Collaborative Learning Group Meeting
January 26, 2012, 9:00 am-1:00 pm
Fairview Park Library, 21255 Lorain Road, Fairview Park, OH 44126

Meeting Agenda

Meeting Objectives:

- Project participant introductions
- Review overall project
- Identify essential Best Management Practice (BMP) types to monitor and model
- Develop criteria for site selection and discuss potential monitoring sites

Agenda

Coffee and light refreshments provided.

9:00 Welcome, Introductions and Meeting Overview
Amy Brennan, Heather Elmer, and Ona Ferguson

9:30 Introduction to Project: Collaboration, Monitoring, Modeling and Tool Development
Amy Brennan and Jay Dorsey

10:15 Best Management Practice (BMP) Overview and Discussion
Jay Dorsey and Ona Ferguson
- Presentation of the universe of BMPs for consideration
- Discussion of essential BMP types to monitor and model in this project

11:00 Break (and group photo)

11:15 Criteria for Site Selection and Potential Monitoring Sites
Heather Elmer and Ona Ferguson
- Discussion of criteria for selecting BMP monitoring sites
- Presentation and discussion regarding potential monitoring sites

12:15 Working Lunch *(food provided)* **- Collaborative Learning Group (CLG) Business**
Heather Elmer and Ona Ferguson
- Membership & operations
- Meeting frequency and location
- Upcoming collaborative research training

12:50 Next Steps

1:00 Adjourn

Thanks to the Friends of Old Woman Creek for providing coffee and lunch for this meeting.

Developing Credits and Incentives for Innovative Stormwater Management

Collaborative Learning Group Meeting
January 26, 2012, 9:00 am-1:00 pm
Fairview Park Library, Fairview Park, OH 44126

Group Members Present: Ken Fortney (Erie County), Jack Farschman (Erie County), Jay Dorsey (ODNR), Justin Czekaj (City of Aurora), Leonardo Sferra (GPD Group), Eric Dodrill (Perkins Township), Clyde Hadden (CT Consultants), Rachel Webb (NEORSD), Betsy Yingling (NEORSD), Dan Bogoevski (NE OEPA Office), Alex Etchill (John Hancock & Associates), John Hancock (John Hancock & Associates), Keely Davidson-Bennett (CRWP)

Project Team Members Present: Amy Brennan (CRWP), Jay Dorsey (ODNR), Crystal Dymond (Erie SWCD), Heather Elmer (Old Woman Creek NERR / ODNR), Ona Ferguson (Consensus Building Institute - CBI), Breann Hohman (Erie SWCD/OWCNERR)

Welcome, Introductions and Meeting Overview
Amy Brennan with Chagrin River Watershed Partners (CRWP) welcomed everyone (all invited were in attendance) and introduced Heather Elmer with Old Woman Creek National Estuarine Research Reserve (OWCNERR) and Ona Ferguson of the Consensus Building Institute (CBI). Ona reviewed the agenda and participants introduced themselves. All presentations and handouts from this meeting can be found at:
ftp://ftp.dnr.state.oh.us/Soil_&_Water_Conservation/public/NERR_SC

Participants shared their hopes for the project. Common themes include a desire that the project identifies stormwater practices that reduce runoff and improve water quality under local conditions and that it reduces barriers to implementing such practices by appropriately crediting infiltration. Some said this project is needed because more effective stormwater management will reduce costs for communities and because it can help protect Lake Erie and coastal wetlands. Many said that they are interested in sharing information and learning from each other. Across the board, the group was interested in improving stormwater management in the region. A few specifically mentioned Low Impact Development as a potential solution.

Project Overview
Amy presented general project background and history. Key points from her presentation:

History –CRWP, OWCNERR, and ODNR have conducted research and training related to the performance of stormwater practices, and national research has demonstrated that Low Impact Development (LID) and other innovative BMPs can reduce runoff volume. Impervious area disconnection and bioretention show promise for residential areas. Pervious pavement and bioretention show the most promise for commercial sites. Yet, there is a lack of widespread implementation of these practices in Northern Ohio, and communities and design engineers cite a variety of barriers including cost, technical knowledge, comfort level, and regulations.

Funder - The National Estuarine Research Reserve System (NERRS) Science Collaborative is funding this three-year project. The Science Collaborative is a partnership between NOAA and the University of New Hampshire. Projects sponsored by this program bring intended users of science into the research process so that their perspectives can inform problem definition, research implementation, and application of results to manage coastal environments, protect human health and property, and support coastal economies.

Roles and Responsibilities – Amy Brennan with CRWP is leading the project. Heather Elmer of OWCNERR is managing the involvement of stormwater professionals with assistance from Ona Ferguson of CBI. Jay Dorsey of ODNR will manage the applied science component.

Goals - This project aims to provide local validation of regional and national research by demonstrating how stormwater systems function under northern Ohio's soil and climate characteristics through a combination of design, monitoring and modeling. The project team and stakeholders will identify a minimum of two systems for design assistance and monitoring. Through monitoring and modeling the hydrology of stormwater practices and better understanding site characteristics, the project will address questions about the runoff reduction performance of stormwater systems in the Lake Erie watershed. The team will also collect information about design, costs, and maintenance to lay the groundwork for life cycle analysis. Researchers will combine monitoring data with modeling to assess the performance of systems under current climate conditions and future precipitation scenarios.   Results will be translated into user-friendly implementation tools that stormwater professionals can use to calculate the water quality treatment and flood control benefits of systems.

Structure **-** Major project components include monitoring, modeling, and the development of implementation tools. The **monitoring** component will quantify how BMPs are working, populate models with local data, provide design assistance to characterize BMPs from the ground up, and work with local partners to monitor systems. The CLG will provide input on priority BMP types for monitoring, and establish criteria for selection of sites. The **modeling** component will assess the runoff reduction performance of BMPs under current and projected future precipitation patterns. The CLG will provide feedback on the modeling approach and development of Ohio-specific **implementation tools***,* including guidance on site characterization, BMP design, and evaluating performance, construction, cost, operation, & maintenance of systems.

Collaborative Research and Training - This project is taking a collaborative approach, which means that stormwater professionals are involved throughout the research process. The collaborative learning group (CLG) will provide input on all aspects of the project, helping to shape the research itself and implementation tools developed. Training will be provided to enhance project team and CLG capacity to integrate science and decision-making for improved stormwater management. All collaborative learning group and project team members are requested to participate in a half-day training module about collaborative learning to be followed by a 1.5 day skill building training for the project team and any interested CLG members.

Timeline **–** In **Year 1** the team will conduct a stakeholder assessment, form a collaborative learning group (CLG) of stormwater professionals, select and begin monitoring at least two projects, develop modeling scenarios, and review model codes. **Year 2** will include model validation and testing, monitoring of six projects, and ongoing CLG meetings to provide feedback on research and initial input on approach for development tools. In **Year 3**, model regulations, design guidance, and training will be developed and tested with the CLG and others. Throughout the project, surveys and other evaluation methods will be used to track lessons learned and make course corrections.

Stormwater Assessment Overview - CBI completed eighteen interviews with regional stormwater professionals to gather perspectives regarding stormwater management challenges and research needs to inform this project as it gets underway. Ona presented preliminary findings and noted that final results will be drafted into memo. Initial key findings:

- Interviewees have varied comfort level with different data sources. There was the most comfort with state level agencies, universities, and CRWP. Some indicated distrust of federal agencies or researchers with agendas.

- People said project data should be collected close to home, but indicated interest in lessons drawn from any similar soils and climate.
- People asked that the project quantify LID benefits, asked for a standard approach to stormwater across Ohio, for flexibility in trying new approaches, for real life examples, and for audience-specific trainings about results.
- Interviewees described current things working well on stormwater, including: Some new technologies are adopted in some areas, some areas are more advanced, especially urban areas, there are some good trainings available, some communities have early adopters and innovation, there is increasing collaborating in the last 3 years, and there is more conservation and compact development
- What could be working better? Interviewees suggested having more information on cost and effectiveness, getting credit for infiltration, building trust for new solutions, establishing standard regulations statewide, helping reframe stormwater management as a value for homes and communities rather than as a burden, raising appreciation, revising local codes to support innovative approaches, coordinating more among stormwater professionals, and educating homeowners so they know why they should care, what questions to ask.

CLG Comments
Some noted that the project needs to address water quality in order to inform state regulations. Amy responded that measuring peak discharge control will address water quality to some extent as pollutant loads are correlated to runoff volume. She noted that while resource limitations will preclude monitoring a full spectrum of water quality parameters, once monitoring sites are established, the team will continue exploring funding and staff options for conducting water quality monitoring.

CLG members indicated that they are looking forward to staying engaged with the project between quarterly meetings.

CRWP will continue stormwater-related work beyond the grant and it is likely that several other partners (ODNR, OEPA, OWC NERR) will also continue. Old Woman Creek NERR will house, use, and lend equipment.

It was noted that project results will be out of sync with the Ohio EPA stormwater permit cycle. The next permit will be issued in 2013 and the deadline for public comment will be in 2012. Interim project results might be able to help inform this permit cycle. Watershed specific permits might also be good targets for early implementation of project results.

Best Management Practice (BMP) Overview and Discussion
Jay gave a presentation providing an overview of stormwater management trends toward volume reduction and opportunities to address this through infiltration and temporary storage. He noted that many states already have volume reduction standards and that Ohio EPA is moving in that direction with watershed specific permits requiring infiltration. He presented and discussed considerations for BMP types that could be monitored. Participants then discussed which BMPs rise to the top for monitoring and modeling and why. Their discussion highlights are:

Grassed/vegetated filter strips
- **Six** members would like to see monitored
- More data needed. Perceived as versatile and highly implementable
- Valuable for roadside drainage
- Concerns regarding monitoring feasibility

Water quality swales
- **Six** members would like to see monitored
- Concerns regarding feasibility of monitoring

Bioretention
- **Five** members would like to see monitored
- One person asked how much volume control data is available on this BMP, noting they were aware of water quality performance data but not of quantity monitoring.
- Acceptance of bioretention is increasing, measuring performance could enhance this
- Good for small urbanized sites and roadside drainage

Soil quality renovation/preservation
- **Four** members would like to see monitored
- Not a lot research on volume control benefits of soil quality preservation/renovation
- Concerns regarding monitoring feasibility
- Value of applying this BMP in roadside situations
- Developer education needed to implement this BMP

Dry detention/retention basins
- **Three** members would like to see monitored (some mentioned specifically underground detention)
- Could monitor dry detention basin not designed for water quality, possibly pre/post basin retrofit to show how a typical dry detention pond performs compared to extended detention
- Underground retention is big factor for small urbanized site

Pervious pavement
- **Three** members would like to see monitored
- More innovative approaches becoming more important
- Show economic benefits

Rainwater harvesting
- **Two** members would like to see monitored
- Starting to see implementation
- Need to show economics
- There is public demand for info on gray water, requires involvement of building officials. Interest could grow as water and sewer rates increase

Underground detention/retention
- At least **two** group members expressed interest in looking at open bottom underground retention
- Explore cost benefit of this and other practices

No CLG Members noted interest in monitoring the following BMPs
- Wet detention basins including wet basins & wetlands
- Subsurface gravel wetland
- Impervious area disconnection
- Infiltration trenches and basins
- Green roof

Discussion and Additional Group Suggestions (beyond BMP options presented)
Sand filters
- There are several in project area. Most not designed to infiltrate but possible
- Some noted that the practice has a high maintenance burden, others felt that maintenance requirements are not significantly greater than other BMPs

Treatment trains
- Suggest trying to look at cumulative benefits of treatment trains or practices utilized in series
- Project team indicated budget limitations would make this difficult

Criteria for Selecting Sites
Heather presented monitoring requirements for any monitoring sites: appropriate construction timing, priority to targeted watersheds, 'monitorability.' She then proposed some additional criteria for the group to consider such as BMP size and scale, design objectives, availability of construction and maintenance costs, maintenance plans, and drainage area size.   CLG members then suggested additional criteria for selection of monitoring sites:

- Geotechnical data
- Watershed land use (have multiple represented – e.g. commercial, residential)
- Availability of stormwater analyses and design rationale
- Link drainage area size to regulatory thresholds e.g. sites > 1 or 5 acres
- Target a range of design storms to address both state and local permitting needs
- Location within watershed
- Site characterization
- Soil type – focus on C&D soils
- Age of BMP e.g. plants well established, pavement maintenance
- Knowledge of construction sequence
- Past runoff data

Group discussion regarding BMP types included: One group member noted that the project scope (six sites) will not allow for inclusion of all watershed land uses. There was interest in monitoring retrofits of practices originally designed for quantity control. Several observed that the two most difficult BMPs to monitor (grass filter strips and water quality swales) are of highest priority to the group. Some were interested in monitoring systems within treatment trains but Jay cautioned that this could make it difficult to measure the runoff reduction value of each practice.

Potential Monitoring Sites
Amy presented potential monitoring sites that the project team is aware of and from which the first two monitoring sites will likely be chosen. She noted that more information will likely be needed in order to determine whether they meet the criteria the project team sets. Amy presented the following sites to the group, selecting from those types of BMPs that the CLG decided were high priority:
- Mayfield Heights SWIF Grant- porous concrete, bioretention
- Eastlake SWIF Grant- bioretention
- Moreland Hills - bioretention
- Wiley Park 319 Mayfield Village- bioretention, pervious pavers
- City Centre Avon – bioretention, sand filter, wet extended detention basin
- Sheetz gas station- bioretention, underground detention

- Seven Hills City Hall- bioretention, pervious pavers
- Tremont - bioretention
- Cleveland Metroparks West Creek Center- bioretention, wetland, pervious pavers, grass filter strips
- Perkins Township Administration Building – pervious concrete, bioretention, grassed filter strips
- Vermilion Ritter Library – green roof, bioretention, rainwater harvesting

Participants then discussed these potential sites, with comments including:
- Public sites are good for monitoring accessibility.
- Pervious pavement (concrete & asphalt) is important to include.
- Several in the group liked projects with multiple practices (e.g. Vermilion, Perkins, West Creek). Benefits of monitoring sites with multiple practices include having one climate station and rotating flow monitoring equipment
- Very few LID systems are installed in Erie County, there is a need for a few demonstration projects.
- OEPA Surface Water Improvement Fund (SWIF) has potential projects that could be monitored.
- There's interest in monitoring older pervious pavement installations to assess performance over time.
- Water quality swale recently completed in Shaker Heights. Contact - Tori Mills, Nature Center at Shaker Lakes
- UCI hotel with pervious pavement on sand. NEORSD to conduct flow monitoring. Contact: Rachel Webb
- OWCNERR Visitor Center is another potential site. May replace grasspave with pervious asphalt and/or concrete. Weather station already installed. Opportunity for long-term monitoring, high demonstration and education value.
- The pervious concrete installation at Summit County Metroparks is another possible project.

Collaborative Learning Group (CLG) Business
Ona and Heather shared their hopes for the CLG, which will be meeting quarterly for the next three years. They hope that the benefits of participation will include professional development & CEUs, design assistance and monitoring of your sites (possible), site visits, relationship development, learning from colleagues, limited compensation available. The expectations of CLG members are that they participate in quarterly half day meetings, be responsive to project team requests, attend a 0.5 or 2 day collaboration training, read and review project materials, including modeling assumptions and draft tools.

General Business
- Please notify the project team of missing perspectives or suggestions for new additions to the group.
- Please respond to scheduling poll for 2012 meetings.
- Food at 2012 meetings will be provided by Friends of Old Woman Creek.
- Meeting locations will rotate throughout project service area.
- Please contact the project team regarding any potential SWIF proposal opportunities.
- Additional information will be distributed regarding system design, monitoring, and modeling.
- Project team will distill criteria from discussion and craft an RFP for design assistance.

Project team and CLG members shared their final thoughts. Several noted that they appreciate the opportunity to work together, learn, and provide input. Others talked about how they see the project as valuable because it could help improve Lake Erie water quality and create demonstration sites for effective stormwater management in Erie County (there are none currently). A few re-iterated that they would like to see pervious pavements included, others said they were excited to see results to test preconceptions about how systems work, and some were already thinking about how to sustain this collaboration beyond the three year grant timeframe.