

Pursuant to the Green Infrastructure Stakeholder Meeting held January 12, 2010, at Illinois EPA headquarters in Springfield, comments were received from the following stakeholders regarding the Green Infrastructure for Clean Water Act planning project:

Via U.S. Mail:

Scott Stitt, P.E.  
Acting Engineer of Design & Environment  
Illinois Department of Transportation

Lenore Beyer-Clow  
Policy Director  
Openlands

William Ward  
Executive Vice President  
Home Builders Association of Illinois

Dana E. Ludwig, P.E.  
Project Engineer  
Robinson Engineering, Ltd.

Via Email:

Michael D. Warner, P.E.  
Executive Director  
Lake County Stormwater Management Commission

Michael E. Novotney, P.E.  
Watershed Management Specialist

Christopher G. Bergmann, P.E.  
Project Engineer  
Thouvenot, Wade & Moerchen, Inc.

Melissa Easton  
Tri-County Regional Planning Commission

John J. Wills, P.E.  
President  
Wills Burke Kelsey Associates, Ltd.

Mark Phipps  
Department of Planning & Development  
McHenry County

Illinois Department of Natural Resources



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

February 22, 2010

Illinois Environmental Protection Agency  
Bureau of Water  
Attn: Amy Walkenbach  
P.O. Box 19276  
Springfield, Illinois 62794-9276

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FEB 24 2010

Watershed Management Section  
BUREAU OF WATER

Dear Ms. Walkenbach:

In response to the comment period for the information sharing meeting held on January 12, 2010, the Illinois Department of Transportation (IDOT) offers the following concerns as currently presented.

Pursuant to Public Act 096-0026, IDOT is to assist the Illinois Environmental Protection Agency (IEPA) by providing institutional knowledge and scientific research for the mandated report to be presented to the General Assembly and Governor's office by June of this year. Thus far, IDOT's involvement has been minimal, merely being attendees at the Green Infrastructure Initiative meeting on January 12, 2010. As one of the largest landholders in the state and as a named agency in Public Act 096-0026, IDOT has a keen interest in participating in the drafting of the report and its subsequent impact on state environmental policy.

One concern raised at the meeting is that no metropolitan areas outside of Chicago are represented in this study. As a Municipal Separate Storm Sewer System (MS4) permit holder, IDOT has land that is both urban and rural, and all properties and improvements thereto are presumably subject to management as stipulated in the Illinois Urban Manual (IUM). Therefore, the practices suitable for highly urbanized areas will not be appropriate for all areas of the state and many IDOT facilities.

IDOT would appreciate the opportunity to work with the IEPA in a meaningful way to identify those green infrastructure practices that are appropriate for highway infrastructure. As an imprecise concept, "Green Infrastructure" is still evolving with many practices applicable to buildings, whether new construction or renovations, but poorly studied in highway applications.

IDOT has decades of experience managing water for the purpose of preserving the safety of the motoring public and integrity of the pavement structure. One type of green infrastructure that is commonly proposed is porous pavement. While porous pavement may be suitable for low-capacity roads, it is ill suited for the loadings mandated for design of most IDOT maintained roadways for many reasons.

- The withholding of water within the footprint of subgrades until such time as that water can migrate vertically into the groundwater leads to pavement failures which the department has worked for decades to mitigate.
- The principal mitigation strategy is to remove the water from the subgrade as quickly as practical. Porous pavement is counterproductive in this regard.
- Porous pavements are impractical to retrofit over existing construction, as possibly required by the proposed recommendations; porous pavements cannot be constructed over traditional pavement as the porous pavement would require a type a different sub-base construction to manage the water differently.

IDOT has also incorporated other green initiatives relating to the protection of our water, land and air resources in the construction of our facilities, as conditions warrant, including:

- rain barrels leading to water re-use at rest areas;
- rain gardens are being evaluated and have been considered and implemented where appropriate;
- tree and prairie plantings, which improve permeability of the soil, stabilize the soils and remove pollutants from the surface runoff and air;
- extensive recycling of pavement and re-use of other materials to reduce their incorporation into the landfills;
- a "Context Sensitive Solutions" approach for new or renewed improvements to consider how Green Practices could be implemented in a cost efficient and safe manner targeted to the needs of the locality;
- considering and targeting solutions to specific environments, rather than a one-size-fits-all approach developed by and for the largest metropolitan area in the state;
- IDOT also partnered with the American Council of Engineering Companies and the Illinois Transportation and Road Builders Association to develop sustainable practices for highway development (I-LAST).

The above practices are designed to make highway development "greener." Although not currently mandated, IDOT would add these and other strategies to the study to pursue more environmentally friendly goals when feasible, given the scope and budget of the project.

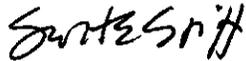
Ms. Amy Walkenbach  
Illinois Environmental Protection Agency  
Page 3  
February 22, 2010

Based on the subject matter of the presentation that IDOT attended at IEPA at the January 12, 2010 meeting, the proposed green infrastructure initiative seems highly targeted at large urbanized areas. If changes are made to the IUM to implement the strategies presented, it affects all MS4s throughout the entire state, not just the largest metropolitan area and sole contributor to IEPA's study. If a targeted approach is desired, the study should suggest development of a document separate from the IUM targeting large metropolitan areas (i.e. population over 1,000,000 people). IDOT, as an owner of facilities in both rural and urban areas, would encourage consideration of our expertise as the IEPA and stakeholders study and report how to install green practices to conserve energy and filter storm water.

As required by the Act, IDOT looks forward to having meaningful involvement in this study as you begin finalizing the report to the General Assembly and Governor.

Thank you for the opportunity to comment on this matter.

Sincerely,



Scott E. Stitt, P.E.  
Acting Engineer of Design & Environment

cc: Marcia Willhite - IEPA  
Thomas E. Ripka, P.E. - IDOT



# openlands

conserving nature for life

Suite 1650 | 25 East Washington Street | Chicago, IL 60602-1708 | Tel: 312-863-6250 | Fax: 312-863-6251 | [www.openlands.org](http://www.openlands.org)

February 22, 2010

Ms. Amy Walkenbach  
Illinois Environmental Protection Agency  
Office of Policy and Outreach  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276

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FEB 24 2010

Watershed Management Section  
BUREAU OF WATER

Dear Ms. Walkenbach:

Thank you for holding the Green Infrastructure Stakeholder Meeting in Springfield and for extending the opportunity to offer comments in response to the preliminary findings of the study that were presented at the meeting. Openlands is very interested in and supportive of Illinois EPA's and its contracting partners' coordinated efforts underway to assess the effectiveness of green infrastructure best management practices to manage stormwater in Illinois and appreciates the opportunity to join this partnership of stakeholders. Founded in 1963, Openlands protects the natural and open spaces of northeastern Illinois and the surrounding region to ensure cleaner air and water, protect natural habitats and wildlife, and help balance and enrich our lives.

As a longtime advocate for sustainable water resource management, Openlands is concerned about improving stormwater control systems and standards in order to prevent degradation of the quality and quantity of Illinois' water resources. Since water quality and volume are interrelated, Openlands is pleased that the scope of the scientific study includes both, as key variables in its evaluation of stormwater best management practices. As we recommend in, *Before the Wells Run Dry: Ensuring Sustainable Water Supplies in Illinois*, a 2009 report that we co-authored with the Metropolitan Planning Council, coordinated efforts to develop and deploy integrated water resource management practices are essential to ensure a sustainable water supply in Illinois. Our state's ability to accommodate future population growth, enable economic development and protect biodiversity depends upon it. Therefore, Openlands would like to assist in exploring different methods to incentivize the use of green infrastructure practices in the Plan, particularly those that promote water conservation at the statewide level.

For the purpose of this letter, we will highlight aspects of the Green Infrastructure Study that we are particularly supportive of as well as offer recommendations that build off of the preliminary findings of the study. We are glad to see that the study has a comprehensive scope that includes a scientific literature review, performance standards and cost-benefit analysis, model stormwater ordinance evaluation, and a training and dissemination plan for green infrastructure best management practices.

We commend the Illinois EPA for partnering with the University of Illinois – Chicago to undertake a hard scientific review and analysis of the effectiveness of green infrastructure best management practices. Efforts by UIC to evaluate the nature and extent of urban stormwater impacts on water quality and volume level in Illinois' watersheds and their work on developing solutions that incorporate green infrastructure practices will provide valuable insight. UIC's preliminary findings show the effectiveness of green infrastructure practices for volume reduction as well as total nitrogen and total suspended solids reduction. Further, UIC's comparison of several different kinds of green infrastructure, including infiltration, permeable pavement, and constructed wetlands, to show their respective reduction and removal efficiencies, provides helpful data because it gives local authorities evidence that can induce better acceptance of green infrastructure stormwater solutions. Moreover, the report's demonstration of how best management practices can help improve water quality, reduce and delay volume conveyance, and enhance groundwater recharge substantiates how such methods can and should be used to conserve our finite water resources.

In light of the UIC's scientific discovery, Openlands encourages the Illinois EPA to incentivize green infrastructure best management practices at the state level to achieve the high performance standards necessary for adequate stormwater management. We hope that the Illinois EPA will establish new criteria, which prioritize the use of green infrastructure in projects involving stormwater management. In addition, we request that the research define an appropriate volume control credit, reducing the size of detention basins by the volume of stormwater retained through green infrastructure practices, such as porous pavement, bioswales and green roofs. We encourage the Illinois EPA and the UIC to share the scientific evidence in their study, particularly the quantified benefits of BMPs, with counties that are revising their stormwater ordinances, so that they can rely upon this valuable information to incorporate BMPs into their standards.

Like the UIC, it is evident that the Chicago Metropolitan Agency for Planning (CMAP) has contributed valuable work to this collaborative project in their review of the prevalence of green infrastructure in Illinois. We were glad to learn from Megan Elberts' presentation at the Green Infrastructure Stakeholder's Meeting that CMAP is undertaking a review of stormwater plans and ordinances in certain North Eastern Illinois counties that incorporate and prioritize the use of stormwater best management practices. We recommend that in addition to speaking with the counties directly, that CMAP consult with other stakeholders that help develop these provisions about their implementation and effectiveness to help inform their evaluation. Ultimately, we hope that CMAP integrates the finalized green infrastructure recommendations into their model stormwater ordinances and implements this updated approach in related programs such as continued water supply planning efforts and the Facilities Plan Amendment process.

In addition to the UIC and CMAP, we commend the Center for Neighborhood Technology (CNT) for contributing important research to this study, most notably, their analysis of urban stormwater management performance standards and costs and benefits of green versus grey infrastructure. Their research demonstrates how stormwater best management practices can not only complement grey infrastructure, but also offer superior capacity over these systems, meeting high performance standards as a stormwater management approach. It is also encouraging that their cost comparison analysis, whose findings are corroborated by the NRDC's

report, *Rooftops to Rivers: Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (2006, Kloss and Calarusse), shows that green infrastructure installment is often more cost effective than its grey counter part, particularly when it is used in new or re-development projects.

In order to fund the implementation of green infrastructure projects, Openlands is interested in further exploring devoting twenty percent of the Clean Water State Revolving Fund (SRF) to green infrastructure and other innovative water resource conservation projects on a long-term basis. We hope that the initial support by the federal government for the Green Projects Reserve (GPR) funding program through the enactment of the American Reinvestment and Recovery Act of 2009 (ARRA) becomes a fixture in SRF programs. We urge the Illinois EPA to revise the criteria for its SRF scoring process to give priority to green infrastructure projects that protect and conserve both water quality and supply.

In addition, we offer the following ideas for further analyses for green infrastructure funding based on measures adopted by New York's Environmental Facilities Corporation (EFC):

- Guaranteed financing: Extend the eligibility period for the enhanced interest rate subsidy that projects will receive from the SRFs.
- Additional subsidization: Allocate a portion of the SRF appropriations for additional subsidization for eligible projects in the form of principal forgiveness.
- Pre-design planning grants: Create an allocation of funds to offer pre-design planning grants to municipal applicants that do not have sufficient financial resources to pay for pre-design planning of SRF-eligible water quality projects.
- Stormwater utility fee: Explore imposing a fee based on the area of impervious surface on a given property.

We appreciate the collaborative work of the Illinois EPA and its contracting partners to develop a well researched Green Infrastructure Plan for Illinois. Thank you again for the opportunity to offer comments as well as your consideration of our recommendations. We believe that ensuring the sustainability of Illinois' water resources is essential, and it is achievable only through coordinated statewide efforts to develop and deploy integrated water resource management practices. Please keep us apprised of further developments. We look forward to participating in the Green Infrastructure Plan initiative as it moves forward.

Sincerely,



Lenore Beyer-Clow

Policy Director

(312) 863-6264

Lbeyer-clow@openlands.org



TELEPHONE (217) 753-3963  
(800) 255-6047  
FAX (217) 753-3811  
www.hbai.org

## HOME BUILDERS ASSOCIATION OF ILLINOIS

112 WEST EDWARDS STREET • SPRINGFIELD, ILLINOIS 62704-1902

**Ted S. Schieler,**  
GMB, CGP, CSP  
*President*

**Michael R. Nagel,**  
CGR, CAPS  
*Senior Vice President*

**Tracy Holmes**  
*1st Vice President*

**Todd Robertson**  
*2nd Vice President*  
*NAHB Alternate Associate Director*

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*Immediate Past President*  
*NAHB Builder Director*

**Tom Stephani,**  
GMB, MIRM, CGP, MCSP, CAPS  
*State Representative to NAHB*

**Edward P. Brady**  
*National Area Chairman*

**Scott Eckstein**  
*NAHB Alternate Builder Director*

**Craig Wheatley**  
*NAHB Associate Director*

**William A. Ward**  
*Executive Vice President*

Affiliated With



**National Association  
of Home Builders**

February 24, 2010

**RECEIVED**  
FEB 24 2010  
Watershed Management Section  
BUREAU OF WATER

Illinois EPA  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276  
ATTN: Amy Walkenbach

To Whom It May Concern:

**The Home Builders Association of Illinois stands unequivocally opposed to any form of State or locally mandated Green Infrastructure or Low Impact Development Standards.** HBAI supports State and local regulatory incentives for innovative stormwater control methods. HBAI supports adaptive regulatory management that would incrementally apply and repeal regulatory requirements, over time, as they are deemed beneficial, cost-effective, and appropriate. Illinois should appropriately consider flexible, alternative incentives for permit-holders to implement cost-effective practices that provide meaningful environmental benefits.

The January 12, 2010 presentation by the University of Illinois-Chicago and the Center for Neighborhood Technology was flawed on its premise and in its assumptions. Furthermore, the proponents openly reject personal property rights inherent in the Illinois and United States Constitution.

The International Panel on Climate Change claims that, "The frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) will *very likely* increase over most areas during the 21<sup>st</sup> century..." There is no credible data to adequately predict future weather patterns and what *may* occur at the end of the 21<sup>st</sup> Century.

The Center for Neighborhood Technology (CNT) rightly indicates that while the population increase in the Greater Chicagoland Region was greater than the Midwest average, the amount of developed land increase was less than the Midwest average. Therefore, Illinois is doing a *better* job of efficiently developing land to meet the needs of our increasing population.

However, The CNT inappropriately states that, “Green infrastructure practices are normally less expensive than traditional practices. Green infrastructure makes economic sense.” This statement is blatantly FALSE. Maryland, the first state to mandate low impact development (infiltration) for all construction throughout the state for stormwater control, has factually realized that LID, when utilized on small projects, is more expensive, not less expensive, than previous requirements. In Maryland’s experience, the density expected to be achieved by the state for new development has proven, in many cases, to be cost prohibitive under the new stormwater rules. As a result of the increased costs, legislation has been proposed in Maryland to alter or delay the implementation of the State’s stormwater permit.

The CNT presented “Cost effective solutions that offer multiple benefits” (Slide 18). While certain environmental benefits are easily agreed upon, *never* has a single one of these measures *anywhere, ever* been proven cost effective. Furthermore, claims of “improved aesthetics” and “increased land values” are highly debatable. Interestingly, the CNT never mentions any **environmental hazards**. Retaining ponds and wetlands harvest species, such as mosquitoes, that carry disease. Furthermore, neighborhood ponds pose a drowning risk to small children.

The CNT further references a 2007 USEPA study (Slide 21) that lacks statistical integrity and has been repeatedly discredited. The USEPA study falsely reports that only 1 of 12 projects experienced increased costs. This result blatantly fails to include actual significant cost increases. Furthermore, the study fails to consider missed opportunity costs that result from space reduction and allowable density that result from LID requirements. The study also fails to consider ongoing maintenance costs that realize considerable increased costs over conventional projects. The cost savings that were achieved and are referenced in this report were a result of reductions in road width, which violate National Fire Protection Association (NFPA) Code requirements. This is simply not credible. Illinois EPA must pursue, obtain, and consider additional, more reliable data sources, that accurately reveal costs associated with Green Infrastructure and Low Impact Development

Finally, Mr. Hal Sprague of the CNT stated, “There has to be a change in thought process by property owners”. Green infrastructure techniques and practices blatantly violate personal property rights, and impose absurd maintenance requirements on personal property owners. Property owners will resent these requirements, and, for a variety of reasons, simply will not take on the burden of ongoing maintenance, even if they were physically and financially capable. Mr. Sprague suggested enabling units of local government to lien property as an enforcement mechanism. This action will further bolster voter resentment and outrage.

The USEPA is presently considering new federal stormwater guidelines for proposal in 2012. It is expected that these guidelines will focus on post-construction stormwater requirements, potentially including: discharge water quantity requirements, temperature requirements, and flow velocity reductions. It would seem prudent for Illinois to slow its consideration of green infrastructure, and align state requirements with any pending

federal stormwater rule. In addition, Illinois will need to align any state stormwater requirements with the new Construction & Development Effluent Limitation Guidelines (ELG's), finalized by USEPA on December 1, 2009. Many of these new federal requirements will take effect later in 2010. It would be prudent to consider the public sentiment and Illinois' experience implementing these requirements prior to hastening additional green infrastructure requirements.

HBAI regrets that P.A. 96-0026 mandates that IEPA report to the General Assembly by June 30, 2010. This allows IEPA, "...*a small time frame for comments...*" prior to submitting the report to the General Assembly. The report should be **available to the public for a minimum of 90 days** for comment. It is ludicrous to minimize the public input in this matter and the regulatory process. Illinois regulators should seek clarity on an issue of this magnitude.

Thank you for your consideration in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "William A. Ward". The signature is fluid and cursive, with a large, sweeping flourish at the end.

William A. Ward  
Executive Vice President  
Home Builders Association of Illinois



Dana E. Ludwig, PE  
CFM, CPESC, LEED AP  
Direct Line: (815) 412-2702  
Email: dludwig@reltd.com

Illinois EPA, Bureau of Water  
P.O. Box 19276  
Springfield, IL 62794-9276

Attn: Amy Walkenbach

RE: PA 096-0026  
Green Infrastructure for Clean Water Act

February 24, 2010

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FEB 26 2010

Infrastructure Financial  
Assistance Section

Dear Ms. Walkenbach:

On behalf of Robinson Engineering, I attended the Stakeholder Meeting on January 12<sup>th</sup> and reviewed Public Act 096-0026, draft SB 1489 and draft HB 2434. These regulations will have a significant impact on the communities we represent, from perspectives of both municipal operations and development regulations. We are generally supportive of the "green" efforts at the State level and we are especially appreciative that the State is taking the extra time to complete a study before approving statewide regulations. I have listed many of the concerns and questions I've heard from communities, developers and other engineering firms that we work with and hope that the IEPA will consider these in the study.

#### Planning Process

1. Will the public (and consulting stakeholders) have an opportunity to read and respond to the June report prior to drafting of the next bill? Since a significant portion of Green Infrastructure Act includes new ideas and new technology or products for many, this report may open new topics of discussion and question.
2. Is the intent to keep the current or similar versions of House Bill 2434 or Senate Bill 1489 after the June report and if so which portions would be modified? In their current form, they leave much room for interpretation, which can be seen as a positive or negative aspect, depending on many factors. It could also make the application and/or regulation of the initiatives difficult.
3. Is the IEPA participating in the National Stormwater Rules process? How does IEPA GI planning process compare to the USEPA National Stormwater Rules? How will these work together?
4. Have the partners become familiar with the proposed Cook County Watershed Management Ordinance? How will the statewide regulations compare to those proposed for Cook County?

#### Administrative

5. How will Green Infrastructure regulations be enforced? Will local government be responsible? Will there be a separate IEPA permit and review process? Could local government become delegated to perform such reviews (similar to some countywide stormwater regulation process)?
6. What financial assistance will be provided to local government for implementation and training?
7. Is it possible for the state to make training available for professional engineers for design of GI?
8. Is it possible for the state to make training available for local government for implementation of GI? This could be done for both staff and elected officials and cover a wide range of topics (impacts on ordinances, costs, maintenance, staffing needs, general descriptions of each GI element, etc.).
9. To assist with public education and training purposes, is it possible for the IEPA to identify sites with examples of GI, as well as complete demonstration projects?

10. Does the IEPA have an idea of what the long term maintenance cost associated with each GI (structural and nonstructural) would be for property owners? For local government (assuming some will be placed on easements or outlots)?
11. Will the GI regulations affect the way NPDES II is enforced for MS4s in Illinois? If GI is being required and meets some objectives of NPDES II, could enforcement and documentation requirements for the Minimum Control Measures be re-evaluated?
12. Many watershed groups exist and watershed studies have been completed within Illinois and at various levels of detail and implementation. Has IEPA collected these studies, resulting documents and website information to review identified goals, address obstacles and difficulty in getting stakeholders on board? It may be advantageous to combine research and information to unify the GI movement. Oftentimes stakeholders in the watershed groups are responsible for enforcing these types of regulations and could also be a good gauge of public involvement and political support.
13. Section 25 of SB 1489 refers to a gradual increase in managing stormwater with green infrastructure. Would IEPA consider including a re-evaluation period prior to increases?

### **Document Support**

In this current economy, it appears that the most of the ongoing work is that which is funded by the Villages, Park Districts, etc. Having design, construction and maintenance documents available would ease the transition and burden on these taxing bodies.

14. We strongly encourage that technical design guidance is provided including all GI listed in the act, including appropriate vegetation (possibly via updating and expanding the Illinois Urban Manual).
15. We strongly encourage that construction specifications are provided for all GI listed in the act.
16. We strongly encourage that minimum maintenance, observation, inspection criteria be provided to assist property owners and local government for each GI.

### **Technical**

17. We strongly urge that separate design criteria/performance standards be established for parcels being redeveloped, especially if statewide regulations are being considered for wetland impact and/or development in the floodplain/floodway.
18. What will be the minimum developed area that requires use of GI? Many local ordinances have thresholds established that exempt certain properties from stormwater regulations.
19. We strongly urge that separate design criteria/performance standards be established for right-of-way projects where geometry significantly limits options for GI. We encourage these criteria to be closely examined alongside IDOT Standard Specifications to eliminate conflicts.
20. How are other states designing for and enforcing percent TSS or TN removal? How does IL intend to enforce TSS or TN removal?
21. We support options for water and stormwater reuse as a practical alternative for some situations and request that design criteria and performance standards specifically address credits for greywater and similar systems. Please consider that when water is reused on-site, it is likely to reduce the total stormwater runoff leaving the site. The reduction will be dependant upon the type of systems selected; however, this may negatively affect the calculation of TSS and TN if mandated as a percentage removal.
22. We recommend that infiltration criteria be broken into appropriate categories based on existing soil types and impacts be thoroughly investigated:
  - a. Where existing soil type is predominantly impervious (Types C and D), how will infiltration be practical? What extent of site modification is expected to achieve infiltration? If infiltration wells or similar structures will be expected, provide specific guidelines or criteria for depth, openings, long term monitoring and maintenance.

- b. Where existing soil type is predominantly pervious (Types A and B), include provisions to protect structures (basements) from flooding and flood damage as a direct result of increased infiltration. There are at least two communities in Will County that have had basement flooding as a result of groundwater flow using conventional or grey infrastructure and the perception or assumption is that green infrastructure will make certain situations worse.
23. Have winter effects been studied on GI? What will happen if year-round reliance for volume control during freeze and snowmelt is not possible?
24. While we understand other states are using volume control and infiltration regulations, what is the success of this mechanism in Illinois? It is my understanding that average soil types from Wisconsin to Illinois vary significantly. The one local ordinance that I'm familiar with (Village of Homer Glen) that includes a volume control requirement has not had any projects approved or constructed under their Water Resource Management Ordinance revised in 2009.
25. Several studies have identified agricultural properties as the largest contributor to sediment and pollutant loading of stormwater runoff. We strongly encourage that agriculture is not exempt from the GI process, or that a similar parallel process includes agricultural properties and practices.

Thank you for this opportunity to comment and share our concerns about green infrastructure becoming statewide regulations. We look forward to seeing the report in June. Should you have any questions or would like to discuss any of these items, please feel free to contact me.

Very truly yours,

**ROBINSON ENGINEERING, LTD.**

*Dana E. Ludwig*

Dana E. Ludwig, PE  
CFM, CPESC, LEED AP  
Project Engineer

xc: Sean Kelly, Robinson Engineering, Ltd.



**STORMWATER MANAGEMENT COMMISSION**

February 23, 2010

Illinois EPA  
P.O. Box 19276  
Attn: Amy Walkenbach  
Springfield, IL 62794-9276

*Via E-mail: Amy.Walkenbach@Illinois.gov*

RE: Comments on Green Infrastructure Planning for Illinois

Dear Amy:

The Lake County Stormwater Management Commission (SMC) supports IL EPA developing a statewide stormwater program. We request the program be designed to allow exemption of local stormwater management programs that meet minimum statewide standards. Delegation of program components is also suggested to be allowed through intergovernmental agreement for local stormwater programs that have the capacity to implement those program aspects.

IL EPA should consider enhancement of the National Pollutant Discharge Elimination System Phase II (NPDES II) program to address non-point source pollution to water bodies that have Total Maximum Daily Load (TMDL) allocations.

SMC recommends that a minimum of 20% of the State Revolving Fund should be applied to design and construction of stormwater green infrastructure projects that meet Clean Water Act goals (e.g. excludes funding for energy efficiency, etc.).

We have an excellent working relationship with the IEPA and want to continue to enhance that whenever possible. Thank you for your consideration of these comments and please contact me any time at 847-918-5260 or by email.

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION

A handwritten signature in black ink that reads "Michael D. Warner". The signature is written in a cursive, flowing style.

Michael D. Warner, PE, CFM  
Executive Director

VIA E-MAIL

February 22, 2010

Ms. Amy Walkenbach  
Illinois Environmental Protection Agency  
Bureau of Water  
P.O. Box 19276  
Springfield, Illinois 62794

***Subject: Green Infrastructure Stakeholder Meeting***

Dear Ms. Walkenbach:

Thank you for the opportunity to comment in response to the January 12, 2010 green infrastructure stakeholder meeting. I applaud your efforts, and those of the rest of the project team, to collect and review available information on a green infrastructure-based approach to stormwater management. I am certain that the information included in the report will help shape the future of stormwater management in Illinois.

During my employment with the Center for Watershed Protection, I had the opportunity to work on several projects intended to trigger a shift from a traditional, "grey" infrastructure-based approach to a "green" one. Those experiences have provided me with insight on what it takes to not just talk about, but actually implement, a green infrastructure-based approach to stormwater management. I have included a handful of thoughts and comments below; I hope that you and the rest of the project team find them useful.

- Recent efforts to shift to a green infrastructure-based approach in the states of Georgia, West Virginia, Maryland and Virginia, in particular, have encountered strong opposition from the development community. The opposition's case revolves around the claim that green infrastructure will significantly increase development costs, which, given the current economic situation, "is the last thing we need." Although there are studies showing that construction costs will actually decrease with the implementation of green infrastructure (e.g., MacMullin and Reich, 2007; US EPA 2007; Winer-Skonovd et al., 2006), there is still a strong perception that development will cost more than it does with the current gray infrastructure-based approach. Therefore, I urge the Illinois EPA and its partners to use the report to develop a strong economic case for green infrastructure. All available case studies and cost data should be collected and included in the report to show how development costs will respond to the introduction of a green infrastructure-based approach. Additionally, the project team may consider addressing the long-term costs of not adopting a green infrastructure-based approach (i.e., lost ecosystem services).
- Although development costs are likely to be reduced, if communities are required to adopt a green infrastructure-based approach, there will undoubtedly be higher costs, at least initially, associated with code review and revision, site planning and design, plan review and approval, and inspection and maintenance. The higher costs will be a result of the changes that consultants and, in particular, local governments, will need to make to their existing codes, programs, and procedures to achieve compliance with such an approach. Therefore, I encourage the Illinois EPA and its partners to consider the significant burden that will be placed

on the regulated community during the implementation of any green infrastructure-based stormwater regulation. Significant technical (i.e., training, guidance documents) and financial assistance will need to be provided to assist the regulated community during the implementation of these regulations. The Illinois EPA should view itself not just as a regulatory agency, but as a full partner in the implementation of these regulations.

- I urge the project team to investigate, if they have not already done so, the Runoff Reduction Method, which was developed by the Center for Watershed Protection and has been incorporated into the proposed Virginia Stormwater Management Permit Program Regulations (4VAC50-60) and Coastal Stormwater Supplement to the Georgia Stormwater Management Manual. The Runoff Reduction Method Technical Memorandum (Hirschman et al., 2008) provides information about the effectiveness of green infrastructure practices in reducing annual stormwater runoff volumes and pollutant loads. The Virginia Stormwater Management Permit Program Regulations and Coastal Stormwater Supplement to the Georgia Stormwater Management Manual outline urban stormwater management performance standards for: flood control; channel protection; water quality protection; habitat quality protection; and stormwater runoff reduction, that could be modified and adopted for use in Illinois. They also outline “credit” systems that define how green infrastructure practices can be used to meet these performance standards.
- I encourage the project team to revisit the green infrastructure practice categorization scheme that is being used to define practice performance. At the January 12 stakeholder meeting, during the presentation on the performance of green infrastructure practices, Dr. Marty Jaffe stated that the performance of the following types of green infrastructure is being investigated: infiltration; buffer; detention; permeable pavement; filtration; green roof; constructed wetland. This list is a confusing mix of processes/operations (i.e., infiltration, detention, filtration) and green infrastructure practices (i.e., buffers, permeable pavements, green roofs, constructed wetlands). Consequently, it is unclear how practice efficacies (i.e., volume and pollutant load reduction) are being assigned. For example, constructed wetlands are detention practices, but so are wet and dry ponds. The literature shows that each of these practices provides different volume and pollutant load reductions. How, then, are efficacies being assigned to detention practices? As another example, bioretention areas, which are one of the most popular green infrastructure practices, remove pollutants through infiltration, filtration and detention, among other pollutant removal processes (e.g., plant uptake, adsorption). Which of the categories presented at the January 12 meeting includes bioretention areas? To avoid ambiguity and confusion, I encourage the project team to use a consistent categorization scheme; it will likely be easier to assign efficacies to specific green infrastructure practices rather than to the different pollutant removing processes/operations taking place within these practices.
- At the January 12 stakeholder meeting, during the presentation on the performance of green infrastructure practices, sources of variability within the performance data were given as: scale, maintenance, and variability in local conditions. Design and construction are also key variables influencing the performance of green infrastructure practices and should not be overlooked. In order to achieve the level of performance indicated by the literature, practices must be well designed and properly constructed. A number of states have created BMP Manuals that guide the design and construction of stormwater management practices and help ensure that these practices perform “as advertised.”
- At the January 12 stakeholder meeting, during the presentation on stormwater management ordinances in northeastern Illinois, there seemed to be some confusion over volume control and water quality protection criteria. For example, Kane and Will Counties were given as examples of counties that already had volume control criteria included in their ordinances. This is

incorrect. As stated in the presentation, both of these counties have criteria requiring that a certain volume of runoff be stored below the primary outlet. However, these are not volume control criteria; they are water quality protection criteria. Runoff stored below the primary outlet will be displaced by runoff during the next storm event and will be released downstream. Therefore, providing storage below the primary outlet does not reduce the volume of stormwater runoff conveyed to the receiving stream, it just delays the time in which it gets there.

- Redevelopment projects present unique stormwater management challenges. Because of existing site characteristics and constraints (e.g., compacted soils) and the sheer density of most redevelopment projects, it can be difficult to achieve full on-site compliance with green infrastructure-based stormwater management regulations. However, these projects help curb urban sprawl and represent a unique opportunity for watershed restoration. In these situations, local regulatory agencies must be able to balance the benefits of redevelopment projects with the need for on-site stormwater compliance. Taking a watershed approach and making use of off-site compliance options may provide the most cost-effective means of balancing these concerns. Therefore, I encourage the Illinois EPA and its partners to consider building flexibility into any green infrastructure-based stormwater regulations. This flexibility may include: reduced stormwater management requirements for infill and redevelopment projects; providing an option to contribute to a fee-in-lieu program; providing an option to contribute to a pro-rata share program; and, providing an option to construct off-site stormwater management practices to achieve compliance with applicable stormwater regulations.

Thank you again for the opportunity to comment in response to the January 12, 2010 green infrastructure stakeholder meeting. If you have any follow-up questions or if I can provide any additional information, please do not hesitate to contact me at [novotnme@hotmail.com](mailto:novotnme@hotmail.com). I look forward to seeing the completed draft report around the end of May.

Best Regards,



Michael E. Novotney, PE  
Watershed Management Specialist

DISCLAIMER: The statements and recommendations expressed in this letter are those of the author and do not necessarily reflect the views of his current employer.

**From:** [Christopher G. Bergmann](#)  
**To:** [Walkenbach, Amy](#)  
**Subject:** RE: Green Infrastructure Comments  
**Date:** Friday, February 12, 2010 9:31:01 AM

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Below are my comments. Also, there was reference to during the meeting, and I thought at some point on the website, a search for volunteers to be on an "advisory team" as it relates to the implications on the revolving loan program. I would potentially be interested in participating, if the Agency is still looking for people.

During the Green Infrastructure Stakeholder's Meeting as well as on the IEPA website, reference has been made to the use of the State's Revolving Loan program for potential funding of Green Infrastructure projects. While I certainly find it advantageous for the State to assist in financing such projects, I do have the following concerns regarding the loan program tie-in:

1. Typically the State's revolving loan programs are issued to a governmental entity (with some exceptions such as sewer districts). Many improvements specific to Green Infrastructure would appear to be on a household level (addition of pervious surfaces, rain gardens, etc.). Would the State issue loans to individual households or would it somehow delegate this down to county and city level?
2. I am assuming the State would want to continue with loans, possibly supplemented by some grant funding for such projects rather than allotting the money entirely through grants. If this is the case, would the loan terms from the existing program be used or would there be some modification?
3. If loans are issued through households, would the loan be transferrable in the event the property is sold?
4. How would Green Infrastructure improvements be monitored? If a specific component is not maintained or is no longer functional, who will be responsible for enforcement? Would such enforcement potentially be tied to an existing loan?

Sincerely,

***THOUVENOT, WADE & MOERCHEN, INC.***

**SWANSEA-WATERLOO-EDWARDSVILLE-CARBONDALE-ST. CHARLES**

***Christopher G. Bergmann, P.E., LEED AP***  
***Project Engineer***

***Tel. No.: 618-624-4488***

***Fax. No.: 618-624-6688***

***E-Mail: [cbergmann@twm-inc.com](mailto:cbergmann@twm-inc.com)***

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**From:** [Melissa Eaton](#)  
**To:** [Walkenbach, Amy](#)  
**Subject:** Green Infrastructure Planning Comment\_TCRPC  
**Date:** Monday, February 08, 2010 2:16:45 PM

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Amy,

Thank you for the opportunity to provide a comment on IEPA's green infrastructure planning.

I believe that IEPA's definition of green infrastructure is too narrowly focused on stormwater and hydrology. According to the Conservation Fund, a federal partner in advancing America's land and water legacy, green infrastructure is the strategically planned and managed networks of natural lands, working landscapes and other open spaces that conserve ecosystem values and functions and provide associated benefits to human populations. Ecosystem values and functions include much more than water quality i.e. carbon sequestration, temperature control in urban areas, air filtration, the list goes on and on. I would recommend either expanding your green infrastructure plan to include a greater degree of ecosystem services OR if IEPA is intentionally focusing on water quality, renaming your effort to something like "green infrastructure for water quality".

Thanks again.

*Melissa Eaton*

Tri-County Regional Planning Commission  
211 Fulton Street, Suite 207  
Peoria, IL 61602  
p 309-673-9796 x 232  
f 309-673-9802  
[www.tricountyrpc.org](http://www.tricountyrpc.org)



Be green. Re-think before you print.

**From:** [John Wills](#)  
**To:** [Walkenbach, Amy](#)  
**Cc:** [Pat Kelsey](#)  
**Subject:** Comments on Green Infrastructure study  
**Date:** Wednesday, February 03, 2010 4:34:20 PM  
**Attachments:** [image002.png](#)  
[image004.png](#)

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Amy,

I would be very interested in serving on an advisory committee for this study. Here are our comments on the scope, as requested in the January 12 meeting.

1. It appears the CNT cost-benefit calculator may not be using costs that are representative of Illinois, and in particular the variability of cost factors such as topography, soils and climate. If that tool is used, the costs need to be revised to reflect the real costs.
2. If the use of the State Revolving Loan fund is broadened to fund the diverse projects under Green infrastructure, then the environmental costs of the backlog of projects that will have to wait even longer for funding needs to be factored into the cost.
3. Which green Infrastructure practices are already being promoted, and to what extent, by existing stormwater programs particularly in the collar counties?
4. Which practices, but for a Statewide regulatory program, would not become increasingly mainstream?
5. Green infrastructure practices are most effective in storms that range up to 1.5 inches according to CNT. Except for a few isolated cases, flooding damages to structures or traffic damages from flooding do not occur in rainfall events less than the 4" range. The study needs to be clear about the flood damage effectiveness of measures as separated from water quality benefits.
6. The study should take note of the longstanding concerns of maintenance of all stormwater infrastructure, and compare the effectiveness of assigning the responsibility to any entity other than a unit of government or utility.

John J. Wills, P.E.  
*President*

Wills Burke Kelsey Associates, Ltd.  
116 West Main Street, Suite 201 St. Charles, Illinois 60174  
TEL: (630) 443-7755 FAX: (630) 443-0533  
[www.wbengineering.com](http://www.wbengineering.com)

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**From:** [Mark Phipps](#)  
**To:** [Walkenbach, Amy](#)  
**Subject:** RE: Green Infrastructure Meeting  
**Date:** Thursday, January 14, 2010 3:05:52 PM

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Amy:

This e-mail responds to your request for written comments related to the Green Infrastructure report being prepared by the IEPA. Here is my comment:

It seems that the main purpose of a requirement for Green Infrastructure is to protect surface water quality. By infiltrating pollutant laden stormwater, it follows that the pollutants will be kept out of the surface water; however, it seems shortsighted to me to ignore the potential impact that infiltration may have on groundwater quality, especially in areas that depend solely on groundwater for drinking water. I think that this report must also address groundwater quality.

Please let me know if you need me to submit this comment by regular mail.

Thanks,  
Mark

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DNR COMMENT ON IEPA'S GREEN INFRASTRUCTURE PLAN  
March 2010

Public Act 96-0026, the Green Infrastructure for Clean Water Act, directs the Illinois Environmental Protection Agency (IEPA) in consultation with The Illinois Department of Natural Resources (Department), and others, to prepare and submit a report to the Legislature and Governor. The essence of the report is to examine the issue of, and recommendations for, the adoption of an urban storm water management regulatory program in Illinois which may include performance standards and encourage the use of green infrastructure to achieve those standards.

The Act, in order to focus the expansion of the traditional approach to storm water, emphasizes a sites based definition and focus of green infrastructure. The Department recognizes the necessity of this focus and IEPA's requirements to address specifically the storm water management aspects of green infrastructure.

Further, the Department recognizes that the evolving understanding or application of "Green Infrastructure" also includes conservation strategies that extend beyond an enhanced storm water management program. While there are several working definitions of green infrastructure, Benedict's & McMahon's and USEPA's Water Quality Scorecard serve to best illustrate the perspective and direction the Department will take:

*Green infrastructure is defined as an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations. In our view, green infrastructure is the ecological framework needed for environmental, social and economic sustainability—in short it is our nation's natural life sustaining system. Green infrastructure differs from conventional approaches to open space planning because it looks at conservation values and actions in concert with land development, growth management and built infrastructure planning.*

(Note: the issue of a "scaled approach" to green infrastructure is also addressed by USEPA):

*"Green infrastructure is a comprehensive approach to water quality protection defined by a range of natural and built systems that can occur at the regional, community, and site scales. At the larger regional or watershed scale, green infrastructure is the interconnected network of preserved or restored natural lands and waters that provide essential environmental functions. Large-scale green infrastructure may include habitat corridors and water resource protection. At the community and neighborhood scale, green infrastructure incorporates planning and design approaches such as compact, mixed-use development, parking reductions strategies and urban forestry that reduces impervious surfaces and creates walkable, attractive communities. At the site scale, green infrastructure mimics natural systems by absorbing stormwater back into the ground (infiltration), using trees and other natural vegetation to convert it to water vapor (evapotranspiration), and using rain barrels or cisterns to capture and reuse stormwater. These*

*natural processes manage stormwater runoff in a way that maintains or restores the site's natural hydrology. " (From USEPA's October 2009 Water Quality Scorecard, Page 2)*

In order to not distract from IEPA's focus of the study, the Department proposes to provide an appendix to the study that will include a review that begins to address this broader aspect of green infrastructure elements, many of which are included in the above definitions. The Department will address the portion of the green infrastructure definition in Public Act 096-0026 that specifically defines green infrastructure to also include the following (excerpted from parts of the Public Act definition, Section 5 & 10 b parts 1-11) :

...."Green infrastructure includes the preservation and restoration of natural landscape features, such as forests, floodplains, headwaters, and wetlands...."

“ . . . potential benefits from the use of green infrastructure, including:

- (1) Cleaner Water.
- (2) Enhanced Water Supplies.
- (3) Reduced Flooding.
- (4) Cleaner Air.
- (5) Increased Energy Efficiency.
- (6) Mitigation of and Adaptation to Impacts of Climate Change.
- (7) Wildlife Habitat.
- (8) Community Benefits.
- (9) Health Benefits.
- (10) Green Jobs.
- (11) Cost Savings. . .”

The Department's programmatic mission(s) to manage, protect, and sustain Illinois' natural and cultural resources and provide resource-compatible recreational opportunities will be included within this discussion of the broader application of green infrastructure.