

Michigan Green Infrastructure Conference

Protecting Water Resources and Promoting Economic Development



Speaker Bios and Abstracts - DAY ONE

Dan Wyant, Director, Michigan Department of Environmental Quality (DEQ) - Dan Wyant was named Director of the Michigan Department of Environmental Quality in January 2011. The appointment marked a return to public service for Wyant, who was director of the Michigan Department of Agriculture (MDA) for nine years before he departed in 2005 to be President and Chief Operating Officer for the Edward Lowe Foundation. His work with the Edward Lowe Foundation involved setting the strategic vision for the organization, which promotes entrepreneurship and helps second-stage business owners accelerate growth for their companies. During his tenure at the MDA, he was appointed to the Michigan Land Use Leadership Council, a bipartisan task force that developed innovative programs for land use and farmland preservation. Prior to directing the MDA, Director Wyant provided policy expertise for the Senate Majority Office and was associate director of Governor John Engler's Office of Legislative Affairs. He began his career in the private sector, as a marketing manager for the Ralston Purina Co. and then as an export trade consultant for Lowe's International.

Director Wyant holds a bachelor's degree in food systems management from Michigan State University (MSU) and a master's in business administration from American University in Washington, D.C. A native of southwest Michigan, he and his wife live in East Lansing.

Keynote Speaker: Valerie J.M. Brader, Deputy Legal Counsel and Senior Policy Advisor to Governor Rick Snyder - Valerie Brader's service with the administration began in September 2012, as the Chief Energy Policy Officer at the Michigan Economic Development Corporation (MEDC). Previously, she was a member (partner) at Bodman PLC, practicing primarily environmental and corporate law (with a specialization in assisting new or expanding businesses, from incorporation to securing permits and tax credits). A Rhodes Scholar and published author in both the legal and scientific presses, she previously worked as the career law clerk for the Hon. John Feikens of the Eastern District of Michigan, as an environmental consultant to the U.S. EPA and Department of Defense, and for Gov. Phil Batt (R-Idaho) on environmental and natural resource issues. Ms. Brader, who was the youngest person in the country to be selected to assist a federal court under the "Special Master" rule, was selected by Crain's Detroit Business as one of the "40 under 40" in Metro Detroit and by Michigan Lawyer's Weekly as a "rising star."

Ms. Brader received her AB magna cum laude in government from Harvard and Radcliffe Colleges, has two masters degrees from the University of Oxford (an MSc in Environmental Change and Management and an MSt in Historical Studies), and a J.D. magna cum laude from Georgetown Law Center. She was the first-ever recipient of the Harvard College Women's Leadership Award and was first-runner up in the Pacific Legal Foundation's national writing competition. Ms. Brader currently serves as the secretary of the Women's Caring Program, a charity dedicated to expanding early childhood education for working families, and recently completed terms as the president of the Harvard Club of Eastern Michigan and vice president of Trinity Evangelical Lutheran Church.

Jon Allan, Director, Office of the Great Lakes – In 2012, Jon Allan assumed leadership of the Office of Great Lakes, which focuses on myriad Great Lakes policies for the State and across the region related to planning, protection, restoration, utilizing and sustaining the Great Lakes. He serves this cabinet post as an Executive on Loan from Consumers Energy where he was Executive Director of Environmental Policy and Intergovernmental Affairs. Jon has several decades of experience in environmental policy and law, he has taught courses in biology, ecology, environmental impact assessment and marine biology and island ecology at MSU and other institutions. Time and again, organizations and individuals have called on Director Allan to participate in and lead environmental planning in Michigan and the Great Lakes region. He serves on a host of governance bodies in the region and recently co-chaired the Governor's Blue Ribbon Panel on State Parks and Recreation.

Director Allan holds an undergraduate degree in Fisheries and Wildlife, a Master's Degree in Zoology (Aquatic Ecology) from MSU, and additional post-graduate work in Environmental Policy and Law also at MSU. He is a published author on a number of topics related to wetlands, stream ecology, impact assessment and water policy.

Speaker Bios and Abstracts - DAY ONE

10:30am Panel Discussion - *Coordinating Green Infrastructure within Federal and State Activities*

This session is designed to provide a brief overview of the green infrastructure initiatives already in place, or in development, within selected federal and state agencies, and state-level programs. These initiatives are described below. Conference attendees are encouraged to read through these descriptions and consider questions for the Panel. The goal of this session is to identify issues that state and federal governments may be in a position to address, and to begin a dialogue on these issues in the presence of multiple state and federal agencies.

PANELISTS

Bob Newport, U.S. Environmental Protection Agency (U.S. EPA) - Bob Newport is a Stormwater Specialist who works in the Region 5 (Chicago) office of the U.S. EPA. He works with States, planning agencies, NGOs, and local units of government on stormwater management and combined sewer overflow control programs. Bob works closely with States on NPDES permits for wet weather discharges. He leads work in the Region related to the use of green infrastructure practices and Low Impact Development. Bob has a Bachelor's degree from Roosevelt University in Public Administration, a Bachelor's degree from Northwestern University in Economics, and a Master's degree from the University of Illinois-Chicago in Urban Planning and Policy.

The Federal government has been looking at ways to advance the implementation of green infrastructure since about 2007. The strategies and approaches that the Federal government can bring to bear include the following:

- Voluntary/non-regulatory approaches
 - Facilitating education and outreach to key stakeholder groups
 - Conducting research and compiling information on key implementation-related topics, including costs, green infrastructure performance, co-benefits, maintenance needs, and approaches for ensuring appropriate maintenance
 - Identifying and addressing potential barriers to green infrastructure implementation, such as the importance of updating local codes and ordinances
 - Developing tools, such as the stormwater calculator, for planning green infrastructure and quantifying impacts
 - Cultivating incentive and recognition programs for communities demonstrating leadership
 - Exploring funding and financing options; for example, State Revolving Fund low interest loan programs, grants (e.g., recent grants to Detroit and St. Clair Shores), and investigating opportunities for private investment and public-private partnerships
- Regulatory or permit-based approaches
 - Incorporating green infrastructure into combined sewer overflow permits and consent decrees
 - Working with States on green infrastructure-related provisions in stormwater permits
 - Considering post-project stormwater management in Section 404 permit reviews (USACE)

Donna Stine, Michigan Department of Natural Resources (DNR) - Donna Stine is currently the Policy Coordinator for the DNR. This is a homecoming position for Donna as she had previously served as the DNR legislative liaison, assistant to the Natural Resources Deputy Director, and in a number of positions in the Department including within the Parks and Recreation Division. Donna retired from the DNR in 2002 and became Deputy Director of the Michigan United Conservation Clubs where she also served as Acting Executive Director. In 2008, Governor Jennifer Granholm asked Donna to join her policy staff focusing on natural resources, agriculture and the environment.

The 4.6 million acres of DNR-managed public lands provides the foundation of Michigan's green infrastructure. These lands are managed to protect Michigan's cultural and natural resources, provide quality outdoor recreation opportunities and foster regional economic prosperity. The strengths of Michigan's public land ownership are the diversity of landscapes, quality of resources and opportunities, dispersed locations throughout the state and use that support local economies.

The department recently completed the DNR-Managed Public Land Strategy (www.michigan.gov/dnrlandstrategy), which identifies desired outcomes for the goals of providing quality outdoor public recreation opportunities, fostering regional economic prosperity, and protecting natural and cultural resources for future generations and measurable objectives for reaching the outcomes. Many of the measurable objectives call for supporting or improving Michigan's green infrastructure – its natural systems and recreation opportunities and the partnerships necessary to maintain this vast system.

The DNR not only has planned for protecting and enhancing its green infrastructure, it is also walking the walk... The state park system is heavily investing in its built environment to become more energy efficient, reduce water use and wastes, capture storm water on site, and reduces the impact facilities have on water quality. Park managers have the opportunity to apply for challenge grants to address these areas. All new construction in parks meets LEED standards for new construction. In addition, the 3.8 million acres of state forest are certified (under two different programs) as being sustainably managed, ensuring protection of its biodiversity and long-term health.

Bill Creal, DEQ Water Resources Division - Bill is presently the Chief of the Water Resources Division (WRD) in the DEQ. In this capacity Bill oversees the wastewater and surface water programs; permits to control aquatic nuisance plants; nonpoint source pollutants; critical dunes, wetlands, and floodplains issues; dam safety; and soil erosion and sedimentation control issues. The WRD is 300 people strong, dealing with Michigan's 4 Great Lakes, 3,300 miles of freshwater coastline, 11,000 inland lakes, and 5 million acres of wetlands. We use a combination of regulations through permits (8,000 per year) and grants to protect and monitor Michigan's waters.

The WRD promotes green infrastructure (GI) as an effective approach in protecting water quality and mitigating the hydrologic impact of the built environment. The WRD advances the use of GI through partnerships, funding, technical assistance, permit conditions, and compliance and enforcement. In 201,2 the WRD began partnering with the U.S. EPA, Michigan DNR, Michigan Department of Transportation, Michigan Economic Development Corporation, Southeast Michigan Council of Governments (SEMCOG), and Detroit's Water and Sewerage Department (DWSD) to promote GI in Southeast Michigan. The partnership's goal is to serve as leaders by leveraging agency efforts in pursuing opportunities to plan for and invest in GI.

The WRD provides financial support for the planning and implementation of GI through grants. Examples of projects supported by WRD's grants include funding to SEMCOG for the development of a GI plan in the Upper Rouge area of Detroit and to the city of Lansing to install 30 rain gardens along Michigan Avenue. The WRD provided technical assistance and grant funding to develop Michigan's Low Impact Development Manual, which provides information ranging from the technical details of best management practices to storm water management policies. The WRD assists local communities in understanding the opportunities and benefits associated with incorporating GI practices into municipal storm water control.

The WRD also advances the use of GI through permit conditions. The DWSD's National Pollutant Discharge Elimination System permit includes a requirement to spend \$50 million over the next 20 years to implement GI in the Upper Rouge area. The Upper Rouge Tunnel is serviced by a combined sewer overflow system and the permit establishes a reduction target of 2.8 million gallons of storm water from GI implementation by 2017.

Mark Van Port Fleet, Michigan Department of Transportation (MDOT) - Mark has 34 years of experience with the MDOT. He is currently Deputy Chief Engineer and Director of the Bureau of Development. His responsibilities include oversight of the development of projects for the department including environmental clearance, surveys, design, real estate, quality assurance, local agency programs, transport permits, and computer engineering support. MDOT annual construction program is approximately \$750 Million per year with an additional \$300 Million for Local Agency projects. Mark is an active member of the American Association of State Highway and Transportation Officials. Mark holds a Bachelor of Science degree in civil engineering from MSU and is a licensed professional engineer in Michigan.

Speaker Bios and Abstracts - DAY ONE

The MDOT is a strong supporter of “Green Initiatives” with its extensive use of recycled pavements in its infrastructure, the use of energy efficient lights for its freeway lighting systems and traffic signals, promotion of efficient maintenance practices to minimize salt usage, and constructing energy efficient buildings for its rest area and welcome center facilities. MDOT applies a context sensitive solutions approach to developing its projects to consider a strong sense of community as it completes its road and bridge programs. With its newly adopted complete streets program, MDOT considers all users of the rights of way.

Rick Chapla, The Right Place - Rick has been involved in community development and land use planning for 30 years. He holds a BA degree in Urban Studies from Aquinas College, and a Masters in Urban Planning from UofM. In 1996, Rick joined The Right Place Inc. In his current role as V.P. of Business Development, his responsibilities include assisting local units of government and private development interests with economic development policies and programs such as Brownfields and Renaissance Zones. Rick coordinates efforts to grow renewable energy and food processing and manufacturing supply chain business development opportunities.

Rick previously spent 16 years with the City of Muskegon in a variety of positions including Director of Planning and Economic Development. He also worked for EARTH TECH, where he specialized in land-use planning, grant writing, environmental studies and lay planner training. Rick is a past President of the Land Conservancy of West Michigan and of the Michigan Society of Planning Officials (now known as Michigan Association of Planning). Rick and his wife, Willow, have twin sons (Gabe and Nate) who attended MSU, and a daughter (Hannah) who attends Grand Valley State University.

Mark Wyckoff, MSU Land Policy Institute - Mark Wyckoff is a professor at MSU where he serves as Sr. Associate Director of the Land Policy Institute and Director of the Planning & Zoning Center. He is a community planner with 37 years of experience (24 years running a private sector consulting business) and is a Fellow of the American Institute of Certified Planners. He also edits and publishes the Michigan-specific monthly magazine, Planning & Zoning News, now in its 30th year.

The MSU Land Policy Institute has engaged in significant research (results published to www.landpolicy.msu.edu) and outreach.

Research

1. National survey into public preferences for various placemaking amenities and quality of life improvements.
2. Research in the Midwest on property value impacts from various placemaking amenities including blue and green infrastructure.
3. A study on the drivers of economic performance in Michigan, including the contributions of natural features, green infrastructure and social/cultural amenities.
4. Research into the value of Green Infrastructure and its impact on property values in Hillsdale County and Oakland County, the local and regional economic impact of the Rifle River Recreation Area, and an analysis of State conservation funding.
5. Research into farmland preservation strategies for Michigan, including setting acreage and funding goals, assessing alternative funding mechanisms, using unique financing tools, and supporting innovative agribusiness through venture capital.

Water Quality Protection Outreach

6. Work with 99 jurisdictions in the Saginaw Bay Watershed to prepare and refine Low Impact Development techniques for very rural jurisdictions that can be added to local master plans and zoning ordinances to protect water quality. Some of the techniques rely on green infrastructure. Result was [Rural Water Quality Protection: A planning & zoning guidebook for local officials](#), 2012. It is available for download at: http://www.landpolicy.msu.edu/modules.php?name=Pages&sp_id=664
7. Training for rural local governments in the Shiawassee and Flint River watersheds on use of the guidebook in 2014. Visit: www.shiawasseeeriver.org, and www.flintriver.org

Placemaking Outreach

8. Along with staff of MSU Extension, prepared a six module training program on placemaking that incorporates green infrastructure as an important amenity necessary to attract and retain talented workers, and which adds considerably to the amenity value of neighborhoods adjacent to green infrastructure. Over 5,000 persons have participated in training on at least one of the modules. Version 4.0 was just completed. Visit www.miplace.org for more information about the MIplace Partnership Initiative which sponsored the preparation of the modules.
9. Preparing Placemaking Self-Assessment Tool for use by communities to help them identify opportunities for improving the quality of the community in attracting and retaining talented workers. To be completed by summer 2014 and posted on www.landpolicy.msu.edu.
10. Preparing a Portfolio of Tools which includes green infrastructure, for use by local governments to better achieve sustainability at the local level. To be completed by fall 2014 and posted on www.landpolicy.msu.edu.

11:30am Session - *Building on Regional Efforts*

Elaine Sterrett Isely, West Michigan Environmental Action Council (WMEAC) - A veteran of the West Michigan legal and environmental communities, Ms. Isely became WMEAC's Water & Low Impact Development Programs Director in 2012. Prior to joining WMEAC, she has also served as the Project Manager for West Michigan Strategic Alliance's Green Infrastructure Initiative, as a Research Associate and Assistant for the Annis Water Resources Institute at Grand Valley State University, and as a Sea Grant Fellow with the Great Lakes Commission.

Pursuing environmental education and advocacy as a second career, Ms. Isely was previously a litigation attorney working on behalf of social justice and environmental causes in Michigan. She has served as Staff Attorney for Legal Aid of Western Michigan and the Michigan Migrant Legal Assistance Project, Inc., and as a Student Attorney at the Free Legal Aid Clinic and the Wayne County Department of Environmental Quality in Detroit.

Ms. Isely has more than 15 years of experience in law, environmental policy, research, outreach, and public speaking. She holds a B.S. in Finance from the University of Maryland, J.D. from Wayne State University, and an M.S. in Biology/Natural Resources Management from Grand Valley State University.

Lunch Plenary - Karen Firehock, Executive Director, Green Infrastructure Center (GIC) - Ms. Firehock is the Director of the GIC, which she co-founded in 2006, and where she oversees green infrastructure planning and research projects. Ms. Firehock is an environmental planner with more than 25 years of experience in planning and natural resources management. She is also an adjunct lecturer in green infrastructure planning and environmental ordinance development at the University of Virginia (UVA)'s School of Architecture in the Department of Urban and Environmental Planning. Prior to her current position, Ms. Firehock was a Senior Associate at the UVA Institute for Environmental Negotiation for seven years and served as coordinator for community watershed and land use plans for localities. She also coordinated the national Community-Based Collaboratives Research Consortium, and conducted public outreach for the USDA Forest Service's Roundtable on Sustainable Forests. Prior to working for UVA, she served as the Director of the Save Our Streams Program at the Izaak Walton League for 12 years where she directed a national stream and wetland conservation program.

Ms. Firehock has authored numerous handbooks, including the Local Government's Guide to Stream Corridor Protection, *Collaboration: A Guide for Environmental Advocates*, a Handbook for Wetlands Conservation and Sustainability, *A Citizen's Streambank Restoration Handbook*, and *Local Watershed Management Planning in Virginia, A Community Water Quality Approach*. She has won multiple awards for her planning work, including a Renew America Award for the Nation's Best Water Protection Program, a National River Greenways Award, State Conservationist of the Year Award, and Design Professional of the Year Award.

She has a Bachelor's degree in natural resources management from the School of Agriculture at the University of Maryland and a master of planning degree from the School of Architecture at the University of Virginia. Her most recent publication, *Evaluating and Conserving Green Infrastructure Across the Landscape*, is available from the GIC at <http://gicinc.org/book.htm>.

Speaker Bios and Abstracts - DAY ONE

1:15pm SESSION - Innovative Approaches to Preserving Green Infrastructure

Maintaining Green Infrastructure, Community Engagement and Job Training

Natalie Pruett, Genesee County Land Bank - Natalie Pruett is a Planning Consultant and a Flint native whose work and experience focus on urban land-use and revitalization. Before consulting independently, Natalie was a Community Planner at the Genesee County Land Bank where she took a lead role in re-writing the Genesee County Land Bank's Vacant Land Re-Use Policy and Implementation Strategy. Today, as Consultant for the Genesee County Land Bank Authority's Planning and Neighborhood Revitalization Department, Natalie manages its Clean & Green program. Community-based organizations annually care for more than 1,700 vacant lots through this program. Natalie is also currently consulting with the City of Flint, Center for Community Progress, the Community Foundation of Greater Flint, and the Ruth Mott Foundation. Her work is increasingly focusing on blight and blight elimination. Natalie recently created a five-year blight elimination framework for the City of Flint as part of its Master Plan implementation, Beyond Blight: City of Flint Comprehensive Blight Elimination Framework. Natalie holds Bachelor's degrees in Economics and Political Theory and Constitutional Democracy, specializing in Political Economy from MSU.

Abstract: While vacant lots present opportunities for integrating green infrastructure into the urban environment, they also pose maintenance challenges. Clean & Green is a program of the Genesee County Land Bank that engages community-based organizations in the in the seasonal maintenance and reuse of more than 1,700 vacant lots in the Flint area. The program also includes opportunities for seasonal employment and job training. In 2013, more than 150 individuals were seasonally employed through Clean & Green, at least 50 percent of which were between the ages of 18 and 24.

Community Engagement

Dean Hay, The Greening of Detroit - As the Director of Green Infrastructure at The Green of Detroit, Dean is actively working to convert the city's vacant land, develop large-scale natural eco-systems and convert the city's many brownfield sites. Originally introduced to The Greening's work in 1996 at a volunteer tree planting, Dean later served two terms as a member of the Board of Commissioners prior to becoming the Director of Green Infrastructure. With 16 years of municipal, commercial and residential design experience, Dean is passionate about improving and protecting natural resources in communities throughout SE Michigan, as well as providing forest and resource management planning on public and private land.

Dean received a Masters of Landscape Architecture from the University of Michigan, is an International Society of Arboriculture Certified Arborist, a Municipal Specialist, and a consulting municipal arborist. Dean currently serves on the Michigan Urban and Community Forestry Council. He also serves on the board of Moross Greenway Project, a 501c3 organization established to develop a natural landscape along Moross Road, an entry gateway along the eastern boundary of Detroit.

Lansing Mayor Virg Bernero - Mayor Bernero is the chief executive of Michigan's sixth largest city. Now in his eighth year as mayor, Bernero tackles the challenges of today's economy with a fierce determination to bring common sense reforms to government and to create a favorable business climate for new, job-creating investments. Bernero was recently appointed chairperson of the U.S. Conference of Mayors Advanced Manufacturing Task Force. He and his Manufacturing Alliance of Communities colleagues continue to work in Washington D.C. to bring critical federal aid back to Michigan to help redevelop closed automotive sites and create new jobs for displaced workers.

Virg Bernero has served as a county commissioner and as a state representative and senator in the Michigan Legislature. He also served as the executive director of a statewide non-profit association that helps families and children with mental illness. In 2010 he was the Democratic nominee for governor of Michigan. Bernero is the proud son of a GM retiree and Italian immigrant who lived the American Dream and provided for his family of five by running a grocery business and then taking a job with GM.

Virg and his wife Teri, a Lansing Public Schools administrator, live in Lansing. They have two daughters, Kelly and Virginia.

DAY TWO

Michelle Selzer, Office of Great Lakes (OGL) - Michelle Selzer has over 15 years of experience working in the natural resources management field, including 8 years with the Michigan DEQ. Michelle currently serves as a Senior Environmental Analyst and Lake Coordinator, overseeing the implementation of protection and restoration efforts in the St. Clair-Detroit River System and Lake Erie basin. Michelle also worked for the DEQ as an Area of Concern Coordinator. Her responsibilities included the development of Remedial Action Plans for four of Michigan's 14 Areas of Concern, assisting in implementing on-the-ground projects to achieve water quality-based restoration targets, and helping to build successful partnerships to address local water quality issues using green infrastructure practices.

Opening Keynote Speaker, Dr. William Hunt, P.E., North Carolina State University - Dr. Hunt is an Associate Professor and Extension Specialist in North Carolina State University's Department of Biological and Agricultural Engineering department. Dr. Hunt has two B.S. (Civil Engineering and Economics) and one M.S. (Biological and Agricultural Engineering) degrees from NC State. Dr. Hunt received his Ph.D. from Penn State in 2003 and is also a registered PE in the state of North Carolina.

Since 2000, Hunt has assisted with the design, installation, and/or monitoring of over 90 stormwater best management practices (BMPs), including bioretention, stormwater wetlands, innovative wet ponds, green roofs, permeable pavement, water harvesting/cistern systems and level spreaders. He teaches 20-25 short courses and workshops each year on stormwater BMP design and function throughout NC and the US.

Hunt is an active member of the American Society of Agricultural and Biological Engineers (ASABE), serving as NC Section President and as Past-Chair of the National ASABE Extension Committee. He is also a member of the American Society of Civil Engineers, where he serves on the Urban Water Resources Research Council, the LID committee, and is co-chair of the Bioretention Task Committee. He was chair of the 2nd National LID Conference held in Wilmington, NC, in March 2007. Locally, he is a member of the Neuse Education Team, NC Watershed Education Network and the NC Association of Extension Specialists.

Dr. Hunt an avid Wolfpack sports fan and enjoys traveling, spending time with friends and family, stormwater management. He and his wife, Julia Claire Hunt are the proud parents of 2 boys (Bill and Joseph).

LOCAL CODES AND DRIVERS TRACK

Regulatory Framework to Support Green Infrastructure

Bob Newport, U.S. Environmental Protection Agency (U.S. EPA) - Region 5 - Bob Newport is a Stormwater Specialist who works with States, planning agencies, NGOs, and local units of government on stormwater management and combined sewer overflow control programs. Bob works closely with States on NPDES permits for wet weather discharges. He leads work in the Region related to the use of GI practices and Low Impact Development. Bob has a Bachelor's degree from Roosevelt University in Public Administration, a Bachelor's degree from Northwestern University in Economics, and a Master's degree from the University of Illinois-Chicago in Urban Planning and Policy.

Abstract: This session will discuss the legal framework for stormwater management and green infrastructure implementation, and permit and regulatory approaches for advancing green infrastructure practices. The discussion will include case studies from consent decrees, permits, and ordinances, and approaches which mandate practices as well as approaches which incent green infrastructure implementation.

10:30 BREAKOUT SESSION - Costs and Benefits of Green Infrastructure (GI)

Quantifying Benefits

Ric Lawson, Huron River Watershed Council (HRWC) - Ric Lawson is a Watershed Planner with the HRWC, centered in Ann Arbor. He is primarily responsible for developing and coordinating the implementation of watershed

Speaker Bios and Abstracts - DAY TWO

management plans in various sections of the watershed. He oversees monitoring, data collection and analysis, and collaborative stormwater projects under these plans. As part of this effort, Mr. Lawson also coordinates a volunteer monitoring program to track water quality and flow in tributaries to the river. He also works to develop GI solutions to reduce stormwater impact on the Huron River and tributary streams.

Abstract: The HRWC recently completed a GI planning initiative for Washtenaw County. As part of this process, staff learned about how to value the various benefits of Green Infrastructure projects and programs. This presentation will provide tools and examples of how to quantify Green Infrastructure benefits and utilize the information to leverage project funding.

Economics of Green Infrastructure

Amy Mangus, SEMCOG - Amy Mangus is the leader of Plan Implementation Group with SEMCOG. She received her Master's in Planning from Eastern Michigan University and heads SEMCOG's efforts to work with member communities on implementing best practices. Amy's area of emphasis includes water quality, land use and green infrastructure planning and implementation. Amy has lead numerous green infrastructure projects including developing the Low Impact Development Manual for the State of Michigan. Recently, Amy led the development of the Green Infrastructure Vision for Southeast Michigan and currently assists Detroit Water and Sewer Department on implementing their Green Infrastructure Program. In 2009, Amy was named the Watershed Management Professional of the Year by the Michigan Water Environment Association and in 2014 was named a Green Leaders honorable mention by the Detroit Free Press.

Abstract: SEMCOG recently completed the Green Infrastructure Vision for Southeast Michigan. The Vision benchmarks existing green infrastructure and establishes priorities and policies for long term green infrastructure implementation. Topics include both the quantity and quality of green infrastructure in the region in addition to specific technical details air quality, water quality and integrating green infrastructure into the transportation network. A highlight of the Vision is a chapter dedicated to valuing green infrastructure and describing the economic benefits that communities can realize through various implementation strategies. This session will focus on those economic benefits along with various opportunities communities may consider.

Milwaukee's Transformation from Grey to Green – the Benefits and the Cost

Kevin Shafer, Milwaukee Metropolitan Sewerage District (MMSD) - Kevin Shafer is the Executive Director of the MMSD and is responsible for the overall management, administration, leadership, and direction for MMSD and represents MMSD to its customers, bond rating agencies, and the public. Shafer is a civil engineer who, prior to joining MMSD, worked in private industry with an international engineering firm in Chicago and with the U.S. Army Corps of Engineers. He is a past president of the National Association of Clean Water Agencies and is the Chair of the US Water Alliance's Urban Water Sustainability Leadership Council. He serves on the U.S. EPA's Local Government Advisory Committee.

Abstract: The Milwaukee Metropolitan Sewerage District (MMSD) has been incorporating green infrastructure into the Milwaukee region's grey infrastructure backbone since 2002. Utilizing this experience, MMSD has identified benefits and costs associated with green infrastructure, the results of which will be presented in this session.

10:30 BREAKOUT SESSION - Funding

Green Infrastructure in Capital Improvement Planning

Jennifer Lawson, City of Ann Arbor - Jennifer Lawson is Water Quality Manager for the City of Ann Arbor. She has a Bachelor of Science in Resource Development from MSU and a Master's degree in Landscape Architecture from the University of Michigan. She has 17 years of experience in environmental planning and water resource management. With a career in both private consulting and municipal engineering, she has a unique balance and understanding of water infrastructure regulation and management needs. Her focus for the City is holistic, encompassing capital planning and asset management for the drinking water distribution, stormwater conveyance

and wastewater collection systems, with the ultimate goal of protecting the Huron River in the community through Regulatory Compliance, Innovative Design and Public Engagement.

Abstract: Incorporating Green Infrastructure through the City's capital construction processes and planning has been a successful method of protecting the local community water resources. By ensuring that the City's new Green Streets Policy is supported by both design engineers, local water professionals and the general public, the City elevated the awareness for stormwater management as well as the need to incorporate treatment at the source, rather than large-scale treatment methods.

MDEQ Research on Funding Options

Roger Swets, Dickinson-Wright - Roger Swets is a member with the law firm, Dickinson Wright PLLC, working from the firm's Grand Rapids office. Roger works as bond counsel with municipalities and other public entities, guiding them through the process of issuing tax-exempt bonds to finance the construction of a wide range of public infrastructure projects. Roger has worked in this field for over 23 years and works with cities, villages, townships, counties, drain commissioners, schools and other public entities all across the state of Michigan.

Abstract: In this presentation we will review the types of traditional financing tools that are available to fund public infrastructure projects and discuss innovative ways that these tools can be put to use to finance green infrastructure. We examine the use of financing tools like special assessments and millage levies to fund projects like farmland or green space preservation, storm water management and green building improvements.

Grand Rapids: Working with "Nothing"

Carrie Rivette, City of Grand Rapids - Carrie is a Professional Engineer with a Bachelor of Science in Environmental Engineering from Michigan Technological University. She has 20 years of experience in the environmental and water resources field. After spending most of her time in private consulting, she began working for the City of Grand Rapids in 2011. As Stormwater Manager for the City, she regulates private facilities, as well as tracks the City's compliance with their Municipal Separate Storm Sewer System (MS4) permit with the State of Michigan. In addition, she is a member of the City's Design team and reviews both public and private projects for stormwater compliance and green infrastructure.

Abstract: Funding tends to be the greatest hurdle when it comes to Green Infrastructure. Municipalities without utilities have little funding for the stormwater program to begin with, let alone special projects. However, with the proper support, creativity and community engagement, projects can come together. This presentation will highlight some of the more creative ways that the City of Grand Rapids has funded Green Infrastructure projects.

1:00 BREAKOUT SESSIONS

Overview of State and Local Codes and Ordinances: Needs for the Future

Mark Wyckoff, MSU Land Policy Institute - Mark Wyckoff is a professor at MSU where he serves as Sr. Associate Director of the Land Policy Institute and Director of the Planning & Zoning Center. He is a community planner with 37 years of experience (24 years running a private sector consulting business) and is a Fellow of the American Institute of Certified Planners. He also edits and publishes the Michigan-specific monthly magazine, Planning & Zoning News, now in its 30th year (www.pznews.net).

Abstract: When it comes to resource protection and management of green (and blue) infrastructure we are at an important crossroads. EITHER the federal and/or state government have to do more in rural areas to protect water quality by use of effective management of green infrastructure (especially concerning regulation of soil erosion and sedimentation and other nonpoint sources of pollution); OR counties need enhanced regulatory authority in this arena; OR regional nonprofits need more money for purchase of conservation easements or similar property based purchases; OR we need a combination of the above; OR for a lot of legitimate reasons we have to accept that only checkerboard efforts are possible if we leave it to local governments.

Speaker Bios and Abstracts - DAY TWO

Lower Rouge Gateway Project Panel

Tim O'Brien, Sustainable Water Works! - Tim O'Brien, Policy Principal, Sustainable Water Works will provide insights on the impact of green infrastructure from a business perspective based on the significant stormwater management work done at the Ford Rouge Center including the world's largest living roof, porous parking and bioswales on Miller Road. Insight will be shared on how these green infrastructure strategies came from the idea stage to reality.

Paul Draus, University of Michigan (UM) - Paul Draus, Associate Professor, UM-Dearborn will convey how these and other projects along the Lower Rouge are reliant on community partnerships for their development and success.

Sam Lovall, ALA, Friends of the Detroit River - Sam Lovall is a landscape architect with Professional Engineering Associates, Inc., who has over 25 years of professional experience in design and project management for riverfront, trail system, and habitat enhancement projects involving green infrastructure. Sam contributed to numerous riparian planning projects in southeast Michigan including the development of master plans for the Rouge River Gateway, the Detroit River International Wildlife Refuge Gateway Site, and an Opportunity Assessment for the Lower Detroit River. His most recent work includes assisting the Friends of the Detroit River with GLRI funded habitat restoration projects on the Detroit River. Sam will focus on current planning for a greenspace near the Rouge Center, adjacent to the new Fort Street Bridge now under construction by MDOT, which includes a stormwater management demonstration feature.

2:30 BREAKOUT SESSIONS - Partnerships

Nonprofits and Foundations

Jenn Hill, Superior Watershed Partnerships and Land Trust - Jenn Hill serves as Program Manager for the Superior Watershed Partnership (SWP). She brings experience as a Program Officer at the Ruth Mott Foundation and success in winning and managing multi-year grants from national funders with government and nonprofit partners. She has a master's degree in environmental planning from the Massachusetts Institute of Technology.

Abstract: The Superior Watershed Partnership (SWP) serves communities in the Upper Peninsula of Michigan and implements projects that benefit Lake Superior, Lake Michigan and Lake Huron. Learn how the SWP works with local, state, federal and foundation partners to implement green infrastructure projects, watershed restoration projects and climate adaptation projects despite distinct geographic and economic disadvantages.

Megan Olds, Grand Traverse Regional Land Conservancy - Megan Olds is the Associate Director of the Grand Traverse Regional Land Conservancy. Megan is responsible for the direction and oversight of the Conservancy's operations, programs and services. She also directs fundraising efforts. Prior to joining the Conservancy in 2007, she served as the Regional Planning Director at the Northwest Michigan Council of Governments. She is a past Board member of the Michigan Association of Planning, and was appointed by the Governor to serve on Michigan's Complete Streets Advisory Council. She lives in Traverse City with her husband, Andy, and her two daughters.

Abstract: The presentation will offer information about Acme's Bayside Park. This citizen-driven and collaborative project has an ambitious vision: To acquire a mile-long stretch of developed shoreline along East Grand Traverse Bay in order to create public access to Lake Michigan, protect water quality, and to help support Acme Township's "placemaking" goals for community growth in the US-31 corridor. Three phases of the project, including land acquisition and building demolition, have been completed to date at a cost of around \$8 million. The roles of public and private partners, public and private foundation and individual funding sources, and lessons learned and next steps will be discussed.

Public/Private Partnerships – how to leverage your community and state assets

Luba Sitar, ITC Holdings - Luba Sitar is the Customer Relations and Community Education Manager at ITC Holdings, an electric transmission utility company with wide ranging assets in 7 states. She is responsible for developing,

maintaining, and enhancing relationships/partnerships with the natural resource community and with communities and customers impacted by vegetation management within ITC's utility corridors. Prior to joining ITC Holdings, Luba served as District Manager with Michigan DNR, Parks and Recreation. She has a Bachelor Degree in Biology and has comprehensive experience in development and construction of green infrastructure along with creating public-private partnerships. She is a board member of the Oakland Parks Foundation (OPF) and Michigan Arbor Day Association (MADA) and a current member of the International Society of Arborist (ISA). **Co presenter:** Ryan A. Dividock, Senior Planner-GIS, Economic Development & Community Affairs, Oakland County, Michigan.

Abstract: Stay to the end of the conference and invest 30 more minutes to learn how to successfully leverage partnerships within your community. Build on relationships, whether corporate, small business, community partners, federal and state agencies or all of these, to create successful projects for your community. Learn why and how you should invest time bringing different partners to the table to create dynamic project support that is not possible for the stand alone community/organization.

Partnering with the Community: training volunteers to implement and educate

Susan Bryan, Washtenaw County WRC - Susan Bryan is the Rain Garden Coordinator for the Washtenaw County Water Resources Commissioner's Office, working with plants and people to protect the water quality in the Huron River. She has served as a capital improvement project manager for the City of Ann Arbor, is a past president of Wild Ones native plant educational organization, has a master's degree in landscape architecture from the University of Michigan, and is an Advanced Master Gardener in Washtenaw County.

Abstract: Participants will learn about a successful "Master Rain Gardener" training program that addresses NPDES requirements for pollution reduction, public education, and post construction runoff control. The trained Master Rain Gardeners become champions for rain gardens and a healthy river. And they build rain gardens - more than 56 in the last 3 years. A Master Rain Gardener class can be done with a small budget - as a module. Very cost effective, and appropriate for all kinds of communities - rural or urban.

2:30 BREAKOUT SESSIONS – Case Studies: Polices and Tools

Research on Barriers to Updating Codes

Stephanie Karisny, Great Lakes Environmental Law Center (GLELC) – Prior to joining the GLELC as a Staff Attorney, Stephanie Karisny was in private practice at a law firm in Troy, Michigan. Stephanie is graduate of Eastern Michigan University and Wayne State University Law School where she participated in the Transnational Environmental Law Clinic and the Wayne Law Review. During law school, she also enjoyed a summer legal internship with the Natural Resources Defense Council (NRDC) in the organization's Chicago office. Stephanie is especially passionate about regional water issues and has been published by the Wayne Law Review, Michigan Environmental Law Journal, and Case Western Reserve Law Review, for articles related to hydraulic fracturing in Michigan.

Abstract: Reviewing and updating municipal codes and ordinances to promote green infrastructure, a Detroit case study.

Green Infrastructure Portfolio Standard in Grand Rapids

Katie Rousseau, American Rivers - Katie Rousseau is the Director of Clean Water Supply in the Great Lakes for American Rivers, where she leads efforts to engage communities to improve river health by advocating for better stormwater management through the use of green infrastructure approaches. She has worked with a number of municipalities on green infrastructure implementation projects, broader planning efforts, and code revisions. Prior to joining American Rivers, Katie spent several years teaching earth science in Maryland and working as a GIS technician for Lucas County, Ohio. She is a steering committee member of the Rain Garden Initiative of Toledo – Lucas County and a board member of Black Swamp Conservancy. Katie holds a B.S. in Education from Ohio University and a M.A. in Geography from the University of Toledo.

Speaker Bios and Abstracts - DAY TWO

Abstract: Learn about the Green Infrastructure Portfolio Standard tool developed by American Rivers and Center for Neighborhood Technology and how we worked with City of Grand Rapids to develop green infrastructure goals. Attendees will also hear about a recent code and ordinance review for the City of Grand Rapids and how these recommendations could allow and incentivize more green infrastructure for future development and redevelopment.

Tools, Models, and Calculators

Valorie Novaes, Tetra Tech - Ms. Novaes is a Water Resource Engineer with Tetra Tech. She has 10 years of experience in the hydraulic modeling of sanitary and stormwater collection systems as well as green infrastructure concepts and design. Valerie has been evaluating green infrastructure concepts and designing green infrastructure practices over the past several years for a variety of applications including incorporation into CSO projects, linear right-of-way projects, downtown streetscape enhancement projects, site development and military facility plans.

Abstract: The purpose of this discussion is to raise awareness of the tools and models that are readily available to assess the costs and environmental outcomes associated with green infrastructure practices. The emphasis will be on publicly available software and web sites that are available at no cost. From simple web-based tools like the Green Values[®] Calculator that estimate costs and benefits for lot development, to more robust models that consider complex hydraulics and optimizations routines.

LID PRACTITIONERS TRACK

The Where, How, How Much, and Why of Siting, Sizing, and Placing Green Infrastructure BMPs

Scott Dierks, Cardno JFNew - Scott is the Cardno JFNew Green Infrastructure practice lead. He is a civil engineer, hydrologist and an ecological engineer. He came to Cardno JFNew almost nine years ago to specifically lead an engineering group embedded within an ecological services firm. Scott's intent is to be an interpreter and integrator of scientific and engineering disciplines for green infrastructure and landscape restoration planning and design. The foundation for this approach comes from being part of a consulting firm literally "grounded" in running a native plant nursery and designing, installing and maintaining native plant projects throughout the Midwest. His particular passion for the last several years has been demonstrating that cultivation practices and plant selection can significantly improve water holding and infiltration capacity across sites and BMPs.

Abstract: This presentation will summarize "hard-won" rules of thumb for green infrastructure (GI) BMP siting and sizing. Some of the rules may defy pre-conceived notions, such as, "Be wary of placing GI BMPs in existing landscape low points," while some rules will provide succinct nuggets of planning advice that anyone can quickly and effectively apply; such as drainage area to BMP area ratios for preliminary GI BMP sizing. Participants will be given a set of siting and sizing rules that should always be consulted at the planning and design stages of BMP implementation. The rationale behind each rule's formulation will also be made clear. The ultimate promise of native landscaping, the truly "green" and potentially ubiquitous stormwater infrastructure, will be explained and validated with monitoring data from across the country.

Understanding Soils, Soil Preparation, and Typical Urban Problems

Todd Houser, DiGeronimo Aggregates, LLC - Todd is a Technical Sales Representative for DiGeronimo Aggregates LLC, a national industry leader in the production of Haydite (a lightweight expanded aggregate). With a BS in Natural Resources and a MS in Soil Science/Soil Physics from The Ohio State University, Todd is a Certified Professional Soil Scientist (CPSS) and a Certified Professional in Erosion and Sediment Control (CPESC). He has developed a Water Quality BMP Rationale for Soil Conditions tool for storm water planning that was published (2013) in a Soil Science Society of America journal (Soil Horizons), and has helped facilitate improved storm water planning, based on actual soil conditions, for repurposing the growing distressed and vacant lands in metropolitan areas, such as Cleveland, Detroit, Youngstown, etc. Todd has served for over 17 years in private and public-sector roles related to 1st Order soil survey, soil conservation, storm water planning, as well as research related to mined land reclamation and beneficial use of industrial by-products and organic wastes.

Abstract: Interest in human influences on soils has been focused on essential soil functions including: (i) regulating water, (ii) sustaining plant and animal life, (iii) filtering potential pollutants, (iv) cycling nutrients, and (v) supporting structures. In providing these functions, soil plays a unique role as the brown infrastructure of urban ecosystems, much in the same way that urban vegetation is thought of as green infrastructure. Whereas green infrastructure provides services attributed to vegetation, such as the moderation of energy fluxes by tree canopies, brown infrastructure provides ecosystem services attributed to soil, such as storm water volume reduction and treatment. Given that aesthetic landscaping, productive crops, diverse wildlife, and improved environmental quality are all services in growing demand in many urban areas, rehabilitation of urban soil functions is imperative.

10:30 SESSIONS - Getting It Built

Designing for Multiple Municipal Storm Water Criteria

Dan Christian, Tetra Tech - Dan is a water resource engineer with 24 years of experience. He has a bachelor's and master's degree in civil engineering from MSU. Dan has been working on the design, construction and monitoring of green infrastructure projects for over 10-years. His clients include federal, state, county and local government entities as well as non-profit organizations located throughout the US.

Abstract: Stormwater control measures are needed for not only for water quality and channel protection, but also for conveyance requirements through municipal sewers and swales, as well as for flood control purposes. This session will present a spreadsheet approach to help engineers design stormwater control measures to meet a range of requirements including peak flow, volume, and duration for a range of different discrete design storms. The spreadsheet uses a NRCS curve number approach with curvilinear unit hydrograph and can route water through common control measures including bioretention, pervious pavement, detention, retention, green roofs, and water harvesting. A copy of the spreadsheet will be made available to participants.

Native Vegetation: Selection and Implementation

Shannan Gibb-Randall, Insite Design Studio - Shannan Gibb-Randall is a landscape architect and principal of InSite Design Studio in Ann Arbor. Her undergraduate study in art history and anthropology, and graduate work in landscape architecture at the School of Natural Resources at the University of Michigan (UM) inform her ecologically sensitive and aesthetically thoughtful design style. Her knowledge of native plants and their multiple ecological, stormwater management and artistic functions underlie her signature design work across southeastern Michigan.

Abstract: Why use native plants in Green Infrastructure? Because they do the hard work to absorb stormwater, survive drought, build a diverse soil profile, create habitat and can look great (if you know what you're doing). Learn how to set the stage for successful native plantings: manage client expectations, work with realistic hydrology, understand soils issues, deal with species selection, hear stories of design and construction pitfalls and face management over time. Learn from someone with a long track record of learning from her mistakes and successes.

Maintenance Considerations

James Houle, University of New Hampshire – As Program Manager for the Stormwater Center, James Houle's responsibilities include directing and managing the Stormwater Center's growing body of research projects. Areas of expertise include design and implementation of innovative stormwater control measures including porous pavements and subsurface gravel wetland systems, low impact development (LID) and green infrastructure (GI) planning and implementation, operation and maintenance, and water resource monitoring. Mr. Houle holds an M.A. in Sustainable Development a B.S. in Molecular Biology and is currently enrolled in the Natural Resources & Earth Systems Science Ph.D. Program at UNH. He has over 15 years of experience with water quality related issues in New Hampshire and is a certified professional in storm water quality (CPSWQ).

Abstract: The perception of the maintenance demands of LID systems represents a significant barrier to the acceptance of LID technologies. Despite the increasing use of LID over the past two decades, stormwater managers still have minimal documentation in regards to the frequency, intensity, and costs associated with LID operations and

Speaker Bios and Abstracts - DAY TWO

maintenance. A study examined seven different types of SCMs for the first 2-4 years of operations and studied maintenance demands in the context of personnel hours, costs, and system pollutant removal. The results of this study indicate that generally, LID systems, as compared to conventional systems, have lower marginal maintenance burdens (as measured by cost and personnel hours) and higher water quality treatment capabilities as a function of pollutant removal performance.

1:00 SESSIONS

Lansing Streetscapes

Dan Christian, Tetra Tech - (See biography from 10:30 Session)

Dave Christian, DC Engineering - David, a graduate of Michigan Technological University, is a licensed professional engineer with 29 years of experience. David has 10-years of experience designing green infrastructure projects. His clients include local government entities, private developers, and home owners.

Abstract: Building off of the morning sessions on site plan layout, discussion on soils, hydrologic calculations and maintenance, this session will provide real world examples of green infrastructure practice installations around the greater Lansing area. The session will share construction costs, measured performance results, lessons learned and challenges experienced during design and construction. The look at practices will include public and private installations including pervious pavement, bioretention, bioswales, and water harvesting.

Impact of Maintenance on Infiltration Performance

Dr. Bill Hunt, North Carolina State University (See Day 2 Keynote Speaker Biography on page 5 of this document)

2:30 BREAKOUT SESSIONS – Research News

Assessment Protocol for Urban Core Soils

Bill Shuster, U.S. EPA, Cincinnati Lab - Dr. Shuster is a research hydrologist with the US Environmental Protection Agency, Office of Research and Development (Cincinnati OH), has a BS Physics (U. Michigan Ann Arbor) and Ph.D. in Environmental Science (The Ohio State University), and works at the interface of soil science and hydrology to address long-standing issues with ageing sewer infrastructure and urban land management practices.

Abstract: A hybrid approach with green and grey infrastructures playing to their respective strengths may allow for downsizing or elimination of some ageing grey infrastructure CSO controls. Since CSO activity is greater in urban core areas, opportunities to leverage vacant land mass and other transitional land uses is maximized. However, little is known about urban soils, much less how they store and transmit water. We developed a protocol to characterize soil taxonomic and hydraulic properties, and deployed for field studies. The overall objectives of this study were to: (1) use standard soil taxonomic and hydrologic assessment methods to describe urban soils in each of the major soil orders (an ongoing effort), (2) make measurements to quantify the hydraulic conductivities of surface and subsoils, and (3) interpret the data with regard to the selection and design of appropriate green infrastructure techniques for stormwater volume management with an emphasis on correcting combined sewer system overflow conditions. We plan on discussing the relevance of site-specific soils data to good planning practice for GI.

The Hydrologic Performance of Vegetated Roofs

Donald Carpenter, PhD, PE, LEED AP, Lawrence Tech University - Dr. Carpenter is Professor of Civil Engineering at Lawrence Tech where he teaches courses on ethics/professionalism and water resources. He is an accredited green design professional and practicing professional engineer whose expertise and research interests include engineering ethics, entrepreneurial engineering, LID, innovative stormwater BMPs, hydraulic and hydrologic modeling, and field data collection for performance monitoring. He served as University Director of Assessment from 2009 to 2012, and as founding Director of the Center for Teaching and Learning from 2006 to 2009. As founding Director of the Great Lakes Stormwater Management Institute at Lawrence Tech, he conducts research on stormwater BMPs and advises communities on how to implement innovative stormwater management practices. In 2013, he was elected to serve as

a Governor for Cranbrook Institute of Science and a Director for the non-profit organization Pure Oakland Water. Dr. Carpenter is an active committee leader for the ASCE Environmental and Water Resources Institute and a member of the SEMCOG Clean Water Partners, DEQ Green Infrastructure Committee, and Rouge River Advisory Council.

Nathan Griswold, ASLA, GRP, President, Inhabitect, LLC - Having worked in the green roof industry for nearly 10 years, Nathan has had a role in the design, development, and construction of close to 1,000 green roofs. He has a Bachelor's Degree in Landscape Architecture from MSU and Associates Degrees in plant science and landscape and nursery development. Specializing in green roof-based stormwater management, Nathan is very active within the industry's non-profit trade association, Green Roofs for Healthy Cities (GRHC), where he was recently contracted to be their first Green Roof Policy Educator. He is the co-chair of the Advanced Green Roof Maintenance committee, an active member of the Green Roof Growing Media Committee, and an approved GRHC continuing education provider. A longtime member of the American Society of Landscape Architects (ASLA), Nathan was one of the nation's first individuals to achieve his Green Roof Professional accreditation, and is an active member within the ASTM green roof committee, developing international bases standards and testing protocol for the industry.

Abstract: Roof surfaces represent a significant portion of the impervious area associated with urban landscapes and runoff from these surfaces causes watershed degradation. This session will discuss the hydrologic performance of vegetated roofs and their benefit as a stormwater best management practice (BMP). Specifically, the presenters will discuss performance data and the overall lack of published run-off coefficients (C) and curve numbers (CN) which are commonly required for design computations and regulatory approval. Finally, methods for computing or approximating design coefficients will be suggested.

Cold Climate Performance and Nutrient Removal

James Houle, University of New Hampshire (UNH) - As the Program Manager for the Stormwater Center, Mr. Houle's responsibilities include directing and managing the Center's growing body of research projects. Areas of expertise include the design and implementation of innovative stormwater control measures including porous pavements and subsurface gravel wetland systems, LID, and green infrastructure planning and implementation, operation and maintenance, and water resource monitoring. Mr. Houle holds an M.A. in Sustainable Development a B.S. in Molecular Biology and is currently enrolled in the Natural Resources & Earth Systems Science Ph.D. Program at UNH. He has over 15 years of experience with water quality related issues in New Hampshire and is a certified professional in storm water quality (C.P.S.W.Q.).

Abstract: The UNH Stormwater Center has been evaluating stormwater control measures (SCMs) for over 10 years. Evaluated SCMs include conventional structural systems (swales, retention ponds), LID designs (gravel wetland, bioretention, sand filter, tree filter, porous asphalt), and manufactured systems (filtration, sub-surface infiltration, and hydrodynamic separators). This presentation will review 10 years of testing data for a range of SCMs, cold climate functionality, and optimization strategies that can provide insight into nutrient removal capabilities particularly in watersheds where nutrients are the primary water quality threat.

2:30 BREAKOUT SESSIONS – Michigan LID Case Studies

Green Infrastructure along Transportation Corridors

Kelly Karll, Southeast Michigan Council of Governments (SEMCOG) - A professional engineer with SEMCOG, Kelly has over 20 years of stormwater management experience, including watershed planning and stormwater design & construction. Her work at SEMCOG primarily focuses on green infrastructure planning and implementation, including working to integrate stormwater into the transportation planning processes.

Jim Keglovitz, Oakland County - Jim is a Principle Planner with Oakland County Economic Development & Community Affairs. He has a B.S. in Community Development from Central Michigan University and is a LEED Green Associate. Jim

Speaker Bios and Abstracts - DAY TWO

has worked for the past 16 years on environmental related projects which fall under Oakland County's Environment Stewardship Program area.

Abstract: This session will discuss Southeast Michigan's Green Infrastructure Vision and the role of transportation. Highlights will also include recently completed green streets projects with a focus on the transformation of Oakland County's campus to manage roadway runoff in addition to campus areas.

Maintaining Large Structures, Long Term

Heidi McKenzie, P.E., Ford Motor Co. - Heidi works at Ford's Environmental Quality Office in the Global Environmental Policy group as the Company's subject matter expert for Ford's global manufacturing Environmental Operating System, storage tanks, and water policy development. Currently, Heidi leads Ford's global manufacturing water team, implementing the strategy she was responsible for developing in 2011. Heidi was also responsible for the successful global implementation of Ford's Environmental Operating System, considered by third party registrars as a best practice. Previously, Heidi worked at both the Ford Rouge Center and Ford's Vehicle Operations Division. Where she was the Sustainable Storm Water Champion leading implementation of the storm water best practices at the Ford Rouge Center, which included the world's largest green roof in 2003 (Guinness Book of World Records).

Heidi earned her Bachelor's and Master's degree in Environmental Engineering from Michigan Technological University and obtained her Professional Engineers License in 2004. Heidi has worked at Ford since 1997 and is active in Ford's Professional Women's Network.

Donald K. Russell - A 1971 chemical engineering graduate of the University of Michigan, Don retired from the Environmental Quality Office of Ford Motor Company in 2006 after 33 years. His primary work involved managing a Technical Services Group, which is responsible for testing and evaluating air emissions and water discharges from manufacturing facilities globally. Don was Project Manager for the Ford Dearborn Truck Plant green roof from 2001 – 2003, which recently celebrated its 10th Anniversary and is a benchmark for green roof installations throughout North America. After retiring from Ford, Don worked for Xero Flor America – the green roof supplier for the Dearborn Truck Plant. He is currently an advisor for the landscaping company handling the Ford Rouge Center ground (and green roof) maintenance operations at the complex.

Abstract: This presentation will cover the decision-making process leading to the inclusion of a green roof in the building design. It will include the additional building structural needs and unique drainage requirements to accommodate it. Roof maintenance issues will be discussed and the overall success of the roof will be evaluated.

Sutton's Bay E. coli Reduction

Sarah U'ren, The Watershed Center (TWC) - Sarah U'Ren is Program Director for The Watershed Center Grand Traverse Bay, where she has served since 2002. She authored the Grand Traverse Bay Watershed Protection Plan and administers its many grant-related programs. Sarah also directs the Watershed Center's beach monitoring program and specializes in beach and stormwater runoff management. She has also assisted in writing watershed management plans for the Pere Marquette, Glen Lake-Crystal River, Lake Leelanau, and Muskegon River Watersheds. Sarah holds a B.S. in Science from Alma College and a Masters in Environmental Science from the University of Maryland.

Abstract: TWC's mission is advocating for clean water in Grand Traverse Bay and protecting and preserving the Bay's watershed. In 2011 TWC was awarded an EPA-GLRI grant of almost \$1 million to protect public health and reduce bacterial contamination from stormwater runoff at two beaches in the Village of Suttons Bay. Utilizing techniques such as rain gardens and infiltration trenches, this project showcases how green infrastructure and low impact development were used throughout the Village to infiltrate a large percentage runoff before reaching the Bay to reduce bacteria input in beach water. The bulk of work was completed in the Village last Fall, and touch-up work will be completed by June 2014. This presentation will discuss stormwater impacts to public health at beaches, LID techniques utilized in the Suttons Bay project, and initial thoughts on maintenance of utilized BMPs.