

Resilient Chicago:

Urban Flood Management Through No Adverse Impact and Green Infrastructure



Workshop Report
7/8/2015

Table of Contents

Introduction.....	3
Participant Demographics	4
Workshop Presentations – Overview and Feedback	6
Workshop Evaluation	8
Conclusions, Next Steps and Recommendations.....	9
Conclusions and Next Steps	9
Appendix.....	11
Appendix A. Workshop Planning Committee.....	11
Appendix B. Workshop Agenda.....	13
Appendix C. Speaker and Facilitator Biographies.....	14
Appendix D. Workshop Attendance List.....	16
Appendix E. Mapping Exercise Overview	22
Mapping Exercise Instructions.....	22
Hazards Map	25
Natural Resources Map.....	26
Appendix F. Evaluation Results	27
Appendix G. Expanded Presentation Notes	40
9:00 AM Welcome and Introductions	40
9:15 AM Audience Roundtable on Urban Flooding in Chicago and its Impacts; Molly Woloszyn:.....	40
9:30 AM Floodplain Management Legal Issues; Chad Berginnis, CFM:.....	40
10:00 AM No Adverse Impact Overview; Alisa Sauvageot, CFM:.....	41
10:45 AM Break	42
11:00 AM Tour of Loyola’s Green Infrastructure; Aaron Durnbaugh	42
12:00 PM Lunch.....	42
1:00 PM Green Infrastructure Mapping and Flood Risk Planning Exercise; Bridget Faust:.....	42
2:00 PM Putting the Infrastructure in Green Infrastructure; Josh Ellis:	43
2:15 PM CMAP Resources for Green Infrastructure Planning; Kate Evasic:.....	43
2:30 PM City of Blue Island Green Infrastructure Effort; Jason Berry:	45
3:00 PM Break	46
3:15 PM City of Chicago Department of Water Management Green Infrastructure Efforts; Aaron Koch: .	46
3:45 PM Audience Discussion and Q&A with Panel; Josh Ellis (Moderator):	47
4:30 PM Workshop Wrap-Up; Molly Woloszyn:	49

Introduction

The *No Adverse Impact* approach to floodplain management was developed by the Association of State Floodplain Managers (ASFPM) in 2001. This managing principal was the product of a realization; that despite the progress made nation-wide as a result of the National Flood Insurance Program's minimum standards and billions of dollars spent on structural flood control projects, flood damages have continued to increase. Since 1990 flood damage losses have increased five-fold, costing the nation \$10 billion annually on average. The No Adverse Impact (NAI) approach to floodplain management was designed to help reverse this trend by providing communities with the tools to reduce the frequency and severity of flood events, and to protect their citizens now and in the future. In general, these tools prevent the actions of one property owner or even a community from adversely impacting other property owners or neighboring communities. When applied at the watershed or regional level, this approach creates a network of resilient communities each of which is free to develop and thrive sustainably.

Since the publication of the NAI Toolkit in 2003, staff from professional organizations, non-profits, federal and state agencies, ASFPM members and interested individuals have used the toolkit to learn about and spread the message of NAI. In addition, ASFPM has been invited to host workshops on NAI and how to implement it by leaders at every echelon of government. Across the nation more than 50 NAI workshops have been held. The demand for these workshops has increased steadily over time as a result of super-storms Sandy and Katrina, and in the Great Lakes region, as a result of an unprecedented federal investment in the rehabilitation and protection of region called the Great Lakes Restoration Initiative.

To date, the most frequently posed questions in response to ASFPM's NAI Workshops and Toolkit have been related to the legality of zoning ordinances, land acquisition, and the implementation of new permitting requirements in the. As a result, ASFPM has developed a series of white papers and fact sheets in an effort to answer these questions. In addition, ASFPM has made the legality of the NAI approach the focal point of its NAI workshops. Recognizing that each state or community has different concerns, these workshops were designed to provide ample time to discuss unique regional issues, case studies, and best practices for integrating NAI into on-going efforts to reduce flood losses.

Planning for the *Resilient Chicago: Urban Flood Management Through No Adverse Impact and Green Infrastructure* workshop began in the winter of 2015 when staff from the Wisconsin and Illinois-Indiana Sea Grant expressed interest coordinating two additional modeled on the "Great Lakes Community Resilience: A No Adverse Impact Approach" workshop delivered in Milwaukee Wisconsin in August 2014. With funding from the Federal Emergency Management Agency (FEMA) and the National Oceanic and Atmospheric Administration's Coastal Storms Program (NOAA CSP), ASFPM and Illinois-Indiana Sea Grant partnered with representatives from the Illinois Department of Natural Resources' Coastal Management Program and the Midwestern Regional Climate Center to develop a target audience, objectives and agenda for this day-long event.

Specifically this workshop was designed to provide participants with an opportunity to learn about the actions local governments can take to address the issue of urban flooding in the greater Chicago metropolitan area by:

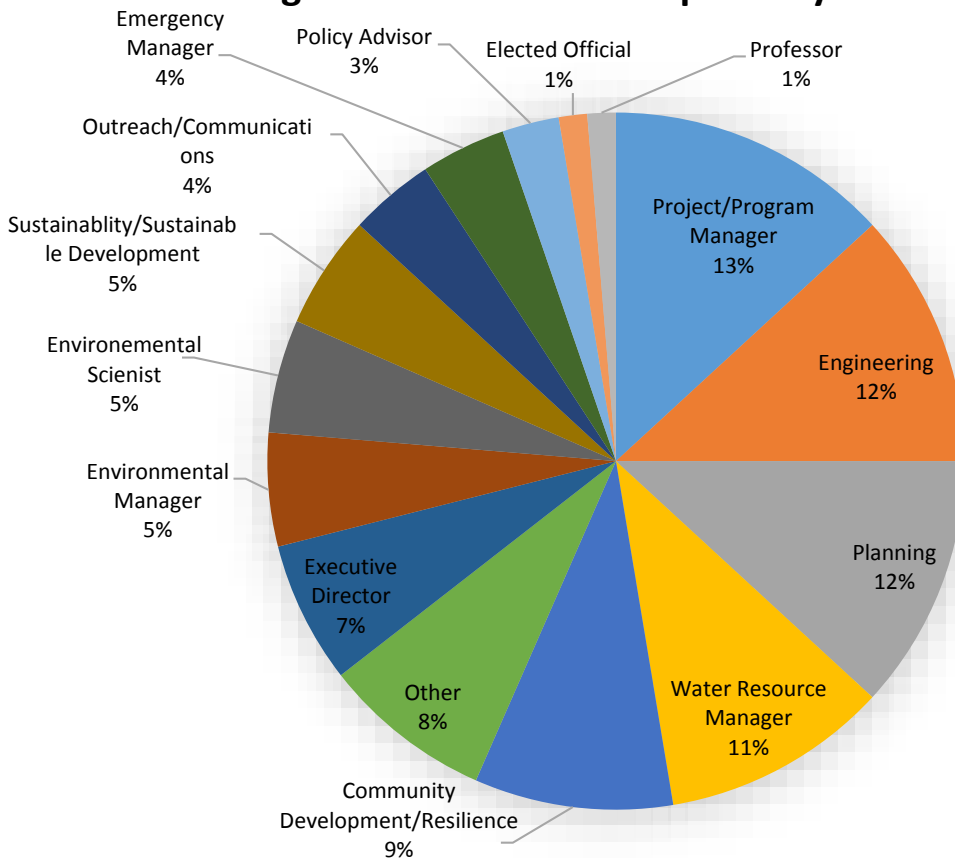
1. Applying the No Adverse Impact (NAI) framework for floodplain management, and
2. Fully integrating green infrastructure into community planning efforts.

This report is a summary and evaluation of the *Resilient Chicago: Urban Flood Management through No Adverse Impact and Green Infrastructure* workshop (Resilient Chicago). This event was held on July 8th at the Loyola University’s Institute of Environmental Sustainability in Chicago, Illinois.

Participant Demographics

The *Resilient Chicago* workshop planning team defined their target audience as: Local government personnel including municipal or county planners, engineers, public works, sustainability, parks and recreation, floodplain/stormwater managers, and other interested professionals like consultants or non-profit staff. In an effort to draw this target audience to the workshop and to deter individuals from registering for the event but failing to attend, the planning committee offered continuing education credits for the following organizations and certification programs: Illinois Minimum Continuing Legal

Figure 1. Number Participants by Profession



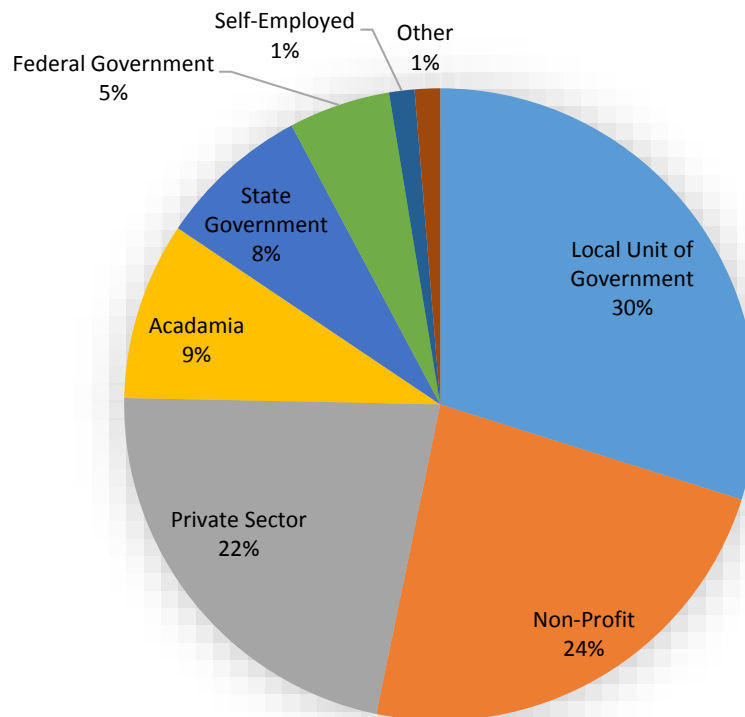
Education Board, Continuing Legal Education Credits; and ASFPM, Certified Floodplain Manager credits. This technique proved to be somewhat successful. Out of the 80 participants who registered (Appendix D), only 13% applied to receive some type of continuing education credit. That said, out of the 80

participants who registered, 78 attended. To date this is the highest rate of attendance ever recorded at a No Adverse Impact Workshop. This may have been a result of 2 factors: 1. The *Resilient Chicago* workshop was organized as a part of a well-established workshop series of the same name, or 2. the workshop’s emphasis on green infrastructure and urban flood management was very well aligned with the educational needs of the workshop’s identified target audience.

Although a very small subset of workshop attendees capitalized on the aforementioned continuing education credits offered, the workshop was still very successful at drawing its target audience to the event. Approximately 80% of total workshop registrants were identified as part of the workshop target audience (Figure 1). Project or program managers, planners, engineers, water resource managers, and community development/resilience practitioners had the highest representation at the workshop, making up 57% of the total audience when combined. In addition, executive directors, sustainable development practitioners, environmental managers, and emergency managers combined, made up an additional 20% of total workshop registrants. When broken down by sector, public (local, state, and federal government), non-profit, and private sector staff, represented 89% of all attendees (Figure 2). This statistic also supports the claim that that the workshop target audience was reached.

At the *Resilient Chicago* workshop only one attorney was in attendance, this is concerning because one

Figure 2. Participants by Sector



of the primary objectives of this workshop was to educate participants on the legal underpinnings of NAI, as well as some of the common lawsuits filed against floodplain management officials and planning bodies as they work to regulate development. This may be as a result of four factors: 1. the Resilient

Chicago workshop did not advertise or highlight the legal content that would be covered enough, 2. the workshop organizers or previously aggregated Resilient Chicago listserv to which the workshop invitation was sent did not include a significant number of attorneys, or 3. the workshop programming did not focus enough on legal issues to draw attorneys to this event, or 4. time constraints did not permit these professionals to attend.

One notable difference between the *Resilient Chicago* and the *Indiana Coastal No Adverse Impact Workshop* held just one week prior to this event, and other previously executed events in the Great Lakes region, were the number of practitioners who registered for the event. Approximately 70% of all workshop registrants were practitioners, this is a staggering increase compared to the only other workshop that has been held in the region, the *Great Lakes Community Resilience: A No Adverse Impact Approach* workshop held in Milwaukee, WI in the summer of 2014 where only 30% of attendees were practitioners. After the *Great Lakes Community Resilience Workshop*, it was suggested the observed decline in the number of practitioners attending may have been caused by two factors 1. A Digital Coast Partnership meeting happening in conjunction with this workshop, and 2. The length of the workshop. The return to a normal trend in practitioner attendance at the *Indiana Coastal No Adverse Impact Workshop* and the *Resilient Chicago* workshop indicates that the Digital Coast Partner Meeting likely caused the shift in practitioner attendance.

Workshop Presentations – Overview and Feedback



Aaron Durnbaugh highlights the green infrastructure on Loyola's Lake Shore Campus prior to taking participants on a tour. Image courtesy of: Bridget Faust, ASFPM.

In total, seven 15-30 minute presentations were given (Appendix B) at *Resilient Chicago* workshop. The workshop was divided into two parts. The first part of the event was designed to be a primer of sorts on NAI and green infrastructure, while the second part of the day was intended to highlight examples of how green infrastructure had been integrated into various community planning efforts in and around Chicago. The workshop was organized in this way in an effort to encourage participants to draw

connections between the morning and afternoon sessions.

To help prepare participants for the workshop's ensuing presentations and activities, Illinois-Indiana Sea Grant's Climate Specialist and Workshop Organizer, Molly Woloszyn, facilitated a question and answer session on flooding, the perceived impacts of climate change, and the challenges audience members have faced as a result. After providing participants with an opportunity to discuss their personal experience, the Association of State Floodplain Managers' Executive Director, Chad Berginnis gave the first formal presentation of the day. His presentation touched on many of the different legal concerns associated with floodplain and land use management, including: takings, nuisance, and liability. Berginnis was followed by Alisa Sauvageot, Water Resources Project Manager for Michael Baker International who presented on the core tenants of No Adverse Impact and provided some specific examples of how No Adverse Impact could be applied to green infrastructure, sustainable development, and municipal planning. The final presentation of the morning session was given by the Director of Loyola University's Institute of Environmental Sustainability, Aaron Durnbaugh. Durnbaugh provided a 15 minute overview of Loyola's sustainability initiative before taking participants on a guided tour of the green infrastructure on campus.



Workshop participants work together to complete an interactive mapping exercise. Image courtesy of: Bridget Faust, ASFPM.

The second part of the day featured a paneled discussion led by Josh Ellis, the Program Director for Chicago's Metropolitan Planning Council. Ellis opened this discussion by providing an overview of his experience with green infrastructure and how over the last decade elected officials and managers have begun to see it as a legitimate form of infrastructure as opposed to a boutique project. After his presentation, Ellis introduced the three speakers who would be questioned on the panel. Kate Evasic, an associate planner for the Chicago Metropolitan Agency for Planning (CMAP); Jason Berry, Deputy Director of Community Development for the City of Blue Island; and Aaron Koch, City of Chicago Department of Water Management's Deputy Commissioner for Sustainability. Evasic gave the first presentation on the panel, which focused on green infrastructure resources created by CMAP. Evasic's presentation included featured a description of CMAP's local technical assistance program created to encourage green infrastructure implementation, as well as some examples of communities who have been through the program. Next, Berry discussed how he and other staff in City of Blue Island are working to change the city's approach to green infrastructure from isolated boutique projects to the whole community scale. Koch was the last member of the panel to present. In his presentation, Koch highlighted the City of Chicago stormwater infrastructure challenges, including: combined sewer overflows and the projected impacts of climate change and population growth. Koch also highlighted

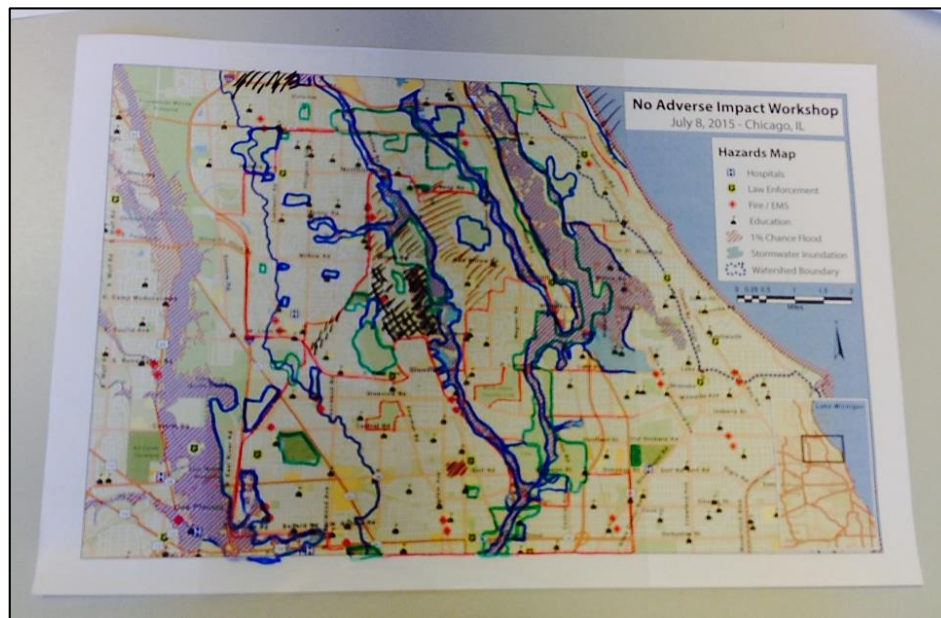
how the City of Chicago's green stormwater infrastructure program and some of the projects that have been implemented as a result. After the panel members had completed their presentations, Ellis led them through a 35 minute facilitated discussion featuring a series of questions that he had prewritten. Detailed notes on each presentation were taken throughout the day, a complete copy can be found in Appendix G of this document.

In addition to the previously mentioned presentations and the panel discussion, a one hour mapping exercise was

conducted at the just after lunch (Appendix E). For the purpose of this exercise participants were divided into groups of 5-7 and each group was given two maps, a set or directions, a piece of Mylar, and colored markers.

This exercise asked participants to look at two maps, one

displaying the "hazards" present in the multi-jurisdiction area, and another map showing the "natural resources" the same area has to offer. After comparing these maps, participants were asked to identify and map key geographic areas to conserve, protect, restore, or place green infrastructure, and areas suitable for future residential and/or commercial growth on a piece of Mylar. This mapping exercise allowed participants to leverage the information that was presented on NAI and green infrastructure, and apply it to a hypothetical land use planning scenario. Through this mapping exercise participants were also given the opportunity to learn about one another's perspectives on conservation and development, as well as the different challenges that are faced when planning future land use.



Example completed mapping exercise. Image courtesy of: Bridget Faust, ASPPM.

Workshop Evaluation

Upon arriving at the workshop, all participants and presenters were given a 2-page evaluation to complete after presentations had ended (Appendix F). This evaluation solicited feedback on a variety of topics including the degree to which the workshop achieved its advertised learning objectives, individual presenters' performance, and topics that participants would have liked hear more about. The response rate for this brief evaluation was 41%. In general, the workshop received

highly favorable reviews. Out of the 32 evaluation respondents, 96% of felt that they could apply the information presented at this workshop to their work, 93% of felt that presenters had given them the tools to implement the knowledge that was shared, and 100% noted that they would recommend this workshop for others to attend. These statistics are supported by the comments that were collected through this evaluation. When asked how they planned to use the information they learned at the workshop more than 50% of respondents already had a specific idea about how they would leverage the knowledge they gained at the end of the day. Their response varied highly, a few notable examples included: developing hazard mitigation plans, integrating into curriculum for college students, and using the NAI Toolkit for green infrastructure planning.

In addition, the majority of workshop participants noted that the workshop successfully met its advertised learning objectives. The vast majority of respondents also noted that the activities and information presented met or exceeded their expectations. Many participants mentioned that they appreciated the Thumb Drive distributed prior to the workshop because it gave them access to many of the presentations, tools, and resources referenced throughout the day. In addition, respondents noted that they enjoyed having the opportunity to learn about the sustainability initiatives and green infrastructure on Loyola's Lake Shore Campus.

Although the general response to the workshop was very positive, a few opportunities for future development have been identified by participants through this evaluation. At the Resilient Chicago workshop respondents' had two primary critiques. First participants noted that the morning and afternoon sessions seem to be slightly disjointed, and that they would have appreciated having additional real-world examples of No Adverse Impact and green infrastructure being used in communities. The second critique noted by respondents was related to the mapping exercise. The evaluation data showed that respondents would have appreciated additional time and direction, they also suggested that the geography selected may not have been ideal for the purpose of the exercise.

Conclusions, Next Steps and Recommendations

Conclusions and Next Steps

The *Resilient Chicago: Urban Flood Management through No Adverse Impact and Green Infrastructure* workshop provided participants with the opportunity to learn about the core tenants of ASFPM's *No Adverse Impact* approach to floodplain management, common legal issues faced by floodplain managers and planners in the region, as well as the specific actions that have been taken by communities and regional collaboratives in Illinois to manage urban flooding through green infrastructure. Through this workshop, the workshop planning committee was also presented with the invaluable opportunity to learn from participants about the local challenges and concerns that they encounter regularly.

This workshop was the third in a series of three that was completed in the Great Lakes region. ASFPM will work to adapt future workshops based on the comments received during and after this event. This is done in an effort to ensure that each iteration improves upon the last by better meeting the needs and expectations of participants. Next steps for continuing this workshop series include: sharing the findings from this event as well as the previously mentioned *Indiana Coastal No Adverse Impact Workshop* (held June 25, 2015) on the ASFPM website and strategizing how to integrate the feedback collected through the workshop evaluation into future workshops.

Appendix

Appendix A. Workshop Planning Committee

PLANNING COMMITTEE BIOGRAPHIES



Molly Woloszyn – Extension Climate Specialist, Illinois-Indiana Sea Grant and Midwestern Regional Climate Center

Molly is the extension climate specialist for Illinois-Indiana Sea Grant and the Midwestern Regional Climate Center, which are both a part of the University of Illinois at Urbana-Champaign. As the climate specialist for both programs, Molly is responsible for communicating climate-related information to various audiences throughout the Midwest. Her educational background includes a Master's in Atmospheric Science from Colorado State University and a Bachelor's Degree in Meteorology from Northern Illinois University.

Molly leads the Resilient Chicago initiative (www.resilientchicago.org), which aims to help decision makers in the greater Chicago metropolitan region incorporate climate adaptation into local planning efforts through workshops, online trainings, and other resources that address the political, logistical, and financial aspects of local climate planning. The Resilient Chicago initiative relies on partnerships with experts in the Chicago region to be successful at offering useful information for its target audiences. Some of Molly's other current projects in the Chicago region include a funded project that is focused on reducing the flooding vulnerability of critical facilities in Cook County, as well as assisting with the development of a weather and climate exhibit for a local museum.

Contact: mollyw@illinois.edu



Jeff Stone, GISP, CFM – Senior Project & GIS Manager, Association of State Floodplain Managers

Jeff joined the Association of State Floodplain Managers in November 2007 as a Project Manager and Geographic Information System (GIS) Coordinator. As part of the Science Services Program at ASFPM, he manages research, development and outreach projects that focus on informing flood policy and resilience through science. Projects include, but are not limited to developing and evaluating tools, websites and software; researching the legal, practical and technological issues related to flood management policy and practices; and communicating effective use of GIS tools and applications aimed at floodplain management through webinars and workshops.

Jeff has over 25 years of experience developing and applying GIS technologies to a variety of public and private sector projects. Before joining ASFPM, Jeff co-founded Axis Maps, a company focused on bringing high quality cartographic design and intuitive interfaces to web-based maps. Jeff also worked for 11 years as a Sr. GIS Business Analyst in the utility sector before returning to the University of Wisconsin-Madison in 2003 to complete an M.S. in Geographic Information Sciences and Cartography. While at the UW, he worked with the Wisconsin State Cartographer's Office, the National Park Service and Wisconsin Sea Grant.

Contact: jeff@foods.org



Bridget Faust – Project Research Specialist, Association of State Floodplain Managers

Bridget Faust joined the Association of State Floodplain Managers (ASFPM) in January 2014. As a Project Research Specialist, her responsibilities include outreach and composition of content for the Great Lakes Coastal Resilience Planning Guide, planning and coordination of workshops on ASFPM's No Adverse Impact approach to floodplain management, as well as research on federal programs and policies including the National Flood Insurance Program and the Community Rating System. Prior to joining ASFPM, she completed a fellowship in the National Oceanic and Atmospheric Administration's Great Lakes Regional Office as well as internships for U.S. Senator Al Franken and Governor Mark Dayton. Bridget has a Bachelor of Science in Environmental Science Policy and Management from the University of Minnesota – Twin Cities.

Contact: bridget@foods.org



Diane Tecic – Coastal Management Program Director, Illinois Department of Natural Resources

Diane Tecic is Coastal Management Program Director for the Illinois Department of Natural Resources (IDNR). Diane took on this new program in 2011, after working as a biologist (1997-2001) and then a regional administrator (2001-2011) in IDNR's Division of Natural Heritage, where she focused on restoration and management of rare natural habitats and endangered species. She received her Bachelor of Science and Master of Science degrees from Southern Illinois University, Carbondale.

Her current charge is to focus federal, state and local resources to protect, manage and improve the State's natural resources along the Lake Michigan coast while supporting sustainable economic development and recreational uses. Diane leads a team that works with diverse partners and stakeholders to advance environmental education, sustainable coastal planning, and stormwater management through green infrastructure and to better connect urban populations with the natural wonders of our Illinois shores.

Contact: diane.tecic@illinois.gov



Lisa Cotner – Natural Resources Specialist, Coastal Management Program (IDNR)

Lisa Cotner is a Natural Resources Specialist with the Coastal Management Program of the Illinois Department of Natural Resources (IDNR). She has a Master's Degree in Natural Resources and Environmental Science from the University of Illinois in Champaign Urbana and over 13 years' experience in wildlife conservation and environmental management. Lisa started her career as an itinerant wildlife biologist, spending her summers surveying for frogs in Maine and the Sierra Nevada Mountains of California and her winters tracking harpy eagles in Panama and coyotes in Yellowstone. She has been involved in the science and policy of green infrastructure for stormwater management since 2010 and currently leads the Coastal Management Program's Coastal Clean Waters Program. She also manages the Illinois Coastal Grants Program, which has provided funding for green infrastructure design and engineering in the Lake Michigan Watershed. On weekends, Lisa and her husband and three year old daughter enjoy hiking at local forest preserves and Illinois State Parks.

Contact: lisa.cotner@illinois.gov



Kara Salazar – Sustainable Communities Extension Specialist, Illinois-Indiana Sea Grant and Purdue Extension

Kara joined the Purdue University Department of Forestry and Natural Resources and Illinois-Indiana Sea Grant as Sustainable Communities Extension Specialist in 2012. In this position, Kara serves as a link between Indiana communities and scientists conducting research on sustainability. She develops programs and tools that transfer new technologies and discoveries to communities that can apply this work to support informed land use and policy decisions. Working with multidisciplinary teams throughout Purdue University, Extension, and the Sea Grant college network, Kara develop products, programs, and resources that engage decision makers in evaluating, prioritizing, and implementing sustainability strategies for their communities. Focus areas include placemaking and enhancing public spaces, lawn and landscaping conservation practices and natural resources management.

Kara has a B.S. in public affairs and environmental science and a M.P.A. in natural resources management and nonprofit management from the Indiana University School of Public and Environmental Affairs. She also received a M.S.Ed. degree from the IU School of Education at Indiana University-Purdue University Indianapolis (IUPUI) with concentrations in community building and science education. Kara holds a Certificate in Fundraising Management from IU and the LEED Green Associate credential. She came to Sea Grant and Purdue Extension from the Center for Earth and Environmental Science at IUPUI where she was the Assistant Director for Education and Outreach.

Contact: salazark@purdue.edu



Leslie Dorworth – Aquatic Ecology Specialist, Illinois-Indiana Sea Grant and Purdue University-Calumet

Leslie Dorworth is an Aquatic Ecology Specialist for the Illinois-Indiana Sea Grant Program. She has a Bachelor of Science Degree from Lake Superior State University and a Master's Degree from Old Dominion University. She works with local stakeholders on problems such as river restoration, the impacts of stormwater flow, septic system impacts on water quality and tourism. Leslie also teaches courses such as Aquatic Ecology and Climate Change and the Environment at Purdue University Calumet.

Contact: dorworth@purduecal.edu

WORKSHOP SPONSORS

Association of State Floodplain Managers
NOAA Coastal Storms Program (courtesy of Wisconsin Sea Grant)

OTHER WORKSHOP PARTNERS

Metropolitan Planning Council
American Planning Association – Chicago Metro Section

Appendix B. Workshop Agenda



Workshop Agenda

July 8, 2015

Urban Flood Management through No Adverse Impact and Green Infrastructure

- 8:30am** Registration & Continental breakfast
- 9:00am** Welcome
Aaron Dumbaugh | *Director of Sustainability, Loyola University*
Diane Tecic | *Coastal Program Director, Illinois Department of Natural Resources*
- Introductions and Overview of the Day**
Molly Woloszyn | *Climate Specialist, Illinois-Indiana Sea Grant and Midwestern Regional Climate Center*
- 9:15am** Audience Roundtable on Urban Flooding in Chicago and its Impacts
Molly Woloszyn | *Climate Specialist, IISG/MRCC*

SESSION 1: NO ADVERSE IMPACT AND INTRODUCTION TO GREEN INFRASTRUCTURE

- 9:30am** Floodplain Management Legal Issues
Chad Berginnis, CFM | *Executive Director, Association of State Floodplain Managers*
- 10:00am** No Adverse Impact Overview
Alisa Sauvageot, CFM | *Water Resources Project Manager, Michael Baker International*
- 10:45am** Break
- 11:00am** Tour of Loyola's Green Infrastructure
Aaron Dumbaugh | *Director of Sustainability, Loyola University*
- 12:00pm** Networking lunch (provided)
- 1:00pm** Green Infrastructure Mapping and Flood Risk Planning Exercise
Bridget Faust | *Project Research Specialist, Association of State Floodplain Managers*

SESSION 2: FULLY INTEGRATING GREEN INFRASTRUCTURE INTO COMMUNITY PLANNING EFFORTS

- 2:00pm** Putting the Infrastructure in Green Infrastructure
Josh Ellis | *Program Director, Metropolitan Planning Council*
- 2:15pm** CMAP Resources for Green Infrastructure Planning
Kate Evasic | *Associate Planner, Chicago Metropolitan Agency for Planning*
- 2:30pm** City of Blue Island Green Infrastructure Efforts
Jason Berry | *Deputy Director of Community Development, City of Blue Island*
- 3:00pm** Break
- 3:15pm** City of Chicago Department of Water Management Green Infrastructure Efforts
Aaron Koch | *Deputy Commissioner for Sustainability, City of Chicago DWM*
- 3:45pm** Audience discussion and Q&A with Session 2 presenters
Moderator: Josh Ellis
- 4:20pm** Final remarks and workshop evaluation
- 4:30pm** Conclude and post-workshop gathering at Uncommon Ground on Devon (1401 W Devon Ave)

Appendix C. Speaker and Facilitator Biographies



Speaker Biographies

July 8, 2015



Chad Berginnis, CFM – Executive Director, Association of State Floodplain Managers

Chad Berginnis is the Executive Director for the Association of State Floodplain Managers (ASFPM), a national non-profit organization of over 18,000 members and 35 state chapters whose mission is to promote education, policies, and activities that mitigate current and future losses, costs, and human suffering caused by flooding; and to protect the natural and beneficial functions of floodplains - all without causing adverse impacts.

Mr. Berginnis has over 20 years of experience in various aspects of natural hazard management, flood loss reduction, and land use planning/programs at the state, local and private sector level. As a state official, Mr. Berginnis worked in the Ohio Floodplain Management Program and was Ohio's State Hazard Mitigation Officer. He has been involved in creating/administering the Appalachian Flood Risk Reduction Initiative, administered the FEMA Community Assistance Program, revised model state floodplain management regulations, oversaw state hazard mitigation operations after three Federally declared flood disasters and authored the 2008 update of Ohio's mitigation plan. As a local official, Mr. Berginnis administered land use, economic development and floodplain management programs in Perry County, Ohio. In the private sector, Mr. Berginnis was the national Practice Leader in hazard mitigation for Michael Baker Jr. Inc.

Mr. Berginnis is a recognized national expert in floodplain management and hazard mitigation, having participated on national research/focus groups, providing agency (FEMA, USACE, OMB, CRS, IG, CBO, others) and Congressional testimony, and was selected to participate on an advisory panel to the Chinese Government on the development of a national floodplain management strategy. He is also past Insurance Committee Chair, Mitigation Policy Committees' Coordinator, Vice Chair, and Chair of ASFPM, and previously served as an appointed Planning Commissioner for Licking County Ohio. Mr. Berginnis holds a Bachelor of Science in natural resources from Ohio State University and is a Certified Floodplain Manager.

Contact: cberginnis@floods.org



Alisa Sauvageot, CFM – Water Resources Project Manager, Michael Baker International

Alisa has 25 years of NFIP experience in the Federal Emergency Management Agency (FEMA) regulation compliance field and is currently a Water Resources Project Manager for Michael Baker International, LLC in Phoenix AZ. She assisted FEMA Region IX in delivering all aspects of the Risk MAP program in Arizona and Southern California. She currently supports mapping partners, CTP's and communities with the NFIP regulations, mitigation actions, outreach and compliance associated with Digital Flood Insurance Rate Maps (DFIRMs).

Before joining Baker in 2005, Alisa worked as an Environmental Planner for the Arizona Department of Transportation (ADOT) as a National Environmental Policy Act (NEPA) planner and functioned as a liaison between ADOT and local Floodplain Managers. She has also worked as the Wyoming NFIP Coordinator and the assistant floodplain planner for Albany County, WY. Alisa has served on the ASFPM Board as the Region 8 Director, the Region 9 Director and is currently the co-chair the ASFPM NAI Committee. She has served in 2 positions on the Arizona Floodplain Management Association (AFMA) board from 2007 through 2014.

She became a Certified Floodplain Manager in 1999, has a Bachelors Degree from NC State University in Environmental Design of Architecture and completed graduate work at the University of Wyoming in Geography, Recreation Planning & Federal Lands Administration.

Contact: ASauvageot@mbakerintl.com



Aaron Durnbaugh – Director of Sustainability, Loyola University

Aaron supports the 18,000 students, 1,100 faculty and 700 staff across 5 campuses and 3 academic centers in creating the most sustainable and transformative education experience possible. Working across the curriculum, culture and campuses of Loyola, Mr. Durnbaugh builds innovation and efficiency into the University's programs and student experience focusing on water protection, energy conservation and mission-driven sustainability action.

Previously, he served as the Deputy Commissioner with Chicago Department of Environment's Natural Resources and Water Quality Division (NRWQ). Department of Environment was the lead agency developing and implementing the Chicago Climate Action Plan. NRWQ educated the public on climate change issues through the Chicago Center for Green Technology, Chicago Conservation Corps, and Greencorps Chicago. NRWQ created mitigation opportunities through wetland protection in the Calumet region, green infrastructure financing and various urban forestry projects. Most recently, Mr. Durnbaugh oversaw the City of Chicago's climate adaptation strategy engaging stakeholders in built environment, public health and the natural environment.

He holds a Master's Degree in Geography and Environmental Studies and is a LEED™ accredited professional.

Contact: adurnbaugh@luc.edu



Josh Ellis – Program Director, Metropolitan Planning Council

Josh has been with MPC since 2006. He directs MPC's sustainability initiatives, most notably in the fields of Stormwater Mitigation and Water Supply Management. Through on-the-ground initiatives like the Milwaukee Avenue Green Development Corridor, technical assistance to the Northwest Water Planning Alliance, and facilitation of diverse stakeholder groups—such as the Calumet Stormwater Collaborative—he leads MPC's multiple strategies to sustainably manage Illinois' finite water resources and reduce the harmful impacts of stormwater.

He leads many of MPC's research projects, including *Immeasurable Loss: Modernizing Lake Michigan Water Use*, *Bus Rapid Transit: Chicago's New Route to Opportunity*, and *Before the Wells Run Dry*. He also coordinates MPC's research assistant program, of which he himself is an alumnus.

Josh is a member of the Midwest Leadership Council of the National Parks Conservation Association, the Cook County Sustainability Advisory Council, and the advisory committee exploring the future of the Chicago Area Waterway System. He is President of the Board at PODER, which serves adult immigrants with a mission to provide the necessary academic tools to promote human dignity, increase employment potential, and facilitate participation in the larger community.

A New Hampshire native, Josh resides in Chicago's South Loop where he is a Board member of the Greater South Loop Association. He managed a small school in Japan before his graduate studies in public policy and Middle Eastern Studies at the University of Chicago. His honors thesis, published in *Water, Environmental Security and Sustainable Rural Development: Conflict and Cooperation in Central Eurasia*, compared the political discourse of marsh restoration in southeastern Iraq with the environmental history of the region.

Contact: jellis@metroplanning.org



Kate Evasic – Associate Planner, Chicago Metropolitan Agency for Planning

Kate Evasic is an Associate Planner at the Chicago Metropolitan Agency for Planning. In this role, Kate works to integrate stormwater management into decisions about land use and development to help communities mitigate flooding, become more resilient in the face of climate change, and improve water quality. Previously, she focused on the application of sustainable stormwater strategies to restore ecological system health of urban and natural watersheds as a Water Resources Planner in the Philadelphia area. Kate holds a Master of Urban Planning and Policy from the University of Illinois at Chicago and a BA in Geography from West Chester University.

Contact: kevasic@cmaphp.org



Jason Berry, AICP – Deputy Director of Community Development, City of Blue Island

Jason's work is focused on community and economic development through historic preservation and housing, transit-oriented development, place-making, active transportation policy, green infrastructure and public health. Berry is a board member of the Blue Island Arts Alliance, Blue Island Historical Society, the Illinois Association for Historic Preservation Commissions and a founding member of the Calumet Waterway Stewards, an organization dedicated to promoting recreation opportunities on the Little Calumet River and Cal-Sag Channel.

Contact: jberry@cityofblueisland.org



Aaron Koch – Deputy Commissioner for Sustainability, City of Chicago Department of Water Management

Aaron Koch is the Deputy Commissioner for Sustainability in Chicago's Department of Water Management. He is responsible for implementing the water initiatives in *Sustainable Chicago 2015*, Mayor Rahm Emanuel's roadmap for environmental stewardship and economic development. He is the author of the *Chicago Green Stormwater Infrastructure Strategy*, which is Mayor Emanuel's \$50 million plan to use natural systems to better manage rain-fall. Aaron previously served as a Senior Policy Advisor in the New York City Mayor's Office of Long-Term Planning and Sustainability. He was an author of the water chapters of *PlaNYC*, Mayor Michael Bloomberg's sustainability plan, as well as the *New York City Wetlands Strategy* and the *Sustainable Stormwater Management Plan*. As part of this work, he was a creator of New York City's strategy to improve stormwater management through a \$1.5 billion public investment in green infrastructure. He holds a Bachelor of Science in Architecture from the University of Minnesota-Twin Cities, a Master of City Planning from the University of Pennsylvania, and was previously a faculty member in Columbia University's Master of Sustainability Management program.

Contact: aaron.koch@cityofchicago.org

Appendix D. Workshop Attendance List

Last Name	First Name	Email Address	Job Title	Company/Organization
Amann	Steve	samann@baxwood.com	Project Manager	Baxter & Woodman, Inc.
Bailey	Clinton	cbailey@usgs.gov	Hydrologist, ILWSC	USGS - Illinois Water Science Center
Basquin	Noel	noel.basquin@cookcountyil.gov	Bureau Chief of Design	Cook County Department of Transportation and Highways
Berginnis	Chad	cberginnis@floods.org	Executive Director	Association of State Floodplain Managers
Berry	Jason	jberry@cityofblueisland.org	Deputy Director of Community Development	City of Blue Island
Caldwell	Michael	michaelc@vandersinc.com	Lead Civil Engineer	VSEI
Coe	Antaeus	antaeus.coe@cookcounty.gov	Cook County Fellow	Cook County Planning and Development
Colletti	Joanna	jscolletti@co.mchenry.il.us	Water Resources Manager	McHenry County Dept. of Planning & Development
Cooper	Andi	acooper@wrdenvironmental.com	Landscape Archirect/Dir. Of Bus. Devt.	WRD Environmental
Costantini	Danielle	costantini.danielle@gmail.com	Former Sustainable Communities Fellow	U.S. EPA
Cotner	Lisa	lisa.cotner@Illinois.gov	Natural Resources Specialist	Coastal Management Program- IDNR
Cutaia	Steve	cutaia@prospect-heights.org	N/A	Prospect Heights, IL
Debacker	Mary	mdebacker20@gmail.com	Urban Planner	

Derby Lewis	Abigail	aderby@fieldmuseum.org	Conservation Ecologist	The Field Museum
Dewitt	Jessica	jessica.dewitt@cookcountyil.gov	Fellow	Cook County Department of Planning and Development
Donovan	John	john.donovan@dot.gov	Metropolitan Planning Specialist	Federal Highway Administration
Dorworth	Leslie	dorworth@purduecal.edu	Aquatic Ecology Specialist	Illinois-Indiana Sea Grant/Purdue University Calumet
Doughtie	Matthew	mdoughtie@cityofchicago.org	Sr. Emergency Management Coordinator	Chicago Office of Emergency Mgmt & Communications
Dow	Adam	adow@ciorba.com	Engineer II	Ciorba Group
Dowling	Mollie	mdowling@oaiinc.org	Executive Director	OAI, Inc.
Durnbaugh	Aaron	adurnbaugh@luc.edu	Director of Sustainability	Loyola University
Eber	Brian	brian.eber@illinois.gov	NE Illinois Floodplain Program Coordinator	Illinois Department of Natural Resources
Edstrom	Jeff	jeff.edstrom@cardno.com	Water Resources Policy Coordinator	Cardno
Ellis	Josh	jellis@metroplanning.org	Program Director	Metropolitan Planning Council
Evasic	Kate	kevasic@cmap.illinois.gov	Associate Planner	Chicago Metropolitan Agency for Planning
Faust	Bridget	bridget@floods.org	Project Research Specialist	Association of State Floodplain Managers
Feinstein	Joel	joel.feinstein@aecom.com	Water Resources Engineer	AECOM

Ferguson	Heather	hferguson@transitchicago.com	General Manager	Chicago Transit Authority
Flegel	Amanda	aflegel@illinois.edu	Water Resources Engineer	Illinois State Water Survey
Giermek	Monica	monica.giermek@gmail.com		
Gross	Jane	jgross@cnt.org		CNT
Guza	Ezekial	guzaez@pacebus.org	Associate planner	Pace Suburban Bus
Haile	Abel	Abel.Haile@Illinois.gov	Manager- Planning Unit/Watershed Managment Section	Illinois EPA
Hands	Betsy	bhands@chicagoriver.org	director of outreach and community relations	Friends of the Chicago River
Handwerk, PE, CFM	David	david.handwerk@gec-group.com	Senior Project Manager	Globetrotters Engineering Corp.
Hosty	Alice	ahosty@navypier.com	Development Manager	Navy Pier, Inc.
Johnson	Andy	ajohnson@wrdenvironmental.com	Program Manager	WRD Environmental
Kessen	James	james.kessen@amecfw.com	Senior Water Resources Engineer	Amec Foster Wheeler
Koch	Aaron	aaron.koch@cityofchicago.org	Deputy Commissioner for Sustainability	City of Chicago Department of Water Management
Kula	Bob	bob@avontownship.us	Highway Commissioner	Avon Township
Larsen	Angela	alarsen@greatlakes.org	Community Resilience Lead	Alliance for the Great Lakes

Latto	Dennis	dennis.latto@ssmma.org	Planner	South Suburban Mayors & Managers Association
Mathie	Scott	jsmathie@spancrete.com	Director	Spancrete
McCarthy	Jodi	jmccarthy@ciorba.com	Water Resources Project Engineer	Ciorba Group
Miles	Irene	miles@illinois.edu	Science Communicator	Illinois-Indiana Sea Grant
Mitros	Mary	mary.mitros@dupageco.org	Stormwater Outreach Coordinator	DuPage County
Naveda	Gabriela	gnaveda@openlands.org	Community Greening Associate	Openlands
Neuman	Allison	aneuman@cnt.org		CNT
Nix	Mary	mary.nix@mwrld.org	Safety Specialist	MWRD
Otto	Eric	eric.otto@cookcountyil.gov	Civil Engineer	Forest Preserves of Cook County
Pereira	Daniella	dpereira@openlands.org	Regional Forester	Openlands
Phelan	Tim	tphelan@lakecountyil.gov	Senior Site Development Inspector	Lake County Building and Engineering
Pino	Juliana	jpino@lvejo.org	Policy and Research Associate	Little Village Environmental Justice Organization
Poromanska	Margarita	m_poromanska@yahoo.com	Environmental Science Instructor	Columbia College, Chicago
Probst	Pete	pete@robwestplumbing.com	Flood Control Manager	Rob West Plumbing
Randolph	Stephen	srandolph@hornershifrin.com	Senior Project Manager	Horner & Shifrin

Reining	Brian	reiningbrian@gmail.com	Community Planner	City of Kenosha, Wisconsin
Richardson	Mary	mjr@illinois.edu	Assistant Engineer	Illinois State Water Survey
Salazar	Kara	salazark@purdue.edu	Sustainable Communities Extension Specialist	Illinois-Indiana Sea Grant/Purdue University
Sauvageot	Alisa	Asauvageot@mbakerintl.com	Water Resources Project Manager	Michael Baker International
Scata	Joel	jscata@nrdc.org	Water Policy Advocate	Natural Resources Defense Council
Schiffer	Alex	aschiffer@lakecountyil.gov	Site Development Inspector	Lake County Planning Building and Development
Schuch	Paul	schuchpaul@yahoo.com	Retired Director of Water Resources	Kane County, IL
Shockey	Frank	frank.shockey@fema.dhs.gov	Natural Hazards Program Specialist	FEMA - DHS
Sullivan	Robert	bsullivan4605@gmail.com	Principal	Westwood Planning Solutions LLC
Tabbert	Heather	tabberth@rtachicago.org	Manager, Local Planning and Programs	Regional Transportation Authority
Tecic	Diane	diane.tecic@illinois.gov	Coastal Program Director	Illinois Department of Natural Resources
Testin	Jim	jtestin@parkridge.us	Community Preservation & Development Director	City of Park Ridge/APA-CMS
Toberman	Mark	mark@toberman.us	Director	North Cook County Soil and Water Conservation District

Verma	Anupam	anupam.verma@cityofchicago.org	Managing Engineer	City of Chicago-Department of Water Management
Vick	Justin	justin.vick@mwrdr.org	Aquatic Biologist	MWRD
Wadia	Seema	swadia@metrostrategiesinc.com	Director, Projects and Operations	Metro Strategies, Inc.
Walny	Nick	nwalny@planning.org	Hazard Research Center intern	American Planning Association
Werner	Patty	pwerner@lakecountyil.gov	Planning Supervisor (AICP, CFM)	Lake County Stormwater Management Commission
Woloszyn	Molly	mollyw@illinois.edu	Extension Climate Specialist	Illinois-Indiana Sea Grant/Midwestern Regional Climate Center
Ziegler	Jill	jziegler@westmont.il.gov	Community Development Director	Village of Westmont

Appendix E. Mapping Exercise Overview

Mapping Exercise Instructions

Interactive Exercise - Group Breakout Session

Applying Tools and Strategies for Planning and Conservation

Identifying Watershed Lands to Conserve and Develop

As a planner you must deal with issues related to growth, conservation and restoration. You need to assess the various natural resources, natural hazards, areas of development and areas that need to be protected. Communities near or in the Great Lakes coastal zone take on additional complexities, run off from urban areas can adversely impact water quality and persistent flooding in these areas can cost municipalities hundreds of thousands of dollars each year. For this assessment you and your team members will work together to make recommendations, highlight potential locations for green infrastructure, and identify priority conservation and growth areas, for a regional comprehensive plan.

Many developed cities and townships are interested in using green infrastructure to attenuate coastal and inland flooding in a cost effective way. For the purpose of this exercise we will use the municipalities north of the Chicago area as an example. Cities and towns like Wilmette, Winnetka, Glenview, Des Plaines and Northbrook are interested in supporting growth and attracting new residents and businesses while maintaining the integrity of their natural resources and without significant upgrades to their stormwater infrastructure. To accomplish this end, these communities want to use green infrastructure and open space preservation to increase the capacity of their stormwater infrastructure system, reduce flood risk and improve water quality.

Specific community goals include:

- **Protect or restore freshwater wetlands and natural areas,**
- **Identify existing or potential locations for green infrastructure to better manage sediments and runoff, and to mitigate flooding due lake level change, heavy precipitation, and storms.**
- **Direct new development towards existing developed lands and infrastructure.**

Assignment:

Identify possible areas for conservation and growth, set priorities, and explain reasons for selecting them. Specifically, identify:

- **Key geographic areas to conserve, restore, maintain, or place green infrastructure**
- **Areas suitable for future residential and/or commercial growth**
- **Are there other risk or vulnerability factors that should be considered?**

Before you get started **review the paper maps**. You have two paper maps to work with while developing your plan. These represent most of the available geographic (GIS) datasets for the area.

Mapping Guidelines:

- **Select a color for each type of use**, recommended colors:
 - **Green:** currently protected land (existing parks and natural areas)
 - **Blue:** land recommended for conservation (wetlands, forest, pasture/crop lands, flood prone areas, etc.)
 - **Red:** areas for restoration or placing green infrastructure (be sure to designate which)
 - **Black:** currently developed land
 - **Orange, Purple, Brown, or Yellow:** land recommended for development
- **Use patterns to indicate intensity/importance.** Use different patterns (dots, crosshatch, etc.) to show intensity of resource/land use. Establish a legend on your map to track what colors and symbols represent.

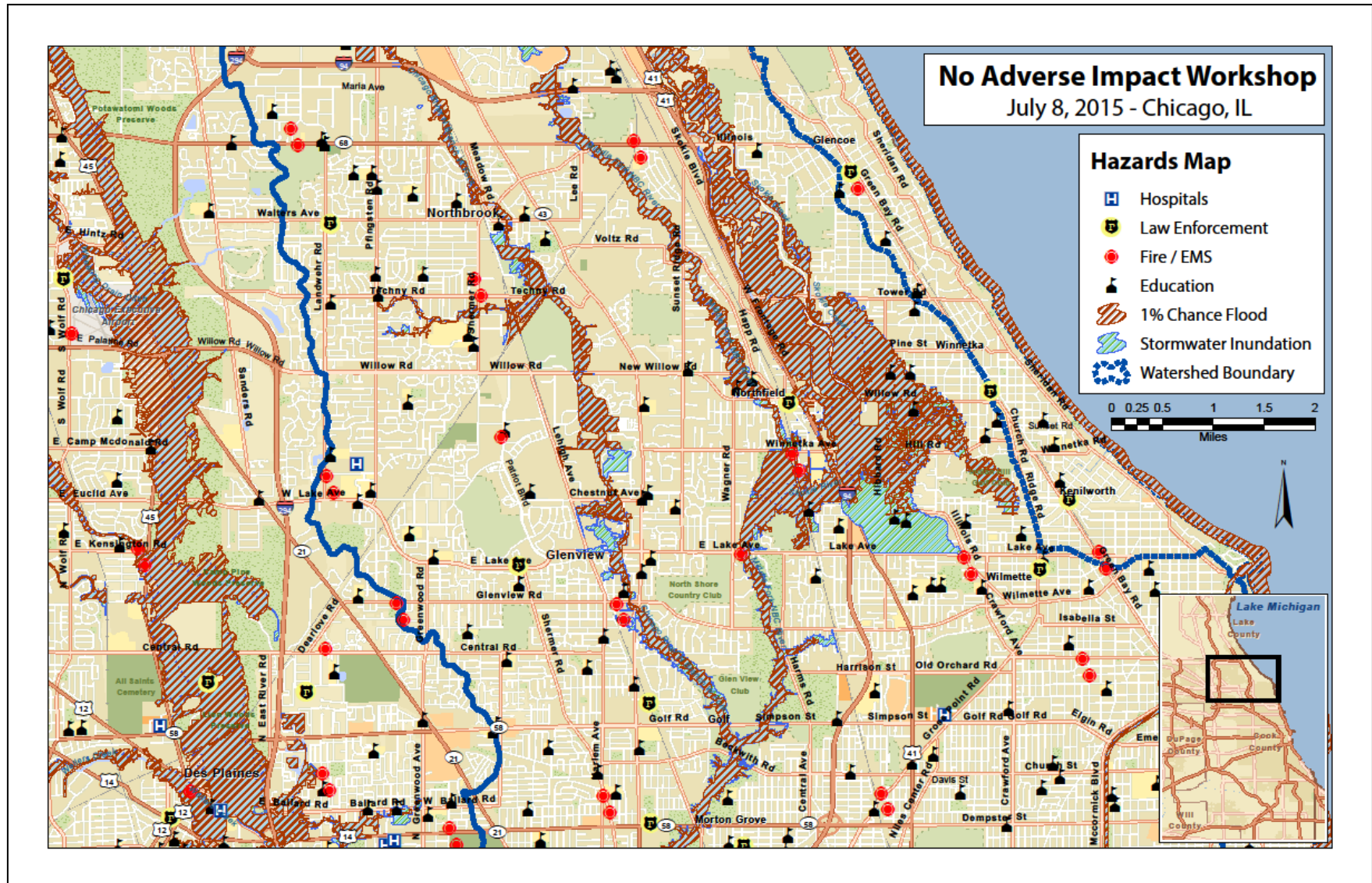
Process Steps:

1. First identify currently **Protected Land**: start by placing the clear worksheet (Mylar) over the “Natural Resources” map showing parks, open spaces, etc. **Draw** the currently protected lands (forest preserves, pasture/crop areas, parks and open spaces). If you’re familiar with the area, add any additional protected land that may not be on the map.
2. Next identify the currently **Developed Land** by using the “Hazards” map which shows where cities, towns and critical facilities are located. Developed areas are indicated with high local street density. **Draw** these areas on the Mylar.
3. On the “Hazards” map, reference the FEMA Flood Zone and Stormwater Inundation Areas map layers to identify **Land to be Conserved**. Remember that establishing stream buffers, limiting impervious surfaces, protecting open spaces are very important to maintaining the health of lakes, streams and wetlands. Once you have identified areas on the “Hazards” map reference the “Natural Resources” map. Add any additional critical conservation lands, such as areas that can be used for flood storage (un-protected forested lands or wetlands) or green infrastructure. **Draw** these areas on the Mylar - and indicate their importance.
4. Next, identify the **Land to be Developed**. Compare the “Hazards” and “Natural Resources” maps and use them to identify ways in which you could adjust future development plans to reduce socio-economic risk. Think about directing growth to locations near existing development infrastructure, protection of critical drainage areas, wetlands, parks, forests and grasslands, which will help maintain the character of the area and reduce flood risk. **Draw** these areas on the Mylar.
5. Finally, consider **Lands to be Restored or Revitalized** - these areas could be currently developed lands, existing open spaces, or parcels in flood hazard areas that are have a high risk of flooding. These areas may be prime locations for green infrastructure in urban landscapes or wetland restoration in less developed areas.

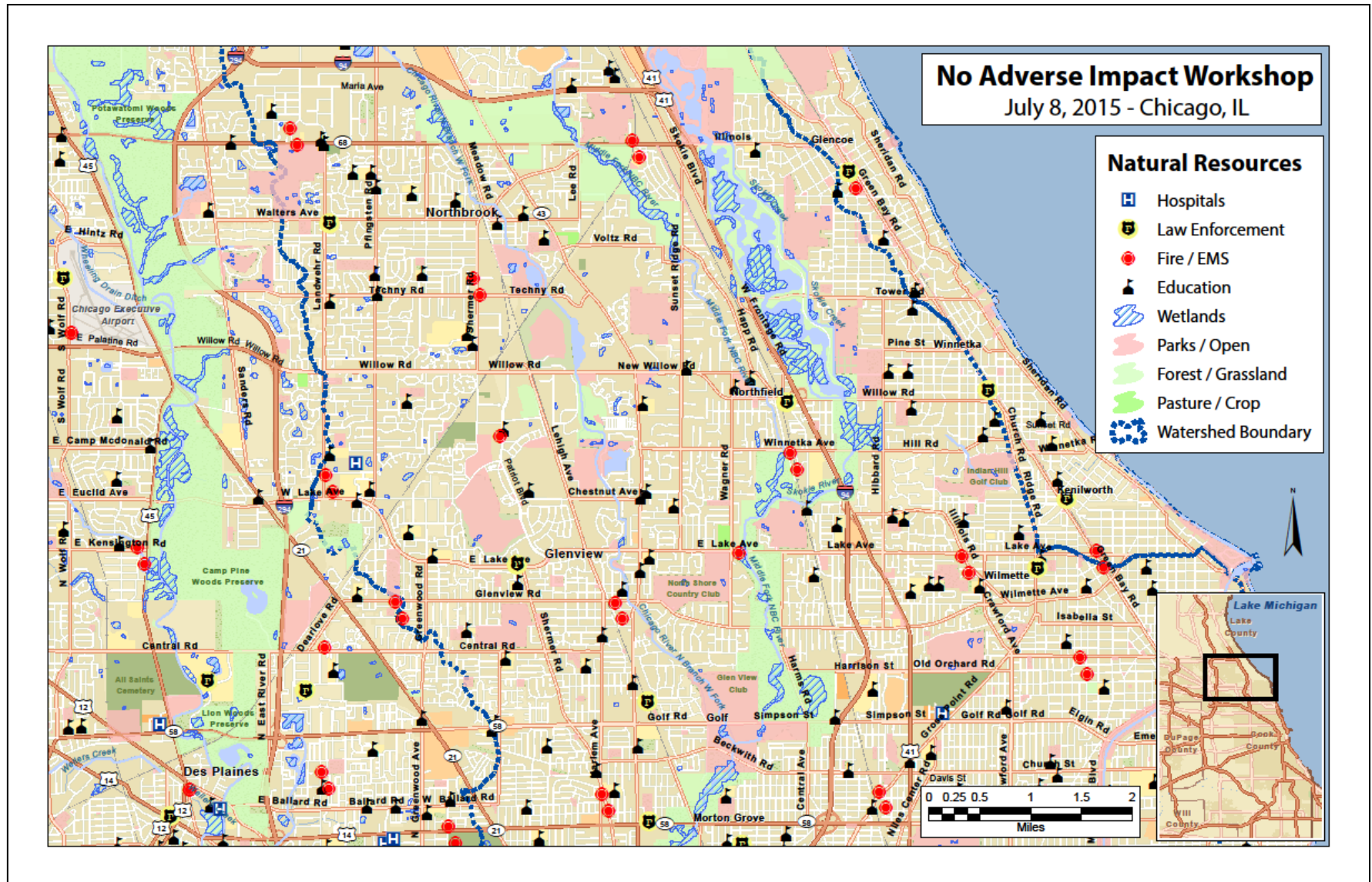
Results and Report:

At the end of this exercise you will be asked to report-out on your plan and any thoughts or conclusions your group formulated as you completed this exercise. If you have time available after completing step 5 of the mapping exercise, identify your top three geographic areas for conservation and/or development and describe why, list other data that would be helpful and/or needed to guide your analysis, and select a spokesperson to present your plan.

Hazards Map










Natural Resources Map











Appendix F. Evaluation Results

How did you hear about this workshop? (check all that apply)

#	Answer	Bar	Response	%
1	ASFPM		4	13.79%
2	Illinois-Indiana Sea Grant		2	6.90%
3	Email invitation		17	58.62%
4	Resilient Chicago website		2	6.90%
5	Press release		0	0.00%
6	Social media		3	10.34%
7	Word of mouth		2	6.90%
8	Other:		2	6.90%
	Total		32	100.00%

Other:
IAFSM
APA

Indicate which professional associations you are affiliated with:

#	Answer	Bar	Response	%
1	AICP Certified		4	13.33%
2	APA Member		4	13.33%
3	ASFPM Member		8	26.67%
4	Attorney		1	3.33%
5	CFM Certified		12	40.00%
6	Professional Engineer		9	30.00%
7	Professional Surveyor		0	0.00%
8	Other		7	23.33%
9	None		6	20.00%
	Total		51	100.00%

Other
APPAM
Illinois Professional Emergency Manager
ASCE
State Agency
NEPA
Columbia College, Chicago & College of Dupage
County Government

How useful was this program in providing new knowledge to help you make future decisions and take action to apply the No Adverse Impact approach in your community? (Mark one rating per row)

#	Question	Not Useful	Somewhat Useful	Useful	Response	Average Value
1	Make decisions	-	12	17	29	2.59
2	Take action	-	15	14	29	2.48

■ Not Useful ■ Somewhat Useful ■ Useful



How useful was this program in providing new knowledge to help you make future decisions and take action to integrate green infrastructure in your community? (Mark one rating per row)

#	Question	Not Useful	Somewhat Useful	Useful	Response	Average Value
1	Make decisions	-	9	20	29	2.69
2	Take action	2	10	17	29	2.52

■ Not Useful ■ Somewhat Useful ■ Useful

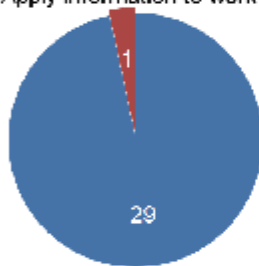


Check one response per item (row).

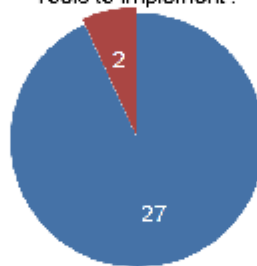
#	Question	Yes	No	Response	Average Value
1	Do you feel you can apply this information to your work?	29	1	30	1.03
2	Have we given you the tools to implement this information in your work?	27	2	29	1.07
3	Would you recommend this workshop for others to attend?	30	-	30	1.00

■ Yes ■ No

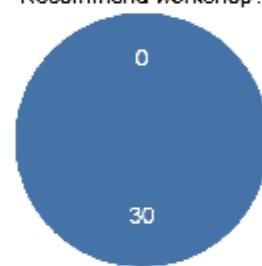
Apply information to work?



Tools to implement?



Recommend workshop?

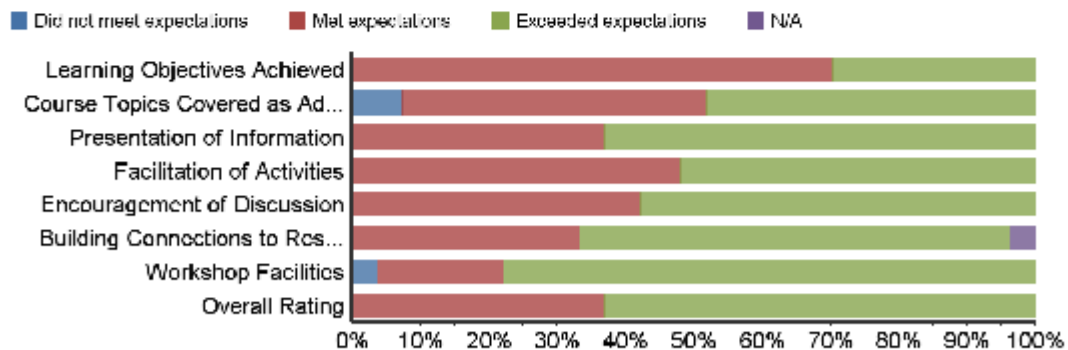


Describe how you plan to use what you learned from this program.

Text Entry
NAI as the goal to strive for
Try to become more involved in the agency's storm water programs.
Deliver the information to college students in my environmental science classes
NAI toolbox Green Infrastructure Planning
I learned about new CMAP resources and mapping tools for planning and implementing green infrastructure. Also, I gained new contacts for various sustainable initiatives at my agency.
Use this information for evaluating grant proposals and for grant writing.
Information learned here will help in the development of our city's hazard mitigation plan.
NAI Standards
Reference resources Follow-up w/ new connections --> partnership opportunities
Check on some of the examples and integrate some talking points
-Thank you for the "jump drive"//improve/create handout packet for new plan commission that regulate land use redevelopment or Saturday am workshop for electric officials education -Legal implications - excellent start will use in preparing NRI reviews for future project reviews by NCSWCD
At AAA, we provide guidance for planners. Using the info learned at this workshop, I can provide planners knowledge that can be applied to their everyday job.
As I am applying for work and brand new to the Midwest, this workshop has given me so many talking points (and local relevant ones!) to use while interviewing. It was wonderful to learn more about who-is-doing-what. When I (presumably) start my dream job soon...I will no doubt use the knowledge I learned today as well as potentially call upon connections made today to collaborate.
Investigate NAI farther for direct implementation into local floodplain management regulations.
Use the information in Total Maximum Daily Load (TMDL) reports for BMPs in the implementation part of the project.
-Confirms what we have been doing already, but funding always limits amount of what we can do.
The case studies - esp. those presented by the AACONs
Learned about a lot of resources to check out for further reading. Made some good contacts during networking intervals. Will be able to talk to clients about the higher level goals of different organizations when it comes to urban flooding. Great workshop!

Please tell us how the workshop met or did not meet your expectations in the areas listed below regarding **WORKSHOP CONTENT & DELIVERY** (check one rating per item/row).

#	Question	Did not meet expectations	Met expectations	Exceeded expectations	N/A	Response	Average Value
1	Learning Objectives Achieved	-	19	8	-	27	2.30
2	Course Topics Covered as Advertised	2	12	13	-	27	2.41
3	Presentation of Information	-	10	17	-	27	2.63
4	Facilitation of Activities	-	13	14	-	27	2.52
5	Encouragement of Discussion	-	11	15	-	26	2.58
6	Building Connections to Resources	-	9	17	1	27	2.70
7	Workshop Facilities	1	5	21	-	27	2.74
8	Overall Rating	-	10	17	-	27	2.63

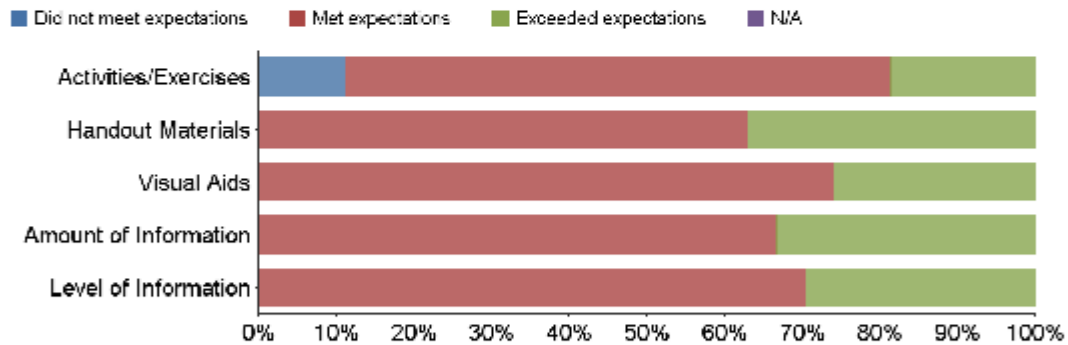


Additional comments for WORKSHOP CONTENT AND DELIVERY:

Text Entry
Great diverse people/backgrounds/topics
Noisy students in adjacent hallway were a distraction during the early part of the workshop.
Exellent
Session 1 & Session 2 were slightly disconnected - could work to continue themes - ask GI speakers to talk about legal challenges?
Use P.A. (Mike) at start/use portable hand held mic for student questions
It was great learning about Loyola's sustainable practices in the Edgewater campus.
Could have incl. more technical questions answered for the audience that attended.

Please tell us how the workshop met or did not meet your expectations in the areas listed below regarding **WORKSHOP MATERIALS & INFORMATION** (check one rating per item/row).

#	Question	Did not meet expectations	Met expectations	Exceeded expectations	N/A	Response	Average Value
1	Activities/Exercises	3	19	5	-	27	2.07
2	Handout Materials	-	17	10	-	27	2.37
3	Visual Aids	-	20	7	-	27	2.26
4	Amount of Information	-	18	9	-	27	2.33
5	Level of Information	-	19	8	-	27	2.30



Additional comments for WORKSHOP MATERIALS AND INFORMATION:

Text Entry
Workshop drop box where participants can add resources from their own orgs to share w/ others?
More case studies
Not sure the mapping exercise was all that useful....wasn't clear on objective; some unimportant data missing..
-Add list of attendees for networking -Good breakfast and box lunch -Invite product manufacturers to have tables with product
Add discharge permits such as stormwater General Permit where applicable (MS4 Permits).
Info on thumb drive very helpful
Workshop activity instruction could have been explained before handing out material.
Mapping exercise of limited use based on geography used.

What would make this workshop better to help you implement practices related to the NAI approach and/or green infrastructure in your work?

Text Entry
Need time to think about how best to do this - in short, no idea yet.
* Improve the exercise - more focused and better information to use.
Case study from 1 community instead of mapping exercise.
Policy/MS4/Land use
Add and aerial photo for map exercises with RR stations & label public/private golf courses
Talk about how advertising could help educate and change the culture towards conservation. Especially in storm situations.
Better tools to measure GI Impacts
Specific example of how NAI was applied in municipalities/countries, especially local entities.
Discussion about meeting water quality standards, especially if discharged from stormwater system as part of the planning process is being considered.
I like the presentations from Blue Island and the City of Chicago about planning and implementation of green infrastructure projects. So, more real-world examples is great.
Bring into discussion of NAI what NEIL floodway rules, compstorage, freeboard, above BFE, Hazard Mitigation Planning and CRS Program can do/is involved in achieving NAI goals.
Can't think of any improvements. Glad to know of the resources on the USB stick.
Group exercise is a good idea, but can be messy. It was done quickly. Maybe smaller, simpler exercises.

Are there additional topics you would be interested in learning about in future workshops related to the NAI, green infrastructure, coastal or floodplain management, etc.?

Text Entry
Elevation, FEMA mapping process, NFIP basic requirements & CRS program. GI-infiltration process & science (contaminants, soils amount of water)
Conservation of water. Legislative efforts. School-based programs.
Climate change
I'm most interested in learning more about green infrastructure.
More emphasis on larger projects - corridor projects that involve multiple governments/agencies. More complicated case studies.
I would like to learn more about performance monitoring and specific metrics for measuring impact of green infrastructure projects.
Maintenance & workforce development Models of successful community engagement/education
Municipal codes
Possible explanation of funding mechanisms: SSA, TIF, SA for infrastructure -Explain overhead plumbing programs - Call speaker for ASSE Mike 312/420-2000 or ever-ready flood control
Riverwalk/riparian corridor. Bigger geographic focus - rather than ALL Chicago
How to integrate NAI, GI, and climate adaptation into Capitol Improvements.
Acquisition of properties to preserve and/or restore natural floodplain functions.
The relationship between sewer system collection and transportation could be useful for municipalities when planning green infrastructure.
Engineering resources related to installations of green infrastructure.
Would like additional examples of private, public, big & small infrastructure projects & collaboration.

Additional Comments:

Text Entry
NAI could have had more time for presentation
Beautiful facilities! Tour was excellent.
Thanks!
Include list of registrants from workshop -Add to evaluation: Breakout of speakers (Rate 1-5) -Find out approx. unit costs of BMF for budget purposes
A global perspective or say a few euro/foreign presenters.
LOVE that you encouraged own water bottle use and people actually listened :) Great refreshments. Lovely venue!
The legal aspects of NAI were very interesting; local perspective would've been even more beneficial!
None
These workshops are always well organized w/ excellent speakers. Much appreciated that there is no cost.
The workshop was terrific. I really enjoyed meeting the fellow participants, the hands-on exercise and also the tour of the Loyola Campus.
Examples of completed projects are very interesting
Thanks for the zip drive of presentations - very useful.
Great event, well done!

Appendix G. Expanded Presentation Notes

9:00 AM Welcome and Introductions

- Diane Tecic - Coastal Program Director, Illinois Department of Natural Resources
- Molly Woloszyn – Climate Specialist, Illinois-Indiana Sea Grant and Midwestern Regional Climate Center
- Aaron Durnbaugh – Director, Institute of Environmental Sustainability

9:15 AM Audience Roundtable on Urban Flooding in Chicago and its Impacts; Molly Woloszyn:

- What impacts have you or your municipality felt from flooding?
 - 2007-2013; Chicago area experienced 2.3 billion dollars in urban flood losses.
 - When you plan for stormwater management and incorporate that into recreational goals for the community it can improve quality of life.
 - Considerable flood in Lake County, areas flooded that were not associated with riverine flooding. County wide there are 350 flood problem areas, 40% are in riverine area.
 - In 2014; 67 combined sewer overflows were reported.
- Have you noticed a change in flooding occurrence and/or severity over time?
 - Occasionally there are temporary evacuations as a result of flooding in riverine areas (ex: 2008).
 - Storms are becoming more intense.
- What are YOUR goals for this workshop today?
 - How do we integrate stormwater management with water supply planning?
 - North Cook County has documented more frequent and intense storms, many areas are neighborhood pockets. It floods but is not in the mapped floodplain. MWRD inundation maps show these small areas that flood. Hope that FEMA will integrate these areas into their flood maps.
 - Green infrastructure sustainability in communities – how can the community work with engineers and planning groups to find jobs and maintain that green infrastructure.
 - Want to bring the work-force perspective to the conversation.

9:30 AM Floodplain Management Legal Issues; Chad Berginnis, CFM:

Main Points:

- Most successful suits against communities result from actions such as inadequate maintenance of dams, levees, roads, and bridges which increase flood damages on other lands.

- “Act of God” defense is less and less defensible (See: *Kerr v. Harris County Flood Control District* [2015]).
- If you permit development in a known hazard area, your community may be held liable.
- You are more likely to be sued successfully for permitting risky development than for preventing it.
- Take a “No Adverse Impact” approach to flooding issues to reduce liability and minimize risk.

Common Floodplain Management Legal Concerns:

- Takings cases,
- Liability cases, and
- Nuisance cases.

Key Law Suits to Share with Legal Counsel that Support NAI:

- [*Beverly Bank v. Illinois Department of Transportation* \(1991\);](#)
- [*Gove v. Chatham Zoning Board of Appeals* \(2005\);](#)
- [*Loretto v. Teleprompter Manhattan CATV Corp* \(1982\)](#)
- [*Lucas v. South Carolina Coast Council* \(1992\)](#)
- [*Penn Central Transportation co. v. New York City* \(1978\)](#)
- [*Koontz v. St. Johns River Water Management District* \(2013\)](#)
- [*Kerr v. Harris County Flood Control District* \(2015\)](#)

10:00 AM

No Adverse Impact Overview; Alisa Sauvageot, CFM:

Main Points:

- Floods are the most predictable hazard that occurs in the United States – we know when it is going to flood and we know where it is the most likely to flood.
- There are few restrictions to where we build under the National Flood Insurance Program. The NFIP is the minimum standard, but is widely regarded accepted as “good enough.” The NFIP provides no protection of the natural and beneficial functions of floodplains and wetlands and other sensitive areas, and fill is allowed to be placed in the especially hazardous portion of the floodplain known as the Special Flood Hazard Area.
- NAI Defined: “Activities that could adversely impact flood damage to another property or community will be allowed only to the extent that the impacts are mitigated or have been accounted for within an adopted community-based plan.”
In short: NAI is the “Good Neighbor Policy.”

- The true strength of the No Adverse Impact approach is that it encourages local decision making to ensure that future development impacts will be identified, considered on a watershed-wide basis and mitigated.
- Potential Benefits of NAI:
 - Improved water quality and reductions in non-point pollution impacts
 - Green corridors which also serve as additional areas for floodwater storage
 - Improved groundwater recharge
 - Better bank stabilization and better erosion control
 - Most NAI initiatives provide credits for the Community Rating System
- Where to find more information on NAI: [ASFPM's website](#). There you can find white papers on NAI and legal issues, the NAI Toolkit, the Coastal NAI Toolkit, and NAI How-to-Guides.

Seven Building Blocks of NAI:

1. Flood Hazard Identification and Floodplain Mapping
2. Education and Outreach
3. Planning
4. Regulations and Standards
5. Mitigation Actions
6. Infrastructure
7. Emergency Services

Three Levels of NAI Application:

1. Basic
2. Advanced
3. NAI

10:45 AM Break

11:00 AM Tour of Loyola's Green Infrastructure; Aaron Durnbaugh

12:00 PM Lunch

1:00 PM Green Infrastructure Mapping and Flood Risk Planning Exercise; Bridget Faust:

- Participants were given an hour to complete a mapping exercise using the information that was presented in the first half of the workshop.
- The purpose of this exercise was to apply NAI to a redevelopment strategy of the area north of Chicago.
- Task: You are planners working to design the redevelopment of Wilmette, Winnetka, Glenview, Des Plaines and Northbrook. Through this redevelopment planning process these cities hope to collectively: 1. reduce flooding throughout the

area, and 2. Improve the water quality of the Des Plaines River, Pike-Root River, and Chicago River, as well as Lake Michigan by reducing run-off and erosion.

- Goal: identify possible areas for conservation and growth, set priorities, and explain reasons for selecting them. Specifically, identify:
 - Key geographic areas to conserve, restore, maintain, or place green infrastructure,
 - Areas suitable for future residential and/or commercial growth,
 - Are there other risk or vulnerability factors that should be considered?

2:00 PM

Putting the Infrastructure in Green Infrastructure; Josh Ellis:

- Sharing perspectives on ten years of change in green infrastructure in the CMAP area.
- Was involved in Illinois EPA's development of its green infrastructure grant program (2008)
 - When it was first created Josh had many conversations with elected officials about their "green infrastructure" EX: permeable pavers for the police parking lot, rain gardens near libraries.
 - Sometimes the infrastructure in green infrastructure gets lots – many pilot projects that are developed do not connect to anything else. They are one-off projects that are designed to actually impact or reduce flooding.
 - Overtime a paradigm shift has occurred – managers and elected officials are starting to realize that green infrastructure needs to be optimized. These projects are investments and they need to be made wisely.
 - Funding for these projects in the state has dried up, green infrastructure needs to be paid for with tax dollars. You wouldn't place parking lots everywhere in a community – the same rationale needs to be applied when designing green infrastructure.
 - Our speakers today will be discussing how communities in the area have begun to optimize their green infrastructure and scale it up so it has a tangible impact on flooding.
 - Communities need tools and resource to optimize their green infrastructure.
 - The Calumet Stormwater Collaborative is one optimization effort that has been on-going in the area.

2:15 PM

CMAP Resources for Green Infrastructure Planning; Kate Evasic:

- Chicago Metropolitan Agency for Planning (CMAP) developed in 2005 by state law to integrate transportation, land use, and infrastructure planning throughout the Chicago area.
- Go To 2040 is a regional comprehensive plan developed by CMAP.
 - Encourages site-scale green infrastructure
 - Identifies need to develop funding mechanisms

- CMAP facilitates a LTA (Local Technical Assistance) program each year. The 100th project was just finished. This program was designed to help implement the GO TO 2040 plan by providing planning assistance to local communities.
 - Through this program CMAP discovered that localized flooding is a large concern for small municipalities throughout the Chicago area.
 - They do not have the tools or resources or expertise to identify what is causing localized flooding or how to mitigate it.
 - CMAP seeks to address this through the local comprehensive plan.
 - CMAP was funded by the McArthur foundation and Cook County Community Development Block Grants for Disaster Resilience, to develop datasets that are widely available and a hub to share them (CMAP data hub)
 - Also funded to facilitate the incorporation of stormwater management into comprehensive plans, sustainability plans, transportation plans, and development/redevelopment; in short they are looking for above ground solutions to flooding/stormwater problems.
- Basic Structure of the stormwater management opportunity planning process:
 1. Data collection: historic conditions (stream and wetland locations), topography, impervious surfaces, land use, repetitive loss areas and local flood/inundation data.
 2. Data analysis (flow path model): modeling overland flow using Arc Hydro tools, catchment area delineation.
 3. Data evaluation (overlay analysis): shows localized challenges and opportunities.
 4. Public Engagement: identify or confirm problem areas, educate residents and property owners on how they can contribute to flooding problems and use green infrastructure interventions to mitigate.
- Recommendations:
 - Policies and Ordinances
 - Engineering and Capital Improvements
 - Maintenance and Monitoring
 - Financing
 - Education
- Project Examples:
 - South Holland is identifying potential green infrastructure based on land use and incorporating them into their comprehensive plan.
 - Crystal Lake is incorporating green infrastructure into street design standards into its transportation plan.

- Blue Island is building green infrastructure into road reconstruction projects into its capital improvement plan.
- For more information please reference: ["The Value of Stormwater Utilities for Local Governments in the Chicago Region."](#)

2:30 PM

City of Blue Island Green Infrastructure Effort; Jason Berry:

- There is a disconnect between planners and engineers when they talk about green infrastructure, stormwater, and its efficiency. When planners discuss green infrastructure it's a policy discussion – for engineers it's an efficiency conversation.
 - Engineers think green infrastructure is not real infrastructure.
 - As a result when planners and engineers design flood mitigation projects of new developments, green infrastructure becomes a pilot or feel good project instead of an instrumental tool for mitigation.
- Blue Island History:
 - Southwest of Chicago
 - Combined sewer system
 - Limited open space
 - Water ponds in areas in Blue Island when it runs down one of Chicago's few hills.
- Early efforts at bringing green infrastructure to Blue Island had mixed results:
 - Infrastructure was placed in the area where it floods
 - Rain barrels were placed on homes.
 - Lots of pilot projects were developed (via grant funding, some are still in progress)
- Green Infrastructure Funding Sources/Projects:
 1. IL Jobs Now/Clean Water Initiative:
 - Funded IL Green Infrastructure Grants (IGIG, applied 2012; 2013) for NE Neighborhood
 - Assistance Amount: \$1,132,588
 - City Council approval November 11, 2014
 2. Chi-Cal Rivers Fund:
 - Announced November 18, 2014
 - 6 acres of wetlands with 1.5 million gallons of stormwater retention
 - Remove contaminated soils and plant native vegetation
 - Employs students who have graduated from technical environmental training programs
 3. MWRD "Early Out"
 - Metropolitan Water Reclamation District Green Infrastructure project
 - One of four in the MWRD service area
 - 8 sites were selected:
 - 5 bioswales along Longwood, 1 on Irving
 - 1 permeable pavement sire on Longwood, 1 on Irving

- 4. Great Lakes Restoration Initiative (GLRI)
 - Awarded to South Suburban Mayors and Managers Association (SSMMA)
 - Funding Green Infrastructure in Blue Island, Robbins and Calumet Park in 2015
 - 1,450 square foot rain garden with seeding and plugs
 - Helped to create jobs in the area
- To move past this pilot approach the key questions are 1. How do we install green infrastructure at a larger scale and 2. How to we employ people?
 - OAI minority worker training program has put blue islands most vulnerable residents to work making their community more resilient by training them to construct the green infrastructure.
 - One of the key benefits of green infrastructure is that you can see it working.
 - Stormwater infrastructure is often times neglected in Blue islands that results in flooding through basement drains. Storms are overwhelming the existing stormwater infrastructure. Green infrastructure will be critical to ameliorating this problem.
 - Blue Island applied for LTA grant through CMAP
 - Mayors and elected officials need to be bought-in to green infrastructure.
 - One way of doing this is tying green infrastructure to tax-rebates – this is one thing that Blue Island has done.
 - Challenges:
 - Maintenance costs are not included in the CIP – needs to be funded in other ways.
 - We cannot neglect green infrastructure – it becomes must less efficient and it is visible

3:00 PM Break

3:15 PM City of Chicago Department of Water Management Green Infrastructure Efforts; Aaron Koch:

- Flooding, combined sewer overflows
- City of Chicago is not the only stormwater management entity – MWRD and Cook County also manage stormwater
- Deep tunnel system has been in the process of being constructed for a long time.
 - The deep tunnel system will not solve all of Chicago’s problems, flooding happens on the neighborhood scale and the deep tunnel cannot resolve this.
 - Climate change is also complicating the future – storms are becoming more frequent and intense and the stormwater infrastructure is already at its

capacity. That additional strain of more intensified development and climate change will only make things work.

- City of Chicago does have some sustainability initiatives to help counteract the impacts of climate change and address the challenges associated with Chicago's green infrastructure. Including a green stormwater infrastructure initiative.
- City stormwater ordinance requires drainage (green roofs are a big part of this), green allies are another major part of upgrading Chicago's stormwater infrastructure (ex: rebuilding unused allies with pervious pavement and green areas). These practices are required not just incentivized – this has helped to develop a network of small pieces of green infrastructure.
- Examples of recent projects:
 - Established a fund paid for by sewer rates for incorporation/installation of green infrastructure into planned capital projects. This has helped to get green infrastructure into projects where there would not have been green infrastructure included previously.
 - Space to Grow Schoolyards - have completed 4 school yard green infrastructure projects committed to doing another 12 to MWRD in the next 2 years.
 - Argyle Street Sustainable Street Scape – working with Chicago Department of Transportation to create a plaza that has pervious pavers and pockets of green space.
 - Wilson Avenue Parking Lot – all of water drains to sewer systems, park district was going to repave it. City of Chicago and EPA grant funding were used to create a large bioswale and some tree trenches so the parking lot would not drain to the sewer system, but to Lake Michigan instead.

3:45 PM

Audience Discussion and Q&A with Panel; Josh Ellis (Moderator):

- How much of a problem is the divided governance of our sewer-sheds? How much of a roles does governance actually play?
 - Jason: In the suburbs it is a lot easier to work together – you have to work together to get things done (resource constraints). That said, small cities like Blue Island may end up at the table with suburban communities but they rarely work together. I am not sure how jumping the Chicago hurdle will occur. Collaboration is alive and well in Chicago and in the southern suburbs but not between them.
 - Kate: having a very well designed steering committee can really help to encourage collaboration between fractured government entities.
 - Aaron: the issue of shared governance is just another challenge that we work around. We are doing a lot more collaborative work now then we ever used to, and there is definitely still a lot of work to do. Because we do not

have a consent decree there is not a mission assigned to why green infrastructure needs to be done. Chicago has focused its efforts on using a combination of green and gray infrastructure to prevent basement backups – and that is very different than most other major cities who are trying to prevent combined sewer overflows.

- Can you report on proliferation, or lack thereof, of stormwater utility fees? They are common in Indiana, Iowa, Wisconsin, but Illinois has only a few. Is there a foreseeable situation in which Chicago and Blue Island would move towards a stormwater utility fee model to pay for stormwater (green and gray) infrastructure, sustainability and resilience?
 - Kate: we will definitely be talking to communities more about the possibility of creating a stormwater utility fee.
 - Jason: it is on the table in Blue Island. We need to repave a lot of roads locally. Blue Island has always repaved roads when the stormwater infrastructure needed fixing – but this is starting to change as Blue Island has more basement backups reported. One of the challenges in Blue Island is the large renter population (40-50%), they won't support the fee or will expect the landlord to pay it.
 - Aaron: creating a stormwater utility is not as simple of a fix as it seems. The challenge in setting it up is that it gets very complicated very fast. You need to set up a way to determine or report the amount of impervious surface on each property, you also need to educate residents, and if you design an incentive program it complicates things even further. In addition, most of the communities which have implemented a stormwater utility fee have not assessed a rate that is high enough to incentivize green infrastructure. It generates revenue but it does not incentivize a behavior change.
- In some Illinois counties all of the water is supplied by ground water. Within those counties there is a lot of concern about how increased infiltration via green infrastructure may spread contaminants into the ground water supply. Has this been researched or documented?
 - Jason: there is a lot of published literature on this. Blue Island has a lot of brown fields and as a result citizens are also very concerned about this, but they have not studied it.
 - Kate: There are some areas that should not include infiltration BMPs and early intervention in the planning process could ensure that areas that will have a lot of contaminants running off will not have infiltration BMPs.
 - Josh: In Seattle there is a neighborhood that is built on top of a brownfield that has contaminants in the soil. They are planning green infrastructure but instead of infiltration mechanisms, they are installing detention basins. All detention basins have an impermeable layer 4 feet under them to prevent contaminant migration.

- What guidance is given in CMAPs document on setting the goal of the stormwater utility fee?
 - Kate: Guidance for designing a stormwater utility fee based on imperviousness as well as a credit program for reducing imperviousness is all outlined in the document. That said, the goal setting process is not.
 - Motivation for the stormwater utility fee depends on the local context. Sometimes communities see it as a way of getting additional revenue, others see it as a way to shift some of the burden onto private property owners, and others see it as an effective way to incentivize green infrastructure.
- It is my understanding that we should expect more rain in the late fall/winter as a result of climate change. Is there any research on the functionality of green infrastructure in colder temperatures?
 - Warrenton has started building residential streets with permeable pavers and has found that because they drain so quickly they do not freeze as much as you would expect. They have also found that they are not difficult to plow and that they hold up in cold weather very well.
 - One of the primary concerns related to winter weather and green infrastructure is that chloride levels are going through the roof in some areas.

4:30 PM

Workshop Wrap-Up; Molly Woloszyn:

- Thank you to everyone who attended!
- Please fill out your evaluations before you leave and join us at the planned networking event.
- Workshop proceedings, notes, presentations, and additional educational materials can be found on ASFPM's website (<http://www.floods.org/>).