga County's MS4 communities. The presentation will focus on easy steps an MS4 community can take to go above and beyond permit compliance to achieve enhanced stormwater goals.

## MS4 Regulations Haven't Changed, But Permits Sure Have (30 min.)

John Lyons, P.E.; Kelly Kuhbander, P.E., LEED AP, Strand Associates

USEPA has been systematically promoting more stringent stormwater regulations that has led to the issuance of more rigorous and prescriptive permits for numerous communities. These permits create costly MS4 compliance programs and appear to include provisions that go well beyond what is actually required in the federal rule.

## Community Backyards: Using Incentives, Partnerships and Online Education to Engage the Public (30 min.)

Jennifer Fish and Sara Ernst, Franklin Soil and Water Conservation District

The Community Backyards Program is an online program that engages the public in a way that is easy to access and provides incentives for them to follow-through on conservation practices as well as learn about basic stormwater concepts. This approach is great for helping communities reach out to residents for stormwater management education as well as demonstrate direct involvement of the public in practices that benefit stormwater reduction, stream protection, and water quality improvements..

## F2F: Stormwater Retrofits

Utilizing Natural Channel Design Techniques in a Stormwater Retrofit Project (30 min.)

Travis White, PE, SI, ENV SP, Stantec

The Pearl East Subdivision in Strongsville, Ohio, will be used as a case study for utilizing natural channel design techniques during a stormwater retrofit project. Topics to be discussed include sediment transport and water quality, stream bank erosion, and considerations for increasing ecological function while also providing stormwater management improvements.

## Detention Basin Retrofits: What Makes a Good Candidate? (30 min.)

Nora Korth, P.E. and Katie MacMannis, P.E., Sustainable Streams, LLC

As one of the most cost-effective BMP strategies in urban/suburban watershed planning, basin retrofits provide channel protection and water quality benefits to the receiving streams, but how do you prioritize the basins to retrofit? This presentation will include several screening tools to efficiently evaluate and prioritize retrofit opportunities.

## Green Stormwater Management at Low Income, Multi-Family Housing In Toledo (30 min.)

Cyndee L. Gruden, University of Toledo

Melissa Greene Hopfer, Board of Lucas County Commissioners

This project represents a collaboration between North Toledo residents, the housing organization Vistula Management, the Lucas County Sustainability Commission, and the non-profit United North. The outcomes of this project include community engagement and education about green stormwater infrastructure, and a detailed plan for the implementation of green stormwater infrastructure at low income, multi-family housing sites located in heavily populated urban Toledo.

## F2G: Stormwater Practices and BMPs Planning and Design

Moving Green Stormwater Infrastructure from Philadelphia to Everywhere (30 min.)

Evan Wilbert, EIT, Stantec

Focusing on the iterative development of the planning and design processes for implementation of Green Stormwater Infrastructure, this presentation will cover lessons learned in the Philadelphia region. Following those case studies, projects throughout the country, where those lessons learned have been reapplied, will be discussed.

## Integrated Watershed Restoration in Urban Areas (30 min.)

John Lyons, P.E., Strand Associates and Jarrod Karl, Hazen and Sawyer

Comprehensive watershed restoration solutions using both upland and in-stream restoration practices have been shown to provide functional benefits to urban aquatic systems. Methods to quantify the relative benefits and assign functional improvement credits for using an integrated restoration approach may provide financial incentives and flexibility in meeting watershed restoration goals.

## Green Infrastructure Challenges in Urban Environments (30 min.)

Heather Audet, Sr. Project Engineer

This presentation will describe the planning and process undertaken to complete a large parking lot renovation in Cleveland, Ohio. Special investigations were needed for a permeable pavement project. Environmental, hydrological, and geotechnical testing and analyses were needed for a parking lot situated near the top of a historically unstable slope.

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

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

## F3A: Green Infrastructure, Climate Change

Bioretention and Permeable Pavement: Effects of Climate Change (60 min.)

Ryan Winston, Ohio State University

Climate change is predicted to impact Ohio through a variety of mechanisms, including increased air temperature, longer growing seasons, reduced annual precipitation, and longer dry periods. This presentation will discuss design modifications necessary to ensure resilience of bioretention and permeable pavement to climate change, with hydrologic modeling underpinning the analysis.

## F3B: Ohio EPA Update

Ohio EPA Stormwater Program Update (60 min.)

Jason Fyffe, Ohio EPA

Ohio EPA staff will discuss the latest federal and state updates associated with NPDES MS4, construction and industrial stormwater permitting.

## F3C: Watershed Planning

What's In Your Water(shed)? The Barberton Source Water Protection Plan (60 min.)

Michael Liptak, Ph.D., EnviroScience, Inc

EnviroScience prepared the Barberton Reservoir Source Water Protection Plan to identify drinking water protection areas, potential contaminant sources, and long-term protection approached for the Upper Wolf Creek watershed, the main source of drinking water for Barberton, Ohio. Habitat quality, contaminant sources, and transport were evaluated using extensive GIS analysis.

## F3D: Modeling and Research

Making Stream Restoration Projects More Sustainable (60 min.)

Bob Hawley, Sustainable Streams

This presentation explores how we can make stream restoration projects more environmentally, socially, and economically sustainable. Success clearly depends on geomorphically-principled designs that are appropriate for the stream setting (which will be covered in detail), but equally important are the social/economic factors that drive programmatic viability and long-term environmental outcomes.

### F3E: MS4 Program Management

The Next Big Thing-Delivering Beyond Traditional Stormwater (60 min.)

Ron Geiger, HDR Engineering and Jason Washington, Corvias Solutions

Hear about trends seen across the country regarding alternative delivery of green stormwater infrastructure, with a presentation on the latest strategy using Community-Based P3 for stormwater BMP retrofits, focusing on economic stimulus, faster procurement, financing options, shifting of risk, and adding value to the community.

### F3F: Ohio Coastal Management Program Update

Ohio Coastal Management Program Overview (60 min.)

Steve Holland and Lynn Garrity, ODNR

The Ohio Department of Natural Resources (ODNR) Office of Coastal Management administers the Ohio Coastal Management Program to ensure resource protection along the 312-mile Lake Erie shore, while balancing economic, cultural and environmental interests. This session will provide an overview about the Ohio Coastal Management Program, its major program areas, and emerging initiatives that are addressing non-point source pollution.

### F3G: Erosion & Sediment Practices

Erosion and Sediment Control Challenges on Oil and Gas Projects (60 min.)

Ababu Gelaye, CPESC, P.G., Civil & Environmental Consultants, Inc.

The presentation will provide an understanding of the basics, regulatory drivers, agencies and current developments in Ohio. A discussion of cost-effective planning, providing due diligence, and the performance of erosion and sediment control BMPs will be provided.

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

### F4A: CSO/SSO/I&I

Evaluating Green Infrastructure Solutions to Optimize An Existing CSO Plan (30 min.)

Kelly Kuhbander, P.E., LEED AP, Strand Associates

Aaron Klein, P.E., City Engineer, City of Sandusky

The Sandusky green planning evaluation exemplifies how a community can enhance their CSO Plan, despite already having begun implementation of planned projects. This case study demonstrates green solutions can be cost-effective when compared to gray, and investing in integrated planning can result in a more holistic plan for the community.

A Step Towards CSO Elimination: Sunset Ave. Sewer Separation (30 min.)

Michelle Iannicca and Mark Rogge, Sr. HDR Engineering, Inc.

This presentation will provide an overview of MSDGC's federal Consent Decree, the MSDGC's Consent Decree Phase 1 Watersheds, and Lick Run Watershed projects. The presentation will include design and construction issues and solutions for the Lick Run Watershed project Sunset Avenue, Sunset Lane, and Rapid Run Pike Sewer Separation.

### F4B: Green Infrastructure; MS4 Program Management

Stormwater Control Measure Selection/Design for TMDL Compliance under Uncertainty Analysis (30 min.)

Christopher Olson, Colorado State University

This presentation will demonstrate the importance of incorporating uncertainty analysis into TMDL modeling studies. Using a theoretical TMDL modeling scenario, the research results show that the most cost-effective design of stormwater control measures can change based on the decision maker's risk level and choice of TMDL compliance metric.

Mother Nature's Treatment Technologies (30 min.)

Brian Tomes, PE, Burgess & Niple

Natural or green treatment technologies such as constructed wetlands, bioretention, and phyto-treatment are an effective method for treating a variety of waste streams including storm water, landfill leachate, acid mine drainage, and sanitary wastewater. Using examples of actual installations for these treatment systems, the costs, results, and limitations of each will be presented.

### F4C: Watershed planning

The \$100 Million Stormwater Solution for the Lick Run Watershed (30 min.)

Stephanie Glossner, P.E. and John Lyons, P.E., Strand Associates

The technical details of this overall project are impressive and demonstrates how a variety of stormwater management techniques can be implemented to achieve desired levels of CSO control while also providing community and environmental benefits. The project is an excellent case study for other agencies interested in using integrated stormwater management solutions to reduce CSO's and for engineers on how to incorporate a variety of techniques in a watershed.

Nutrient Source Inventory, A Publicly Available Water Quality Information Tool (30 min.)

Patekka Bannister, City of Toledo

Melissa Greene, Toledo-Lucas County Sustainability Commission

Following the "Do Not Drink" water advisory in Toledo in 2014, the Toledo - Lucas County Sustainability Commission took a proactive stance to identify sources of nutrients throughout the Western Basin of Lake Erie watershed. This assessment is now commonly referred to as the Nutrient Source Inventory or NSI. This presentation will first examine the methodology used to create the tool - and later demonstrate its application.

### F4D: Stream and Wetlands Restoration

Restoration and Recovery – the Huff Run Watershed Story (60 min.)

Marissa Lautzenheiser, Middle Tuscarawas River Watershed Coordinator

Nancy Segar, PE, Oxbow River & Stream Restoration Inc

The Huff Run watershed has been impacted by historic abandoned coal mining and accompanying pollution. Restoration projects have been successful at increasing chemical water quality but recovery was limited by substrate conditions. Stream restoration of the lower two miles is further increasing watershed recoverability by improving habitat for aquatic species.

### F4E: MS4 Program Management

Stormwater Management Training for MS4 Municipal Employees in Northeast Ohio

Cathi Lehn, Ph.D., City of Cleveland

Alicia Beattie, Chagrin River Watershed Partners, Inc

The City of Cleveland, in partnership with regional stormwater professionals in Northeast Ohio, received an Ohio Environmental Education Fund grant to provide training for municipalities on the maintenance of green infrastructure projects. This presentation will provide an overview of lessons learned and the resources available to communities.

Talking About Water: Survey Results Help Us Communicate to Residents (30 min.)

Rebeca Bell, Bluestem Communications

Communicators often struggle with finding the right words to inspire people to change their behaviors. This presentation will examine the best ways to communicate about water and water quality issues to residents as revealed through the results of six public opinion surveys of thousands of residents.

### F4F: Stormwater Management

The Evolution of Stormwater Management (60 mins)

Peter M. Hanrahan, CPESC, E. J. Prescott, Inc

Until recently, our centuries old methods of handling stormwater runoff have remained virtually unchanged. New methodology and technology is emerging rapidly, and current thinking represents a virtual reversal of traditional practices..

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Are you an Ohio Certified Operator (waste water or drinking water) and wish receive a credit certificate for sessions that receive Ohio EPA Operator Certification Unit approval (application is being processed)?

Yes

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Please provide your operator certification number: \_\_\_\_\_

Select Registration Type Below

Full Registration

Speaker (\$100)

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(See Below)

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I am attending Evening Reception, May 11, 2017  
(included in registration fee)

Additional Registration Options (see page 5) - **Wednesday May 10, 2017**

- \$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 Wine Tour: A Night Out at the Firelands Winery

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.

Purchase Order Number: \_\_\_\_\_

(PO number must be enclosed with this form. Fee is to be paid in full prior to the 2017 Ohio Stormwater Conference)

Or, register on-line at [www.ohstormwaterconference.com](http://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, 2017, may be subject to a processing fee. After April 22, 2017, registration fees will not be refunded, but may be applied to another individual's registration fees.

**Register on-line at [WWW.OHSTORMWATERCONFERENCE.COM](http://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](http://www.ohstormwaterconference.com). The award nominations are due no later than April 1, 2017.

Visit the Conference website to register online and for updated information on the conference.  
[www.ohstormwaterconference.com](http://www.ohstormwaterconference.com)

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