

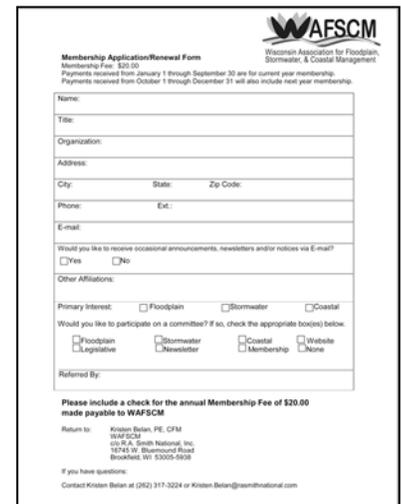
A newsletter for people concerned with water management issues.

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Recap from the 2014 WAFSCM conference in Wisconsin Dells, page 3



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Message from the Editor

The WAFSCM newsletter is published twice a year to update members on chapter activities and to provide information on publications, seminars, etc. that may be beneficial to our water community. If you have articles, announcements, or other information that you would like us to include in future newsletters, please forward it to me at BPowers@scsengineers.com

Thank you to all the newsletter contributors and to Rhonda Janos for the newsletter preparation.

Betsy Powers, P.E.
Newsletter Editor

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Message from the Chair

Ryan Kloth, P.E., CFM

Written February 20, 2015

It is February and the start of what we hope to be an exciting 2015 for WAFSCM! We had our first Board Meeting and one item we discussed was the creation of an Education Committee. This committee is the consolidation of our current Stormwater and Floodplain committees. It is our hope that the creation of this committee will foster more opportunities for technical training in Water Resource Management for our members as well as provide opportunities to hold training/ seminars with other organizations. As with this committee, we are always looking for additional members for any of our committees. If you are interested, please contact me or any of our other Board members; our contact information can be found on the list of board members included with this newsletter, or on our website.

As a Board, we have started to discuss our fall conference this year which will be located in Pewaukee, Wisconsin at the Country Springs Hotel. More details on the conference will be provided as they develop. If you have any ideas of topics you would like to learn more about at the conference, or if you have any ideas for training opportunities this year, please let us know as we would be glad to hear about them. Let's work together to make 2015 our best so far.

We look forward to seeing you at the fall conference this year!

Ryan W. Kloth, P.E., CFM
WAFSCM Chair
rkloth@sehinc.com

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2014 WAFSCM Annual Conference Recap

The 2014 WAFSCM Annual event was held in Wisconsin Dells, WI at the Glacier Canyon Lodge Conference Center. The event was held over three days from October 29-31, 2014. Wednesday, October 29th started off with several workshops that were well attended including a Coastal Risk Workshop presented by Baird staff, a Community Rating System Workshop by ISO, Inc. and a Certified Floodplain Manager (CFM) refresher course. Wednesday evening's Networking/Cocktail Hour started with a tour of the Wilderness Water Park and ended with a Social/Game night. The great turnout allowed for lots of fun networking time.

The main day of the conference was Thursday, October 30, 2014, with 130 attending, included plenary and breakout sessions with a coastal emphasis this year. Plenary sessions began and ended our day, with an update from the Wisconsin DNR and ASFPM to start and a presentation by J. Elmo Rawling from the Wisconsin Geological and Natural History Survey on Dunes and Sandy Bay Barriers Along Lake Michigan's Door Peninsula to finish. At lunch a Lifetime Achievement Award was given to Gary Heinrichs, Program and Policy Analyst, Floodplain Management Program of the WDNR.

Friday's field tour was of various floodplain management locations along the nearby Baraboo River and is discussed below in an article by Laura Kletti, Sue Josheff, and Uriah Monday.

2014 WAFSCM Field Tour

by Laura Kletti, Sue Josheff, and Uriah Monday

On a blustery Halloween fifteen of us embarked on a field tour of Baraboo River locations affected by the record 2008 flood. We first visited the City of Reedsburg, with Sue Josheff (WDNR), Brian DuValle (Zoning Administrator) and Steve Zibell (City Engineer) leading us through the main areas impacted by the 2008 flood. First stop was the wastewater treatment plant (WWTP) where the ring levee was overtopped and the facility was shut down. The WWTP facility (2.6 MGD capacity) was actually shut down before the levee was overtopped, due to the more than quadrupling of inflows with basement flooding being experienced in the community. Steve discussed the City's flood fight and the loss of cell phone communication due to overloading of the towers. This forced all coordination to be done via vehicle, which was not very efficient, especially as the community was essentially



Reedsburg WWTP - note the 2008 flood high water mark on the building.

Continued on next page →

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2014 WAFSCM Field Tour (continued)

split in half with the two connecting bridges over the Baraboo River impassable. Amazingly, the WWTP was back up and running three weeks after the flood event.

We also visited the City garage which had 4+ feet of floodwater, one buyout location where 18 homes and two commercial buildings in the floodway were demolished and an industrial property that built a sheet pile floodwall. Brian told us about the City's recovery and the need to leave flooded homes as is for FEMA inspection. Homeowners and volunteer groups were almost immediately rebuilding the homes to make them livable which the City had to stop. It took almost two years to buy and demolish all the homes, with the owners in limbo and living with family or friends.

The second part of the tour included a visit to the Clark Creek project, which is a tributary to the Baraboo River with headwaters in Devils Lake State Park. The creek is historically subject to flash flooding, which has caused bank instability along many stretches of the creek. Sediment from bank slumps becomes deposited in the creek bed and into the Baraboo River, destroying habitat for several species including trout; larger flooding events have deposited sediment in culverts, on roadways, and even into buildings. Uriah Monday (MSA) and Serge Koenig (Sauk County Land Conservation) led this part of the tour. We first visited a 140 acre prairie restoration site in the headwaters of the creek. The land had been farmland owned by the DNR and leased to local farmers.



Reedsburg field tour.



Clark Creek headwater prairie restoration.



Clark Creek bluff erosion / channel restoration location.

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2014 WAFSCM Field Tour (continued)

The restoration project was spearheaded by Sauk County Land Conservation and involved regrading and dormant seeding in early 2014. Grading included adding prairie potholes which trap and infiltrate stormwater in addition to lengthening runoff flow paths – factors that helped reduce ‘flashiness’ of runoff to the stream.



Clark Creek channel restoration – stream moved away from the eroded bluff toe with woody debris stabilization .

Clark Creek channel restoration – looking upstream to constructed rock ledge.

New plant growth from this first summer looked really good, with very few invasive species observed on our walk into the site. We then visited a stream restoration location farther downstream on Clark Creek. This area is very steep and had significant woody debris clogging the channel. Part of the restoration included removing the debris or cutting it into 4-ft sections (a dimension strategically chosen – a log this size, if carried off by floodwaters, would not likely clog downstream culverts) to leave in piles along the edge of the floodplain for habitat. We visited a section of stream whose channel was moved 20-ft away from its original location at the base of a steep, eroding sand bluff. The original stream channel was filled with trees removed from the floodplain, tied together with cables into a criss-cross pattern with the root wad ends becoming the face of the new stream bank. The logs were placed below the stream bed to above the 100-year floodplain level. This area was then backfilled and vegetated. The upper sand slope will be allowed to continue to erode to a more stable slope. Rock ledges were also placed in the stream restoration section to add habitat and mitigate sediment delivery.



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Thank you to the 2014 WAFSCM Conference Sponsors and Exhibitors!

By Cindi DeBruine, Conference Sponsor and Exhibitor Coordinator

We had a very successful conference in Wisconsin Dells last October and a lot of that success is due to the wonderful Sponsor and Exhibitor support. The contributions from our Sponsors and Exhibitors helps WAFSCM provide a quality conference at a very reasonable cost, so please let them know you appreciate their support. All the Sponsors and Exhibitors are acknowledged in this newsletter.

We also want to thank those companies that provided door prizes for the 2014 WAFSCM Conference raffle including; Applied Polymer Systems, Ayres and Associates, Country Materials, ERO-TEX, FloodBreak, GRAEF, Hydro International, National Weather Service, R.A. Smith National, Inc., Rinker-Stormceptor, and Spancrete.

We look forward to seeing our long-term Sponsors and Exhibitors at the 2015 conference, plus some new supporters!

2014 WAFSCM Conference EXHIBITORS



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2014 ASFPM National Scholarship Winner



Scholarship winner Kimberly Bitters

I want to sincerely thank WAFSCM for the registration scholarship that allowed me to attend the 2014 ASFPM Annual Conference in Seattle, WA! This conference was particularly exciting and well oriented for a Wisconsinite to learn about the interconnected nature of floodplain and stormwater management. Wisconsin is one of only a few state chapters that already bring together experts from the two management paradigms – much to the benefit of our flood risk reduction efforts! And the Seattle Conference provided so many opportunities to hear about other progressive communities and states that are exploring inventive ways to reduce the frequency and severity of flooding throughout their watersheds.

To my delight, ASFPM's agenda kicked off on Monday with a Training Workshop on the "Community Officials Guide to Implementing Green Infrastructure & Enhancing Resiliency." Traditional floodplain management professionals stick closely to the idea that floods are managed exclusively through the National Flood Insurance Program and its minimum regulations that apply exclusively to the federally-designated Special Flood Hazard Areas. Thankfully, Wisconsin knows better, and long ago adopted a number of additional common sense standards that further protect our property and citizens from flooding. Additionally, many progressive communities in Wisconsin and around the country have recognized the critical importance of expanding our flood risk reduction toolbox to incorporate techniques that until recently were only considered "stormwater management". As discussed in my article, "Bolster Flood Risk Reduction Efforts through *Green Infrastructure*", published in ASFPM's February 2012 News & Views, using *Green Infrastructure* instead of traditionally engineered methods is beneficial because it mimics the land's pre-development characteristics. By releasing runoff in a way that is closer to the pre-development volume and timing, we moderate peak flows, thus reducing the number and extent of flood events. Not to mention the advantages of addressing cumulative or incremental impacts on habitat, sedimentation/erosion processes, groundwater recharges, and flood storage. Since we know that drainage changes throughout the watershed directly affect flood risk, it only makes sense to combine management efforts!

Throughout the conference there were numerous success stories where communities have integrated efforts that provide both water quantity and quality benefits. Recognizing the flood risk reduction potential of preserved or rehabilitated floodplains provides so many tantalizing options. Tuesday's opening plenary had two amazing speakers on "Reconnecting Floodplains to Habitat: How we do it in the NW, Implications for All". The concurrent sessions had so many exciting topics I simply couldn't decide where to go. There was the "URS Showcase: Achieving Higher Standards to Promote Responsible Floodplain Management", "Integrating Flood Hazard, Infrastructure Maintenance, and Fish Habitat Management Objectives at Muddy Creek", "Striking a Balance between Natural Benefits of Floodplains & Commercial Uses of a Managed River", "Modeling for Sediment and Habitat", and "Floodplain by Design". And those were just the ones that I personally didn't want to miss; there were actually 24 concurrent sessions with three speakers each – on the first day!

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ASFPM National Scholarship Winner (continued)

On Wednesday, I participated in the Early Bird session hosted by ASFPM's Stormwater Management, No Adverse Impact (NAI), and Natural and Beneficial Functions (NBF) Committees. At the session, there was a lively discussion with an expert panel on the "Endangered Species Act/NMFS Biological Opinion: Implementation Success Stories." According to the conference pocketguide, "The minimum requirements of the NFIP protect people and buildings from the 1% chance flood, but were not designed to protect the ecological functions of the floodplain. In 2008, a Federal court ruled that FEMA must address issues raised in a Biological Opinion (BiOp) from the NMFS. The BiOp stated that implementation of the basic standards of the NFIP is in conflict with the ESA in the Puget Sound Watershed...". You may know that there have already been several Biological Opinions in different parts of the country based upon floodplain development's impacts to various endangered species. This topic is becoming increasingly critical due to the legal implications on the NFIP throughout the country. Communities using *Green Infrastructure*, including protection of naturally functioning stream corridors, would get ahead of the curve in this and many other ways. Fortunately, the conference highlighted three communities that have been implementing successful responses to the Biological Opinion in the Puget Sound. I couldn't possibly do their comprehensive flood loss strategies justice here, but the common theme included protection/rehabilitation/reconnection of ecologically functioning floodplains. This, along with implementation of the full suite of *Green Infrastructure* tools in 'hydraulically disconnected watery greenspaces' throughout their drainage network, cumulatively impact flooding (Bitters 4). As an added bonus, these communities are both improving their flood risk reduction efforts and making huge strides in water quality/habitat protection.

Comprehensive flood risk management requires that we expand our view of what must be managed to effectively mitigate flood risk. The collaboration between floodplain and stormwater experts in WAFSCM as well as other ASFPM chapters is an important step towards reversing the horrific flood damage trends. And it was thrilling to have the chance to interact with and learn from experts around the nation who have been successful! I highly recommend attending the 2015 ASFPM Annual Conference in Atlanta, GA, which is just around the corner at the end of May! Of course, I've only highlighted the sessions that I was excited to attend; there were equally progressive presentations on water modeling, mitigation, insurance, regulations, mapping, planning, and I'm sure I'm forgetting several others.

Thank you again for your generous scholarship!

Bitters, Kimberly. *Bolster Flood Risk Reduction Efforts through Green Infrastructure*. News & Views. Association of State Floodplain Managers. Madison, WI. February 2012. Vol 25, No. 1. Page 4-5.
http://www.floods.org/ace-files/documentlibrary/news_views/february_2012_news_views.pdf



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2014 WAFSCM Scholarship Winner

By Maria Holl, Pepin County Zoning Administrator and Emergency Management Director

As a fairly new Zoning Administrator *and* Emergency Management Director, passing on the opportunity for a scholarship to attend the Wisconsin Association for Floodplain, Stormwater, and Coastal Management's conference would have been a mistake. I have always been intrigued by floodplain and stormwater issues and the efforts across the state to make communities more resilient and mitigate the potential disasters of flooding events. However, in my first year working for Pepin County, I came to learn that the residents seem to see flooding as a simple fact of life. This is not necessarily a bad thing, unless one considers fact that the majority of residents in the floodway don't have flood insurance and generally don't take precautions until the floodwaters have already exceeded the banks. I saw the WAFSCM conference as my first step towards changing this mentality; I predict it will be a long and adventurous journey.



The main sources of flooding in Pepin County include the Chippewa and Mississippi Rivers. It floods annually, and by annually I mean multiple times per year to various extents. The Chippewa mainly impacts the City of Durand, while flooding along the Mississippi primarily impacts a peninsula called Deer Island that is covered with seasonal homes. Due to the flooding history of Deer Island, the zoning office is considered an enemy of the public. The last major flood in 2001 resulted in FEMA re-mapping the entire county and changing Deer Island's designation from a floodplain to a floodway which went into effect in 2010, essentially halting all (legal) building activities and hindering the ability of residents to sell their homes. Due to the fact that I am both the Zoning Administrator and the Emergency Management Director, the residents do not inform the county of significant flood events since the zoning regulations require their homes be destroyed if damaged more than 50% by a flood event. It is my hope that the lessons I learned at the WAFSCM Conference can be utilized to mend the relationship the Land Management Department has with these residents.

After the WAFSCM conference, Pepin County will be looking into applying for the Community Rating System program; this voluntary incentive program recognizes and encourages community floodplain management activities that exceed the NFIP requirements. The State of Wisconsin floodplain regulations exceed NFIP standards so just by enforcing the state laws the county zoning offices should be able to reduce insurance premiums for residents in the floodplain. Additional credits can be obtained through mapping risks, targeting public outreach to educate the public on floodplain issues, preserving open space, and removing structures from the floodway. Jefferson County's Emergency Management Director has had a lot of success removing structures from the floodway using the Flood Mitigation Assistance Program and other incentives provided by FEMA. I would strongly encourage staff at other county, city, and village governments to look into these programs.



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Hydrologic Modeling: TP-40 -> Atlas 14 Transition

By Miriam Anderson, WDNR Floodplain Management Specialist-Watershed Management/Water

The National Oceanic and Atmospheric Administration (NOAA) has published Atlas 14 Volume 8 to supersede TP-40/TP-49. These documents estimate various rainfall totals to be used in hydrologic modeling. Related to this update, the Natural Resources Conservation Service (NRCS) has created rainfall distribution curves for Wisconsin based on Atlas 14 to supersede the SCS Type-II distribution. After March 1, 2015, the Wisconsin DNR floodplain program will no longer accept hydrology that uses TP-40/TP-49 or SCS Type-II if the analysis has not already been started or received a contract bid before March 1, 2015. If you are in the early stages of your project before March 1st, we strongly encourage you to consider using Atlas 14.

The new rainfall estimates for Wisconsin are included in Atlas 14 Volume 8, which can be found at: http://www.nws.noaa.gov/oh/hdsc/PF_documents/Atlas14_Volume8.pdf

A site specific rainfall estimation from Atlas 14 can be found at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>

NRCS has released updated precipitation data for Wisconsin based on the NOAA Atlas 14, Volume 8. NRCS Wisconsin Engineering staff worked with the NRCS National Water Quality and Quantity Team on this effort. They analyzed the NOAA Atlas 14 grid data using GIS to develop updated precipitation depths (by County and storm frequency) and updated NRCS storm distributions. The new precipitation data and background information are available on the NRCS Wisconsin Hydrology, Hydraulics webpage (under NRCS Wisconsin Hydrology Resources) at:

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/wi/technical/engineering/?cid=nrcs142p2_025417

The following is a summary of the new precipitation information that is included on this webpage:

- WI Supplement to NEH Part 650 (EFH) Chapter 2 (containing information about the updates)
- Updated EFH2 and TR55 Spreadsheets Including NOAA Atlas 14 Precipitation Data
- New NRCS WI MSE3 and MSE4 Storm Distribution Data (in an Excel Spreadsheet)
- New WI Precipitation Depths and Storm Distributions by WI County (in an Excel Spreadsheet)
- Information on retrieving the latest Hydrologic Soil Group Data from the Web Soil Survey
- Additional NRCS WI Spreadsheets with Updated Precipitation Data

The new precipitation depths, listed by County in Appendix 1 of the Wisconsin Supplement to the NEH Chapter 2 (and in the updated Spreadsheets), supersede the precipitation depths from TP40. Also, the two new County specific NRCS storm distributions, named MSE3 and MSE4, replace the NRCS Type II storm distribution. These new NRCS storm distributions are also listed by County in Appendix 1 of the WI Supplement. Since the NRCS Type II storm distribution was developed using the old (TP40) data, **the Type II storm distribution is not to be used with the new NOAA Atlas 14 precipitation depths.**

As was the case prior to Atlas 14, consultants have the option of using the WDNR's or SEWRPC's (in SE Wisconsin) custom rainfall distribution in lieu of the NRCS distributions provided a critical duration storm analysis is performed. For more information on these custom distributions, please contact a WDNR Water Management Engineer. Please check the list of WMEs by county on the WDNR Floodplain Management website at: http://dnr.wi.gov/topic/floodplains/staff_flood.html for the most current contact information.



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New Fees for FEMA Mapping Products and Data

By Miriam Anderson, WDNR Floodplain Management Specialist-Watershed Management/Water

FEMA has revised its fee schedules for processing Letters of Map Change (LOMC), Flood Insurance Study (FIS) technical and administrative support data and specific map and insurance products. The fee changes are being made in order to reduce expenses to the NFIP by setting fees at levels more in line with the actual costs associated with processing LOMCs, FIS technical data requests and map production. The new fee schedule went into effect on February 20, 2015.

One way to limit the amount paid in fees is to use FEMA’s on-line submission option. Fees associated with on-line submissions are \$100 – \$250 less than paper submissions.

The tables below show the pre- 02/20/2015 and post- 02/20/2015 fees for LOMCs and FIS backup data. Certain requestors such as communities are not charged fees for FIS backup data requests. To determine if you are an exempt or non-exempt requestor and for more information on fees related to LOMCs, FIS backup data and other FEMA mapping products, please contact the FEMA Map Information eXchange at 1-877-336-2627.

LOMC Product	Pre- 02/20/2015	Post- 02/20/2015	On-line 02/20/2015
Single Lot/Single Structure			
Single lot/Single structure LOMA	Free	Free	Free
Single lot/single-structure CLOMA/CLOMR-F	\$500	\$600	\$500
Single lot/single structure LOMR-F	\$425	\$525	\$425
Single lot/single structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA)	\$325	\$425	\$325
Multiple Lots/Multiple Structures			
Multiple lot/multiple structure LOMA	Free	Free	Free
Multiple lot/multiple structure CLOMA	\$700	\$800	\$700
Multiple lot/multiple structure CLOMR-F/LOMR-F	\$800	\$900	\$800
Multiple lot/multiple structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA)	\$700	\$800	\$700
Letter of Determination Review	\$80	\$80	-
CLOMRs			
Based on new hydrology, bridge, culvert, channel or any combination thereof	\$4,400	\$6,750	\$6,500
Based on a levee, berm or other structural measure	\$6,050	\$7,250 (plus \$60/hr)	\$7,000 (plus \$60/hr)
Based on structural measures on alluvial fans	\$5,600 (plus \$60/hr)	\$7,250 (plus \$60/hr)	\$7,000 (plus \$60/hr)

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New Fees for FEMA Mapping Products and Data (Continued)

LOMC Product	Pre- 02/20/2015	Post- 02/20/2015	On-line 02/20/2015
LOMRs			
Based on new hydrology, bridge, culvert, channel or any combination thereof	\$5,300	\$8,250	\$8,000
Based on as-built information submitted as a follow-up to a CLOMR	\$5,000	\$8,250	\$8,000
Based on a levee, berm or other structural measure	\$7,150	\$9,250 (plus \$60/hr)	\$9,000 (plus \$60/hr)
Based on structural measures on alluvial fans	\$5,600 (plus \$60/hr)	\$7,250 (plus \$60/hr)	\$7,000 (plus \$60/hr)
Physical Map Revisions			
Based on new hydrology, bridge, culvert, channel or any combination thereof	\$5,300	\$8,250 (plus \$2,500/panel)	\$8,000 (plus \$2,500/panel)
Based on as-built information submitted as a follow-up to a CLOMR	\$5,000	\$8,250 (plus \$2,500/panel)	\$8,000 (plus \$2,500/panel)
Based on a levee, berm or other structural measure	\$7,150	\$9,250 (plus \$60/hr and \$2,500/panel)	\$9,000 (plus \$60/hr and \$2,500/panel)
Based on structural measures on alluvial fans	\$5,600 (plus \$60/hr)	\$7,250 (plus \$60/hr and \$2,500/panel)	\$7,000 (plus \$60/hr and \$2,500/panel)

FIS Product		Fee (Non-exempt requestor)
Category 1	Paper copies, microfiche, or diskettes of hydrologic and hydraulic backup data for current or historical FISs	\$300 (inc. 4 hours of research/retrieval) \$40/hour after 4 hours Data provided upon receipt of fee \$93 additional if data is available and request is cancelled
Category 2	Single lot/single-structure CLOMA/CLOMR-F	\$300 (inc. 4 hours of research/retrieval) \$40/hour after 4 hours Data provided upon receipt of fee \$93 additional if data is available and request is cancelled
Category 3	Single lot/single structure LOMR-F	\$300 (inc. 4 hours of research/retrieval) \$40/hour after 4 hours Data provided upon receipt of fee \$93 additional if data is available and request is cancelled
Category 4	Single lot/single structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA)	\$40 for first letter \$10 for each additional letter
Category 5	Paper copies of Preliminary Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map panels	\$35 for first panel \$2 for each additional panel
Category 6	Computer tapes or CD-ROMs of Digital Line Graph files, Digital FIRM files, or Digital LOMR attachment files	\$150 per county/digital LOMR attachment shapefiles
Category 7	Computer diskettes and user's manuals for FEMA computer programs	\$25/copy



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Permeable Pavement Design in Wisconsin

By Laura Rozumalski, P.E., FreshWater Engineering

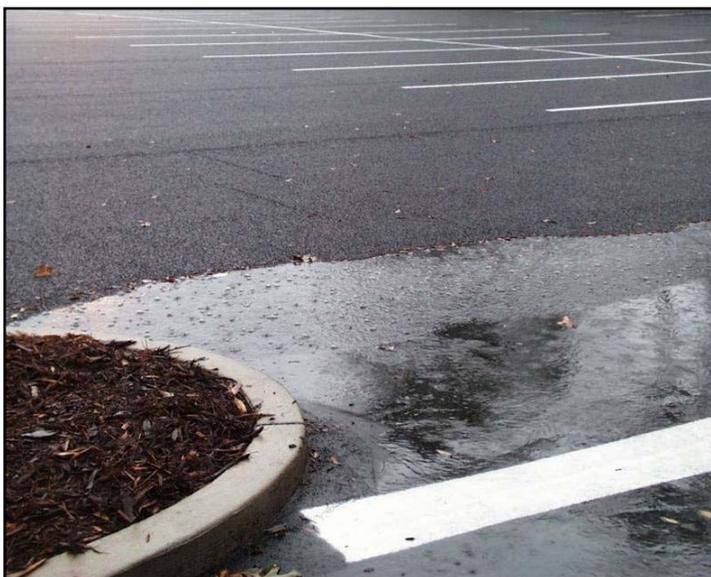
In case you missed it, a really great webinar series about permeable pavement design took place already this year. The two part series was sponsored by the UW Extension Regional Natural Resources Education Program and included "Introduction to Permeable Pavement for Storm Water Management" and "Advanced Permeable Pavement for Stormwater Management in Wisconsin".

Presenters covered topics including design standards, best management practices for site maintenance, construction techniques, specific modeling considerations for projects in Wisconsin using WinSLAMM, and much more. I've included just a few highlights here.

During the construction process, it was noted that one problem to be aware of is pavement getting clogged with sediment. The presenter pointed out that onsite sediment control is essential until the entire project is complete. Consideration of construction sequence is important to make sure stormwater controls are in place and bare soils are managed properly so that storm events during construction don't carry sediment onto the newly placed permeable pavement or infiltration beds. Special care must also be made so that truck drivers are aware of which areas are ok to drive on during the constructions process.

A frequently mentioned design consideration was whether or not to use a filter fabric or geotextile to wrap the stone or line the infiltration areas. It was interesting to note that there wasn't consensus between all the presenters on whether or not to include this element in permeable pavement design.

A permeable pavement test plot in Madison was mentioned by many of the presenters in this series. The site includes three different types of materials - permeable pavers, permeable concrete, and permeable asphalt. With funding from USGS, WDOT, WDNR, and County Materials, this project aims to quantify the volume and pollutant reduction compared between the different materials. And, if you're really looking for a good time, there is even a webcam at the site so you can see the permeable pavement in action. Find more about the study at: http://wi.water.usgs.gov/non-point/permpave/permpave_study_design.html



Permeable and traditional asphalt pavement at work .

The permeable pavement series can be found at the following website:

<http://fyi.uwex.edu/nrwebinars/category/previous-webinars/>

Each part is three hours in length, but if you don't have six hours to spare to listen to the entire thing, I would highly suggest flipping through the PDF slides from the presentation (also posted on the website) if this is a topic of interest to you. There were some excellent project examples shown of some finished project sites that would be great to check out if you're looking for some design inspiration.

A big thanks to the UW Extension for hosting this series and to all the presenters who contributed to this valuable learning experience.



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State of the Wisconsin Floodplains

Jon Lefers, Water Resources Engineer at AE2S

State of the Wisconsin Floodplains

While the State of the Union and State of the State addresses receive all the fanfare, the State of the Floodplains is an important topic for all citizens. I spoke with Chris Olds, Floodplain Engineer at the Wisconsin DNR, about the status of projects and policy issues that the DNR is addressing throughout Wisconsin. The DNR has been very busy over the last several years on several RiskMap Projects that will greatly improve the data and mapping that communities and insurance agencies rely on to make floodplain management decisions.

Ongoing RiskMap Projects

One of the largest floodplain re-mapping projects that has ever been undertaken in Wisconsin is the Rock River RiskMap Project. Hundreds of miles of streams, including the Rock River and numerous tributaries were re-studied and re-mapped. Most of the counties and communities have been issued new effective Flood Insurance Rate Maps (FIRMs) that include the new data. There are a few locations that are still in the Letter of Final Determination (LFD) process, which is the final step before a FIRM is updated. Finally, Washington and Rock Counties have not yet entered the LFD process. So if you are working on a project in the Rock River watershed, be aware that the floodplain mapping may have changed recently or be changing soon.

The Lower Wisconsin RiskMap project is another large project that included detailed restudies of the Lower Wisconsin, Black Earth Creek, and Fish and Crystal Lakes. In addition, numerous Zone A approximate studies were completed in five counties (Crawford, Grant, Richland, Iowa, and Columbia). Chris mentioned that he is hoping that most of the 7 counties (Dane and Sauk being the other two) that were included in the re-study efforts will become effective this year with LFDs expected later this year. Fish and Crystal Lakes will need new preliminary maps as the Base Flood Elevation was modified from the original preliminary maps. Black Earth Creek has presented some mapping challenges, as the final maps will need to incorporate the recently completed stream re-meandering project in Cross Plains that was approved by the DNR and FEMA based on the soon-to-be-superseded model. The RiskMap mapping effort, however, used pre-project conditions as the LOMR had not yet been approved when the RiskMap study was originally completed. Finally, the Lower Wisconsin project also included the Sugar River Physical Map Revision (PMR), even though the Sugar River does not drain to the Wisconsin, since the Sugar River was also located in Dane County and to reduce the number of notices and map changes for the county. The Sugar River PMR was necessary to update the floodplain mapping from the Belleville Lake Restoration and Dam Modifications project completed a few years ago.

The Wisconsin DNR is also finishing up hydrology and hydraulics on the Upper Fox River at this time, which is FEMA-funded only through the Work Map phase. Historically, FEMA would fund a project all the way through Effective Maps, but FEMA is now only funding projects in phases. FEMA's rationale for this approach is that the RiskMap projects often take years to complete, and it is difficult politically to have funding tied up with no definite deliverables until the effective maps are released. This phased approach presents two key challenges. First, there is no guarantee that subsequent phases will be funded. For example, FEMA could fund Discovery, subsequently Work Maps, and then Preliminary Maps, but then choose not to fund the

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State of the Wisconsin Floodplains (Continued)

Jon Lefers, Water Resources Engineer at AE2S

final step – effective maps. This could lead to wasted dollars with projects just sitting on the shelf. Secondly, going from Discovery to Effective Maps will only take longer now – at least 7 to 8 years, if not longer. One could even argue that a map based on data that is several years old by the time it becomes effective could be outdated the day it is issued.

Another project that has just been funded through Work Maps is the Milwaukee River watershed, which includes the main river along with numerous tributaries. The State has just finished the RFB process for survey collection. FEMA has also funded the STARR Team to do Discovery in the Wolf River Watersheds, and the DNR hopes to obtain funding for the Root / Pike and Lower Fox watersheds in the future.

Where can I find this Information?

Historically, getting FEMA to make preliminary maps readily available for review was like asking to see the Wizard of Oz himself. Now, fortunately, FEMA has provided a much improved website and database for finding effective, preliminary and even historical (!) floodplain maps. The website is <https://msc.fema.gov/portal/advanceSearch>. One key point that Chris mentioned is that when looking for maps associated with the RiskMap Project: under the community name, select the County with an asterisk next to it. Of particular use is that FEMA has also made the Index Map available on this website, so no more clicking panel by panel hoping that you get lucky and find the one place in the entire county that you're looking for! I have also found the historical map feature most useful in putting the pieces together on whether or not an already-constructed project was completed in compliance with FEMA requirements.

We have new maps – What should we do with them?

As the RiskMap name implies, one of the goals of RiskMap is to improve the information with which communities can evaluate flood risk. While that is an admirable goal, having the information is only the first step. Congress is now requesting that FEMA evaluate what communities are doing with this new information to actually reduce risk. As anyone who has been involved with projects adjacent to lakes and rivers, changing shorelines and the way floodplains are managed is a politically charged topic, as people feel a close connection to the waterbody that ironically could destroy their home and possessions. While FEMA and its national partners have historically wanted to take the lead in these risk-reducing efforts, understanding local politics and hot-button issues is critical to a successful community engagement effort. Therefore, the Wisconsin DNR and Wisconsin Emergency Management (WEM) are working with FEMA to take a more prominent role in this effort of evaluating risk-reducing projects that can be implemented with local funding.

State Policy Issues

There are three main policy issues that the Wisconsin DNR sees as hot topics. The first is the increasing presence of Floodplain Storage Districts. While FEMA does not regulate the presence of storage and its effect on reducing downstream peak discharges, floodplain storage can have a significant benefit to reducing downstream flood risk. Since floodplain storage is often provided in backwater upstream of embankments

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or in large flat areas, the hydraulic gradient is often such that filling these areas in a steady-state model would produce zero impact. But the State, recognizing that the true impact is not zero since the fill could increase flows downstream due to the reduced flood attenuation, has created a Floodplain Storage District in the model floodplain ordinance. While this District has been included in the model ordinance for well over a decade, until recent years, it was only used sparingly. Chris described that with the improved hydrologic modeling associated with many of the RiskMap projects, the presence of floodplain storage districts will increase considerably throughout the state.

The second policy issue is the definition of floodways through lakes. While a lake certainly needs to move water from one end to the other, traditionally even run-of-river lakes have been treated more as General Floodplain Districts with Base Flood Elevations. Chris has noted that he has had several discussions with lakefront owners expressing disagreement with the definition of floodways through lakes even though filling out into a lake has a host of other State and Federal regulations that would apply that are likely more difficult to meet.

The final policy issue that is coming to a forefront is the incorporation of the new Atlas 14 rainfall data. Of particular note is that the NRCS has created new nested rainfall distributions based on the Atlas 14 Intensity-Duration-Frequency curves. More information is included in another article in this newsletter. In summary, starting March 1, 2015 (less than a month away), all new floodplain studies will be expected to use the new Atlas 14 rainfall information. While we all know and love the Type II, it will be soon laid to rest in Wisconsin. R.I.P. Type II.

Summary

Recently and in the coming months, numerous counties in southern Wisconsin will have new effective floodplain maps based on improved data, analysis, and mapping. Communities, engineers, and planners are always advised to check FEMA's database (<https://msc.fema.gov/portal/advanceSearch>) prior to starting a project to determine if new maps have become effective, or whether preliminary maps may become effective prior to a project being constructed. This website also makes comparing new and old FIRM panels relatively easy.

On a State level, the Wisconsin DNR along with its local partners are working on several key policy issues that will affect both zoning and analysis approaches with the ultimate goal of protecting floodplains and reducing flood damage.



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November 4 – 6, 2015

Country Springs Hotel –Water Park- Conference Center
Pewaukee, Wisconsin

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Schedule:

Wednesday 11/4:

Workshops and Networking

Thursday 11/5:

Main Conference Day (plenary and breakout sessions)

Friday 11/6:

Morning Field Tour

We will have the CFM review and exam again this year. Contact one of the Conference Co-Chairs:

Carrie Bristol-Groll at [cbg@stormwater-solutions-](mailto:cbg@stormwater-solutions-engineering.com)

[engineering.com](mailto:cbg@stormwater-solutions-engineering.com) or Laura Rozumalski @

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