



Before the Storm

Indiana Association for Floodplain and Stormwater Management

JUNE 2017

Silent Auction and other Conference Updates

SAVE THE DATE

2017 INAFSM ANNUAL CONFERENCE
SEPTEMBER 6-8
CENTURY CENTER
SOUTH BEND, IN

INSIDE THIS ISSUE:

Amec Foster Wheeler Stormwater Bike Tours 2

Updates to "Subdivision Design and Flood Hazard Areas" 3

Floodplain Training Opportunities 5

Stormwater Training Opportunities 5

New this year! Silent Auction

A new item at conference this year is a [Scholarship Silent Auction Fundraiser](#). The proceeds from the silent auction will be used to fund a scholarship named in honor of the late Greg Main, founding member and proud supporter of floodplain management and safe development. The scholarship is for college students completing a degree related to INAFSM mission and to fund a conference scholarship opportunity for local floodplain and stormwater officials who normally would not have the money to attend the annual conference.

Please consider providing silent auction items. Items suggested for donation include: gift cards, gift baskets, local or regional specialties, handcrafted or unusual items, or any other items that you think would be fun to bid on. Have some fun putting items together and think about all the excitement that this new event will bring to the conference. **All gifts are tax deductible.** Interested in donating an item or have more questions? Please contact Suzie Delay at 317-234-1063 or sdelay@dnr.in.gov.

Conference Sponsors

Sponsors are a large part of the reason that INAFSM is able to make the Annual Conference a success. Interested in being a sponsor? Please check out our [Sponsor Invitation](#). **Sponsors who want to be listed in the conference program must register by July 7.**

2017 Conference Registration Now Open

Registration for the 2017 Conference at the Century Center in South Bend on September 6th to the 8th is now open. [Early Bird Registration](#) ends **July 26th!**

Room Block now open

The room block for this year's 2017 Annual Conference is now open! Reserve your rooms from the room block early at the DoubleTree by Hilton Hotel South Bend. To book online or see more information click [here](#). Additional details about the hotel and room block may be found [here](#).

CFM EXAM OFFERINGS

Are you ready to be Indiana's next Certified Floodplain Manager (CFM)? The DNR Division of Water will proctor the CFM exam on **August 4**, at the Tippecanoe County Government Office Building, Tippecanoe Room at 20 North Third Street, Lafayette, IN 47901 at 1 p.m. A short refresher session will be held in the same room from 8:30 a.m. until noon the same day.

REFRESHER COURSE AND EXAM OFFERED AT INAFSM CONFERENCE

INAFSM routinely offers the CFM exam at the annual conference. This year the exam will be offered on **September 7**. A three-hour refresher course covering a wide variety of floodplain topics will be available at the conference on September 6 for those taking the exam and those who may wish to take it in the future. Anyone is welcome. Check the agenda for times and locations on INAFSM's website, inafsm.net.

REGISTERING FOR THE EXAM

To take the CFM exam, you must complete and submit the CFM Program Application Package to the Association of State Floodplain Managers (ASFPM). The forms are available on the ASFPM website, floods.org, under the Certification Program tab. The fee is \$100 for ASFPM members and \$450 for non-members.

You may submit an application for ASFPM membership at the same time you apply to take the exam. To be accepted to take the exam at this scheduled time, you must submit your completed application and pay the appropriate fee to ASFPM at least 2 weeks prior to the exam. No walk-ins will be allowed unless authorized by the ASFPM executive office.

Amec Foster Wheeler Stormwater Bike Tours



Amec Foster Wheeler conducted a stormwater bike tour in the City of Indianapolis and is planning another tour of the City of Bloomington. As they explore opportunities for stormwater bike tours in Indiana, they would like to invite members of INAFSM and the stormwater community to participate and provide feedback.

A lot of MS4 communities have educational signs showcasing their stormwater Best Management Practices (BMPs) and other educational elements that can be incorporated into a self-led, smart-phone led, or presenter-organized bike tour. Once one bike tour format is developed, adapting a given bike tour to multiple lengths and formats is relatively simple and expands the opportunities for stormwater education and public participation. Pedestrian-friendly trails and bikeshare programs have been established in most major cities and make it even easier to get around and explore stormwater in your community.

With these ideas in mind, Amec Foster Wheeler, the Pacer Bike Share Program, and StormCon partnered in 2016 for a bike tour of green infrastructure projects in Indianapolis, Indiana during StormCon 2016. Over 50 attendees received a guided tour of award-winning green infrastructure projects throughout downtown Indianapolis and experienced parts of the city frequently missed by car. Visitors to Indianapolis especially enjoyed touring the city and seeing the sites from the Indianapolis Cultural Trail. The Cultural Trail is 8 miles of pedestrian-friendly trail landscaped with native and stormwater plantings and highlighted with art installations. Experts led behind-the-scenes informational sessions at each

stop, creating a jam-packed morning of stormwater education. The following is a description of the bike tour locations:

- The Julia M. Carson Transit Center is the new LEED Silver Certified hub for Indianapolis public transportation. It also has stunning architecture, native plantings, and water reuse/efficient irrigation elements.
- The Nature Conservancy building is the most sustainable building in the state of Indiana. The pervious pavement parking lot and green roof allow for no stormwater runoff from the building or grounds.
- Keep Indianapolis Beautiful maintains rain gardens, cisterns, pervious pavement, a green roof, and other green infrastructure elements to mitigate the impact of storm water on Indianapolis' combined sewer overflow (CSO), while also delivering environmental, social, and economic benefits.
- The historic Athenaeum had rain gardens installed in 2010 that can store 2,300 gallons of water per rain event.
- The tour concluded at a residential building that doubles as the White River Alliance and Empower Results office space. This building showcased residential rain gardens and allowed networking on stormwater ideas for residential and commercial projects.

A stormwater bike tour of the City of Bloomington is being planned for spring 2017. Bloomington is a bicycle-friendly community with a beautiful trail and park system. The following is a description of the variety of stormwater elements in Bloomington that will be highlighted:

- Highly urban areas of the city benefit from parking lots equipped with stormwater management BMPs including hydrodynamic separators and strips of pervious pavement.
- Especially on the university campus, building lots contain pervious pavement, rain gardens, and bioretention cells
- Several city parks have had had native plantings and stream restoration projects implemented that are showcased in multiple stages of establishment.

If you would be interested in bringing your bike to Bloomington to participate in a test-run of the group or self-led bike tour, or discussing a bike tour of your community, please contact Nancy Cho at nancy.cho@amecfw.com.

- Nancy Cho, Amec Foster Wheeler

Flood Impact Reduction and Streambank Repair along Spy Run Creek

Background

Spy Run Creek in Fort Wayne, Ind., is a 10-mile watercourse that drains several square miles on the northwest side of Fort Wayne. Spy Run Creek empties into the St. Marys River in downtown Fort Wayne, just upstream from its confluence with the St. Joseph River. The St. Marys and St. Joseph rivers join to create the Maumee River, which flows northeasterly into northwestern Ohio and Lake Erie.



The main focus of the project was to reduce flooding in the Upper Spy Run Watershed and, more specifically, the Interstate Business Park located between Interstate 69 and Coliseum Boulevard.

Channel improvements to Spy Run Creek had previously been completed between Production Drive and Coliseum Boulevard in

downtown Fort Wayne. The businesses to the west and north of the creek in this area were the primary properties affected by the frequent flooding. In 2013, buildings on both the east and west sides of Spy Run Creek in the Interstate Business Park experienced significant flooding.

In general, Spy Run Creek is prone to flash flooding throughout the watershed, and specifically, in this area. It is not uncommon for floodwaters to reach interior streets within the business park.

The original banks of the creek were heavily overgrown and difficult to maintain. Small to moderately sized trees grew out of the banks as well as brush and other undergrowth. In most places along the project area, the creek could not be accessed from the top of the bank because of the dense growth and close proximity to development. This heavy growth likely contributed to the flash flooding in this length of the creek simply from the cross-sectional channel area that was taken up by it.

Velocities in the creek were also high during flooding events. In one instance, gravel was washed out from underneath a box truck, except for directly beneath the wheels, to a depth of more than six inches. Also, due to the velocity, several areas of bank erosion existed along the west bank of the creek, including an area near a large utility pole. The bank was just a

few feet away from washing away from the pole base at the time construction commenced.

Recommendations for Additional Flood Storage

Initially in 2005, Fort Wayne City Utilities Engineering and Christopher Burke Engineering LLC began an analysis of the Spy Run Watershed to determine what improvements should be made in the Upper Spy Run Watershed. The report looked at a number of options including acquisition of affected properties, regional detention, and streambank modifications and restoration.

Analysis of the characteristics of the stream helped the project team decide that providing additional flood storage would be the ideal option to reduce the instances and impact of flooding in this section of the stream. The final recommendation for providing storage resulted in a two-phase project.

Phase 1 of the project included providing regional detention through the construction of three offline overflow ponds upstream from the business park in an undeveloped area near Interstate 69 and Lima Road. The construction of these ponds also allowed for a significant commercial development on a previously underutilized, undeveloped property adjacent to an interstate interchange. These ponds provide additional offline storage volume within the watershed. The inlets to the ponds are set at the 10-year storm stream elevation and the outlets are set to allow the outflow equivalent of a two-year storm. The ponds act as both detention and flood-storage basins.

Phase 2 of the project included providing a two-stage channel for the length of Spy Run Creek between Production Road and Coliseum Boulevard. This would allow for additional storage within the channel of the stream and provide opportunities to mitigate plant loss and wetlands impacts within the channel.

Two-Stage Channel

The two-stage channel concept is a widening of the existing channel beginning at one foot above the normal water elevation. In the case of Spy Run Creek, ample width existing from the existing top of bank to the drainage easement limits to allow for several thousand cubic feet of additional flood storage above the normal water elevation.

Cellular Confinement System for Bank Protection

As noted, there was ample width from the existing top of bank to the drainage easement limits to construct a two-stage channel; however, traditional earthen slopes were not used.

The primary reason for not using a traditional earthen, vegetated slope is loss of flood-storage volume. A 3:1 slope or flatter is recommended for use of native material and, due to

high stream velocities during flood events, erosion of the banks would have occurred.

In lieu of the traditional earthen banks, a plastic cellular confinement system was installed. This material resembles a honeycomb laid flat and backfilled with material to hold it in place.



There are two critical reasons for choosing to use the cellular confinement system:

- Use of the cellular confinement system allowed for a steep (0.5:1) slope of bank, which allowed for

additional flood storage.

- The cellular confinement system also has a relatively small horizontal footprint. For this installation, horizontal reinforcement, such as geotextile anchoring, was not required. Therefore, the confinement material was simply laid out, layer by layer, and backfilled to the proposed top-of-bank elevation.

The face cell of the confinement material was filled with a mix of gravel and topsoil and then seeded with native plant mixture in order to allow vegetation to cover the face of the wall. The two-stage channel was also planted with native vegetation.

Flood Reduction

The goal of this project was to provide for additional flood storage and ultimately reduce flooding on Spy Run Creek within the Interstate Business Park. The project has been successful in achieving that goal.



Upon completion of the installation of the cellular confinement system in 2015, Fort Wayne experienced one of the wettest summers on record. While a large portion of the city experienced flooding, the two-stage channel and confinement system was inundated but withstood its first test.

With the exception of a small area of washout, the system performed as expected. While there was flooding in the business park, it was not a result of Spy Run Creek overflowing its banks, but rather due to the limitations of the stormwater system within the park. To date, no floodwater has entered or threatened the adjacent properties and buildings.

In October 2015, Fort Wayne City Utilities began developing and submitting a Letter of Map



Revision (LOMR) to the Federal Emergency Management Agency (FEMA) to provide hydraulic modeling and supporting data to reflect these projects.

Currently, FEMA is reviewing the submitted data, but it is anticipated that the LOMR will be granted. Based on the submitted information, the 100-year flood elevation of Spy Run Creek is expected to drop between zero feet to more than two and a half feet between Coliseum Boulevard and Interstate 69.

While there are no guarantees that significant flooding will not occur on Spy Run Creek, by providing additional flood storage in the Upper Spy Run Creek Watershed, Fort Wayne City Utilities is taking measures to help prevent or lessen the impacts of significant storms in the Interstate Business Park while helping business owners protect their properties.

-Jim Blazek, D2 Land and Water and
Anne Marie Smrcek



Join the MCM 1 & 2 Stormwater Subcommittee

The INAFSM Stormwater Committee for MCM 1& 2 is looking for more participants to partake in group activities, planning and networking sessions. The vision of our group is to dedicate ourselves to providing resources, networking and collaboration opportunities for public educators throughout the state of Indiana. We strive to provide resources and opportunities for public educators to collaborate and strengthen existing education and outreach efforts that are already happening in Indiana.

We meet quarterly through conference calls and plan group activities and field trips a couple times a year to explore unique and educational areas around Indiana. We all pull together our resources and put together educational presentations for the annual INAFSM Conference that happens every year in September. INAFSM was recently awarded a Floodplain Simulator that can be used by INAFSM members for hands on educational lessons in schools and to other groups.

We are looking for more participants to partner and expand our efforts as we work together to provide a universal message about stormwater pollution prevention. If you are interested in participating in our group, please contact Jason Donati at jdonati@msdeng.com or call 765-213-6450.



Floodplain Training Opportunities

July 18 — [Changes in the 2017 CRS Coordinator's Manual](#) (webinar)

July 19 — [CRS: Class 4 Prerequisites](#) (webinar)

August 15 — [Preparing an Annual Recertification \(PPI\)](#) (webinar)

August 16 — [Flood Warning & Response](#) (webinar)

August 22-25 — L278: Community Rating System (Indianapolis)

September 19 — [Preparing an Annual Recertification](#) (webinar)

September 20 — [Floodplain Management Planning](#) (webinar)

October 17 — [Introduction to CRS](#) (Webinar)

October 18 — [Developing a Program for Public Information](#)

Are there any training opportunities that you know of and would like to share with other members? Please contact the Outreach Chair at outreach@inafsm.net with the information.

Help INAFSM Promote Your Good Work on Social Media

If you are on LinkedIn, Facebook, or Twitter INAFSM needs YOU! We need you to connect with us by following and liking our pages. Please also share our posts and offer comments on our posts. This brings more attention to best practices in floodplain and stormwater management.

Facebook:
<https://www.facebook.com/INAFSM96>

LinkedIn:
<https://www.linkedin.com/company/10428091>

Twitter:
<https://twitter.com/inafsm>

Stormwater Training Opportunities

June 20 - July 25 — [Permeable Pavement Master Class Series](#) (Webinar)

June 21 — [Compost on Sustainable Sites: Managing Stormwater, Drought, and Erosion](#) (Webinar)

June 22 — ["Selling" Water and Stormwater Rate Increases](#) (webinar)

July 13 — [Make Sense of the Data: Analysis of Stormwater Treatment Monitoring](#) (webinar)

Class Series (webinar)

Are there any training opportunities that you know of and would like to share with other members? Please contact the Outreach Chair at outreach@inafsm.net with the information.



101 West Ohio Street, Suite 1575
Indianapolis, Indiana 46204

Phone: 317-829-3656
Email: info@inafsm.net
kavery@inafsm.net
Website: www.inafsm.net

BEFORE THE STORM is published four times a year by INAFSM and is funded by membership dues. Reproduction with credit is permitted.

INAFSM encourages interested parties to contribute articles, photographs, and other items of interest for publication. Items and other editorial matters should be directed to:

INAFSM OUTREACH CHAIR

Denise Aschleman
outreach@inafsm.net

The opinions contained in certain articles are those of the individual author(s) and do not necessarily reflect the opinions of the INAFSM Board and/or its members. INAFSM reserves the right to edit material prior to publication.

“Promoting sustainable floodplain and stormwater management”

**2017 Executive Board
Members and Staff**

CHAIR

Kenny Hale
chair@inafsm.net

VICE CHAIR

Lori Gates
vicechair@inafsm.net

SECRETARY

Joseph Miller
secretary@inafsm.net

TREASURER

Michael Sears
treasurer@inafsm.net

EXECUTIVE DIRECTOR

Karen Avery
kavery@inafsm.net

**2017 Representatives and
Committee Chairs**

NORTH REGION

Randy Sexton
north@inafsm.net

CENTRAL REGION

Larry Aukerman
central@inafsm.net

SOUTH REGION

Susan Bodkin
south@inafsm.net

FLOODPLAIN CHAIR

Debra Smith
fp@inafsm.net

STORMWATER CHAIR

Toni Cecil
sw@inafsm.net

**2017 Advisory
Committee Chairs**

PAST CHAIR

Zachariah Beasley
pastchair@inafsm.net

AWARDS CHAIR

Rod Renkenberger
awards@inafsm.net

CRS CHAIR

—Vacant—

CONFERENCE CHAIR

Lori Gates
vicechair@inafsm.net

LEGISLATIVE CHAIR

Kenton C. Ward
Kenton.ward@hamiltoncounty.in.gov

OUTREACH CHAIR

Denise Aschleman
outreach@inafsm.net

2017 Liaisons

IDNR

Debra Smith
fp@inafsm.net

USGS

Zack Martin
zmartin@usgs.gov

IDHS

Mary Moran
mmoran@dhs.in.gov

IDEM

Randy Braun
rbraun@idem.IN.gov

NFIP

Anita Nance
anance@dnr.IN.gov

INDOT

Dave Finley
dfinley@indot.in.gov