

Wednesday, October 23rd

2:00 PM Floodplain Management Workshop

Michelle Staff, CFM, Wisconsin Department of Natural Resources

Wisconsin DNR Floodplain management is an important component for building flood resiliency in your community. This workshop covers the basic tenets of the National Flood Insurance Program (NFIP) and the minimum administrative requirements to successfully implement a community floodplain management program. Participants will learn the fundamentals of individual and local responsibilities for managing flood risks and loss through proper permitting and planning. Topics covered include: NFIP Basics, Maps & Flood Insurance Studies, the Floodplain Manager's Role, and NFIP Compliance. This workshop is targeted for community officials, floodplain zoning administrators, surveyors, engineers, and other development professionals with the interest in basic floodplain management.

1:00 PM CFM Exam

Registration for the exam is handled directly through ASFPM. You must apply to ASFPM at least two weeks in advance to take the exam. Submit CFM Exam related questions to cfm@floods.org or call 608-828-3000. Register with ASFPM on their [website](#). The CFM study guide can be found [here](#).

4:00 PM - 9:00 PM Evening Reception and Game Night

4 pm - 7 pm, appetizers & cash bar; 7 pm - 9 pm, game night open to all

Thursday, October 24th

9:00 AM Opening Plenary

Update from ASFPM, Chad Berginnis, ASFPM Executive Director

10:30 AM Breakout Sessions

Trees & Water Sensitive Urban Design

Shane Carpani, GreenBlue Urban

Much research has been done on the general subject of Low Impact Development and Sustainable Urban Drainage Systems, and the objective of this session is not to replicate this, but to provide an overview of the use of street trees in such systems. This presentation will evaluate the key parameters which must be considered in order to release the immense potential that urban trees can offer to reduce stormwater runoff and improve quality. Traditional surface water drainage was designed to convey rainfall as rapidly as possible from where it falls to either a temporary storage area or a watercourse. This old method increases the risks of flooding, environmental damage, and urban diffuse pollution – as runoff water usually carries contaminants including oils, heavy metals, pesticides, fertilizers, chemicals and other urban matter. The implementation of sustainable drainage systems, demonstrated in outline as well as detailed applications and design submissions, is now demanded by many authorities as a prerequisite of planning consideration. This session uses GreenBlue Urban's 27 years of field experience, as well as research from numerous monitored sites in conjunction with several universities and municipalities, to

examine the opportunities available for integrating urban tree planting into stormwater management for truly sustainable urban landscapes.

Permeable Pavers and the Permeable Pavement Test Plot in Madison, WI

Pat Brennan, County Materials

Permeable Pavers and the Permeable Pavement test plot in Madison WI. We will discuss a variety of Permeable paver installations in Wisconsin and the Test Plot built with the cooperation of the USGS, WDNR and WDOT.

Pilot Projects in Wisconsin: Moving Nature-Based Flood Solutions Forward

Katie Sommers, CFM, Mitigation Section Supervisor, Wisconsin Emergency Management

Wisconsin Emergency Management has identified the need for nature-based mitigation solutions to flooding. To promote this need, pilot projects in Ashland County and along the Baraboo River corridor have been developed and funded through two different agencies. The projects will examine the downstream flood risk reduction of potential wetland restoration projects in upstream areas. This presentation will describe the development and application process for both projects.

Buyout Projects After the 2018 Floods: Successes and Challenges

Margaret Zieke, Wisconsin Emergency Management

This presentation will briefly describe the 2018 flood and the destruction left in its wake. It will go on to explore the challenges and successes communities and the state experienced in implementing the major structure buyout program. Finally, it will present best practices that communities can implement prior to a flood to contribute to a smooth and fast recovery.

Making Green Infrastructure Accessible in Public Spaces: A MultiBenefits Project

Alyssa Schmitt, Stormwater Solutions Engineering

Milwaukee Public Library was required to make Americans with Disabilities Act accessibility and other improvements to its parking lots and walkways at six branch locations. Library staff and Stormwater Solutions Engineering, LLC (SSE) seized the opportunity to add green infrastructure wherever possible on those sites. Porous pavement, bioswales, native landscaping, and StormGUARDens are among the designed improvements. Programming and space-making components, lighting, and safety were also project considerations. SSE also helped to secure grant funding for the project. In this session we'll share how we leveraged ADA and other funding to address water quality, aesthetics, safety, and site uses as well! We'll also explain how the grant funding process affected project planning and the construction schedule. We will conclude the presentations with pre- and post-construction pictures from a similar local project to help visualize the future library sites.

Developing a Guidance Document to Manage Sump Pump Discharge

Kara Koch, Stormwater Solutions Engineering

Unrestricted infiltration and inflow ("I/I") on private and public properties can dramatically increase flows in the sanitary sewer system, potentially resulting in basement backups and sewer overflows. Two main sources of inflow from private properties are connected foundation drains in older homes and sump pumps improperly connected to the sanitary sewer system. Correcting either condition usually results in discharging sump flows to the yard, which could cause nuisance problems such as freezing on sidewalks or ponding in the yard.

One possible solution is directing the discharge to a rain garden installed in the homeowner's yard. Stormwater Solutions Engineering, LLC (SSE) was tasked with developing a guidance document to assist

homeowners in making that change. The guidance document is being developed based on sump pump discharge monitoring data collected by Brown and Caldwell and lessons learned from a previous City of West Allis project along with information from MMSD's Fresh Coast Resource Center. Although sump pump discharge can be measured, it is not as easy to quantify as typical stormwater runoff. Sump pump discharge is triggered by soil moisture, rain intensity, foundation drain condition, elevation, and other factors. The result can be no discharge from small rain events, leading to a relatively dry rain garden, or discharge long after a rain event, creating a wetter rain garden for longer periods of time. Despite these challenges, managing the discharge through a rain garden designed for the homeowner's unique property is a sound I/I solution in many cases.

In this session we'll share lessons about the sump pump monitoring and design processes as well as a draft of the guidance document.

12:00 PM Lunch Plenary

Year of Clean Drinking Water

Todd Ambs, DNR Assistant Deputy Secretary

1:00 PM Breakout Sessions

Substantial Damage: A Local Perspective

Reed Gaedtke, Manitowoc County

For communities that participate in the National Flood Insurance Program (NFIP), substantial damage determinations are required by local floodplain management ordinances after a flood event. This presentation will explain substantial damage assessment as it relates to local floodplain management regulations. Substantial damage is a specific term that applies to a damaged structure in a special flood hazard area (SFHA) — or floodplain — for which the total cost of repairs is 50 percent or more of the structure's equalized assessed value before the disaster occurred. This applies to all buildings located in a designated SFHA, regardless of whether the building has flood insurance coverage and regardless of the cause of damage. Manitowoc County will share their local experience with substantial damage from their 2019 March flooding event.

Madison's Response to the Catastrophic August 2018 Floods: Spring Harbor Watershed Study

Amber Lefers, AE2S

The west side of Madison WI was hit by severe weather in August 2018 that dropped as much as 15 inches of rain in about 12 hours. The flooding that resulted caused millions of dollars of damage throughout Madison and Dane County.

The City recognized that they did not have a comprehensive understanding of their drainage system comprising of storm sewer, streets, and greenways. In 2019, the City of Madison selected AE2S to complete the Spring Harbor watershed study, which is on the west side of Madison and is fully urbanized totaling over three square miles. The project involves developing a comprehensive SWMM model, collecting flow monitoring data to calibrate the model, developing recommended improvements to provide adequate drainage capacity throughout the watershed, and reaching out to the public through a comprehensive public engagement plan.

MMSD's Voluntary Building Floodproofing vs. Acquisition Evaluation Policy and Case Study

Rich Klein, Stantec

The Milwaukee Metropolitan Sewerage District's (MMSD's) 2035 Vision calls for no residential buildings in the floodplain. MMSD employs a portfolio of techniques to reduce flood risk to buildings, including flood storage to reduce peak flows, channel widening to increase flow capacity, levees to hold back floodwaters, and building acquisition/demolition.

MMSD has developed a draft building floodproofing policy to have yet another flood risk reduction technique available to achieve MMSD's vision. The Wisconsin Department of Natural Resources (WDNR) NR 116 requirements for building floodproofing form the policy's technical foundation. The policy provides a framework to cost-effectively compare voluntary building floodproofing versus voluntary building acquisition while considering residual flood risk. Applying the policy to specific buildings involves working closely with the local municipality to develop recommendations. Besides either voluntary floodproofing or voluntary acquisition, the building owner would also have the choice of doing nothing and maintaining the status quo.

This presentation will summarize the MMSD's draft floodproofing policy and describe a project case study involving both residential and industrial buildings to illustrate its application.

Green Infrastructure Plant Selection and Design Tool

Tom Price, Conservation Design Forum

Conservation Design Forum will present the green infrastructure plant selection tool recently launched for The Milwaukee Metropolitan Sewerage District (District). The assignment was organized to help the District's project partners with selection of plants for green infrastructure applications. The Tool is an easy-to-use excel spreadsheet intended for broad distribution.

The District recognizes the important role that plants play in green infrastructure, but also understands that the conditions they must survive can be challenging. This Tool allows users to select those conditions and narrow down a master list of plants to reveal the ones most suited to their particular site. Options for selecting plants for an ornamental or naturalized planting style are provided.

Building Code Effectiveness Grading Schedule

Dale Thomure, Manager of Community Hazard Mitigation

Session covers the background and application of ISO's BCEGS program and the connection between BCEGS and the CRS program. Participants will gain a better understanding of the key criteria used in the BCEGS evaluation process and the overall impact of the classification. Session attendees will also gain a better understanding of national trends in building code enforcement and will be able to compare their own departments to the national trends to discover how they are progressing compared to their peers.

2:30 PM Breakout Sessions

Larson Lagoon Water Quality

Dave Kraft, Hey and Associates

The Larson Lagoon was a former settling pond for vegetable canning operation located in the City of Fort Atkinson along the Rock River. Stormwater runoff from approximately 450 acres of the City bypassed the approximately six acre pond and drained directly to the river via agricultural ditch. The project rerouted this runoff to the previously off-line pond, taking advantage of the settling potential in the pond to realize substantial water quality benefits.

The modification of the pond outlet also increased flood storage and attenuated discharges to the river, realizing a flood benefit for the City and downstream communities. Detailed hydrologic and hydraulic modeling and WinSLAMM water quality modeling documented the proposed project benefits for permitting and grant purposes.

The project was funded in part by a WDNR grant and assisted the City with meeting forthcoming TMDL standards and MS4 permit requirements. Value engineering of the concept that was submitted for the grant also allowed for restoration of additional wetland areas between the lagoon and river, increasing both water quality treatment and enhancing habitat and local ecology. Hey and Associates, Inc. prepared design plans and permitting tasks on behalf of the City, as well as oversaw the sensitive construction project.

Wildcat Creek - Storm Water Management in Urban Watershed

Terry Tavera, Ruekert & Mielke

The City of Greenfield recently completed the final phase of a multi-year plan on Wildcat Creek. The project consisted of identifying flood prone areas, protecting roadways and structures from flooding, addressing severe erosion and restoring habitat. We will describe the steps taken to get projects approved and constructed within multiple jurisdictions, and discuss the funding sources, including grants, that were obtained to help pay for the projects.

Disaster Recovery Reform Act: Implications for Floodplain Manager

Katie Sommers, Wisconsin Emergency Management

In 2018 Congress passed the Disaster Recovery Reform Act which changed the way disaster recovery assistance is delivered. This presentation will cover several aspects of the legislation that impact local floodplain management including allowing federal compensation for mutual aid to perform post-disaster damage inspections; increasing state management costs and authorizing local management costs; and transforming FEMA's Pre-Disaster Mitigation grant program into the new Building Resilient Infrastructures and Communities (BRIC) grant program.

Streamflow Trends in Wisconsin

Guen Drewes, Wisconsin Emergency Management

Wisconsin is home to a unique ecoregion known as the Driftless Area. Within this area are several drainage basins including the Bad Axe – La Crosse, the Lower Wisconsin, and the Grant – Platte basin. Streamflow trends in this area indicate a rise in flood events, especially along the Kickapoo River. This analysis will look at the ecoregion as a whole, relevant drainage basins, comparative counties local stream gauge data, and examine recent trend changes with regards to major flood events.

Regenerative Storm Water Conveyance at CTH KR Roadway Expansion: Economics and Environment Can Both Win

Adrienne Cizek, Stormwater Solutions Engineering

Wisconsin Department of Transportation (WisDOT) is expanding County Highway KR and must manage additional stormwater flows associated with the added pavement. A stormwater detention pond was initially proposed on a county-owned parcel riparian to the Pike River. Stakeholder groups, including Kenosha County, Root-Pike Watershed Initiative Network (RPWIN), Wisconsin Department of Natural Resources (WDNR), and WisDOT came together to find an alternative innovative solution that considered the ecology of the Pike River, potential recreational and development uses for the parcel, water quality improvements, and overall economics to manage the additional runoff. Regenerative stormwater conveyance (RSC) allows for step-pools to be sculpted into the existing landscape (minimizing excavation

and grading), while also providing improved water quality and ecological benefits. Additionally, project costs associated with the RSC are similar to those using the conventional detention pond design. This will be the first use of RSC on a WisDOT project.

Learning objectives:

- RSC is an ecologically-based solution for managing, treating, and conveying stormwater runoff
- Stakeholder involvement can result in a project that provides benefits beyond its initial goals
- Green infrastructure does not have to be more expensive than traditional stormwater solutions
- This project now provides a cornerstone for using RSC in other WisDOT applications

Storm Drainage Concrete Structures

Clark Wantoch and Brian Kolden, Wisconsin Concrete Pipe Association

Clark and Brian will cover concrete drainage systems, design considerations with helpful hints, production of various concrete products, quality control and costs comparisons with other drainage pipe types.

3:45 PM Closing Plenary

Groundwater Pumping in Central Wisconsin

Jennifer McNelly, Portage County Water Resource Specialist

Groundwater use and pumping has been a topic of concern for decades in Central Wisconsin. The geology and easily accessible water in the region has lent itself to the proliferation of high capacity wells in the Wisconsin Central Sands, creating the highest density of these wells using the largest amounts of groundwater in the state.

This presentation will share a brief history of groundwater quantity concerns in central Wisconsin, the results of recent studies examining groundwater quantity and pumping, and where we are currently at in addressing this issue.

Friday, October 25th

9:00 AM Field Tour

County Materials Rib Fall Pre-cast Concrete Plant Tour - pipe and manhole production, 3-edge bearing test of a concrete pipe. New Whitewater Kayak Park Tour. View the Hydro Dam that is under construction on the Wisconsin River - presentation on the construction project and the dam. If time allows, drive to Rib Mountain State Park for a quick stop to see the fall colors and enjoy the concession stand.