

**Municipality/Organization:** Town of South Hadley

**EPA NPDES Permit Number:** MAR041020

**MaDEP Transmittal Number:** W-21004665

**Annual Report Number  
& Reporting Period:** No. 8: April 2013-April 2014

## NPDES PII Small MS4 General Permit Annual Report

### Part I. General Information

Contact Person: Melissa A. LaBonte

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### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: \_\_\_\_\_

Printed Name: Jim Reidy

Title: DPW Superintendent

Date: 4/28/2014

**Part II. Self-Assessment**

*2013 – For the most part, the Town of South Hadley completed implementation of the BMP's specified in the Notice of Intent by 2010. In some cases this was a revised version or an additional item submitted in the annual reports. For 2013, the Town continued its membership in the Connecticut River Stormwater Committee (CRSWC) to meet the requirements of minimum control measures one and two, and continued with previously implemented programs. A copy of the annual report for the CRSWC is attached.*

**Part III. Summary of Minimum Control Measures**

**1. Public Education and Outreach**

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 9</b>	<b>Planned Activities in the future:</b>
1 Revised	Informational Brochures	DPW/ML	Reduce litter and contaminants in system.	Continued to implement through participation in the CRSWC.	Continue to implement through participation in the CRSWC.
2 Revised	Stuffer into sewer bills	DPW /ML	Increased access to information	Notice on back of the October 2013 and April 2014 sewer bills on disconnecting sump pumps and downspouts.	Will continue to post notices on relevant topics.
3 Revised	Website Development	DPW / ML Cable / TA	Increased access to information	Continued to post relevant information.	Continue to post relevant information.
4 Revised	Stencil catch basins	DPW / JB	Reduction of illegal discharges	Completed in Year 5.	No Further Action
5 Revised	School Curricular / flyers  Participation in the Connecticut River SW Committee (CRSWC) in conjunction with PVPC	DPW/ML	Increased awareness of requirements  Increased awareness of SW issues on a larger regional scale.	Continued participation in the CRSWC for Public Education and Outreach. The Town Engineer attended a GI/LID workshop.	Continue participation in the CRSWC for Public Education and Outreach.

**1a. Additions**

21	Lawn & Garden Activities	DPW / VB,	Increased access to information Reduce contaminants in system	Continued participation in CRSWC. The committee continued its partnership with Greenscapes. CRSWC developed the Pioneer Valley Soak Up The Rain in conjunction with EPA's campaign, which will eventually replace the Connecticut River Think Blue campaign for the Pioneer Valley.	Continue participation in the CRSWC.
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## 2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities in the future:
6 Revised	TV spots and postings	DPW / ML Cable / TA	Increase public awareness and access to information	Continued participation in the CRSWC.	Continue participation in the CRSWC.
7 Revised	Public Meetings	DPW / JR BOS /RH of PB	Increase public input and awareness	Completed in Year 5.	No Further Action.
8 Revised	Neighborhood Watch Stormwater Management Incentives Program	DPW / JR DPW / ML / PVPC	Reduction in illicit discharges Reduction in illicit discharges	Program Completed in 2012.	No Further Action.

### 2a. Additions

8A	Stormwater Video	DPW/ML Cable/RS	Increase public awareness and access to information and Reduction in illicit discharges	<u>Every Drop Counts</u> video still shown occasionally on CCTV, and a link to video on Town website. Project complete.	No Further Action
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### 3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities in the future:
9	Storm System Mapping	DPW / JR	Increased detection of illicit discharges	The Town hired an Engineering Assistant to assist with AutoCAD.	Continue Planning efforts for mapping and begin implementation.
Revised	Identification of Residential I/I Sources.	DPW /ML Ass. / MC	Same	Assess drainage as part of road projects. Eliminated a catch basin on Carew Street.  Data on sump pumps collected by Town Assessor during inspections and property transfer surveys.	Continue to assess drainage.  Continue to identify residential sources of I/I.
10	Household Hazardous Waste Collection Depot	DPW / JS	Reduction of nutrient loading in system	Continued with implemented programs. Household Hazardous Waste and Unwanted Meds collection held on May 18, 2013.	Continue with implemented programs.
Revised	Review/Amend Town By Law on Storm Water Discharges	DPW / JR	Regulatory control of illicit discharges with punitive measures	Completed in Year 5.	No further Action.
Revised					

### 3a. Additions


#### 4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities in the future:
11 Revised	Review / Amend Town Bylaws	Planning Board / Richard Harris DPW/JR	Increase awareness and compliance by developers	Completed in Year 5 and approved by Attorney General's Office.	No further Action.
12 Revised	Subdivision Regulation Modifications	Planning Board / Richard Harris & Conservation Commission	Increase awareness and compliance by developers	Completed in Year 5. Effective July 1, 2008.	No further Action.
13 Revised	Regular Site Inspections	DPW / JR.	Increase compliance, enforcement and penalties	No qualifying projects to date.	Will be implemented by the Town Engineer if necessary.
14 Revised	Site Plan Review Modifications	Planning Board / R. Harris & Conservation Commission	Increase awareness and compliance by developers	No qualifying projects to date.	To be implemented by the Planning Board as necessary.
4a. Additions					

**5. Post-Construction Stormwater Management in New Development and Redevelopment**

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities in the future:
9 Revised	System Mapping	DPW / JR, JB	Increased illicit discharge detection	See Section 3, #9.	See Section 3, #9.
13 Revised	Regular Construction Site Inspections	DPW / JR, ML Bldg.Insp./CD	Increase compliance, enforcement & penalties.	See Section 4, #13.	See Section 4, #13.
14 Revised	Site Plan Review Modifications	Planning Board /Richard Harris, ConCom	Increase developer awareness and compliance	See Section 4, #14.	See Section 4, #14.
19 Revised	Develop Town By Law on discharges from all Town Lands.	DPW / JR, ML	Regulatory control of illicit discharges with punitive measures	See Section 3, #19.	See Section 3, #19.
20 Revised	Review Planning Board and Zoning Board Regulations	Planning Board / Richard Harris	Increase developer awareness & compliance	See Section 4, # 11 and 12.	See Section 4, # 11 and 12.

**5a. Additions**


### 6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
15 Revised	DPW Operations Manual	DPW / JR, JB	Increase awareness of personnel	Updated as necessary.	Continue updating as necessary.
16 Revised	Catch Basin Cleaning Program	DPW / JB	Reduction in floatables and deposition into system.	Continued with implemented program.	Continue with implemented program.
17 Revised	Street Sweeping Program	DPW / JB	Reduction in deposition into system.	Continued with implemented program.	Continue with implemented program.
18 Revised	Monitoring of Commercial Establishments in IPP Program	DPW / ML	Closer compliance & monitoring of industrial/commercial locations.	SW is briefly reviewed with industry personnel during IPP annual inspection.	Continue with implemented program.

### 6a. Additions


**7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>**

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
1 Revised	Brochures for public	DPW / ML	Reduction of litter and contaminants into system	See Section 1, #1.	See Section 1, #1.
10 Revised	Household hazardous waste collection center	DPW / JS	Reduction of nutrients into system	See Section 3, #10.	See Section 3, #10.
16 Revised	Catch basin cleaning program.	DPW / JB	Reduction of floatables and deposition into system	See Section 6, #16.	See Section 6, #16.
17 Revised	Street sweeping program	DPW / JB	Reduction in deposition into system	See Section 6, #17.	See Section 6, #17.

**7a. Additions**


**7b. WLA Assessment**      No assessment completed.

**Part IV. Summary of Information Collected and Analyzed**

There was no analysis of storm water, and any information collected has been from responsible parties working on the BMP's for the past year.

**Part V. Program Outputs & Accomplishments (OPTIONAL)**

**NOT COMPLETED.**

**Programmatic**

Stormwater management position created/staffed	(y/n)	
Annual program budget/expenditures	(\$)	

**Education, Involvement, and Training**

Estimated number of residents reached by education program(s) All Residents + all of pioneer valley through radio & television spots.	(# or %)	
Stormwater management committee established	(y/n)	
Stream teams established or supported	(# or y/n)	
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	52 weeks / 2 days per week
▪ community participation material collected	(%)	
	(tons or gal)	
School curricula implemented	(y/n)	In Progress

**Legal/Regulatory**

In Place  
Prior to  
Phase II

Under  
Review

Drafted

Adopted

Regulatory Mechanism Status (indicate with "X")	In Place Prior to Phase II	Under Review	Drafted	Adopted
▪ Illicit Discharge Detection & Elimination				
▪ Erosion & Sediment Control				
▪ Post-Development Stormwater Management				
Accompanying Regulation Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination				
▪ Erosion & Sediment Control				
▪ Post-Development Stormwater Management				

**Mapping and Illicit Discharges**

Outfall mapping complete	(%)
Estimated or actual number of outfalls	(#)
System-Wide mapping complete	(%)
Mapping method(s)	
▪ Paper/Mylar	(%)
▪ CADD	(%)
▪ GIS	(%)
Outfalls inspected/screened	(# or %)
Illicit discharges identified	(#)
Illicit connections removed	(#)
% of population on sewer	(est. gpd)
% of population on septic systems	(%)
	(%)

**Construction**

Number of construction starts (>1-acre)	(#)	4 SubDiv. 2 Other Cnstr.
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	
Site inspections completed	(# or %)	Building Inspector, Town Engineer
Tickets/Stop work orders issued	(# or %)	
Fines collected	(# and \$)	
Complaints/concerns received from public	(#)	

**Post-Development Stormwater Management**

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	
Site inspections completed	(# or %)	
Estimated volume of stormwater recharged	(gpy)	

**Operations and Maintenance**

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	
Total number of structures cleaned	(#)	
Storm drain cleaned	(LF or mi.)	
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	
Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)		
Cost of screenings disposal	(\$)	

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)
Qty. of sand/debris collected by sweeping	(cubic yards)
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)
Cost of sweepings disposal	(\$)
Vacuum street sweepers purchased/leased	(#)
Vacuum street sweepers specified in contracts	(y/n)

Reduction in application on public land of: ("N/A" = never used; "100%" = elimination)	
▪ Fertilizers	(lbs. or %)
▪ Herbicides	(lbs. or %)
▪ Pesticides	(lbs. or %)

Anti-/De-Icing products and ratios	% NaCl
	% CaCl <sub>2</sub>
	% MgCl <sub>2</sub>
	% CMA
	% Kac
	% KCl
	% Sand
Pre-wetting techniques utilized	(y/n)
Manual control spreaders used	(y/n)
Automatic or Zero-velocity spreaders used	(y/n)
Estimated net reduction in typical year salt application	(lbs. or %)
Salt pile(s) covered in storage shed(s)	(y/n)
Storage shed(s) in design or under construction	(y/n)

## Connecticut River Stormwater Committee

### 2013 Annual Report

January 1 to December 31, 2013

The Connecticut River Stormwater Committee continued to use the NPDES MS4 draft permit as guidance in its work for 2013. Since it is clear that there will be a strong focus on green infrastructure stormwater management systems in the permit, outreach focused on providing information and education about these types of systems.

The following is a summary of the work of the Connecticut River Stormwater Committee during the 2013 calendar year:

Member Community	Committee Representative and Department
Agawam	Tracey DeMaio, Department of Public Works
Chicopee	Joe Kietner, Waste Water Treatment Division
Easthampton	Jim Gracia, DPW
Granby	Dave Derosiers, Highway Department
Holyoke	Matt Sokop, Department of Public Works
Longmeadow	Yem Lip, Department of Public Works
Ludlow	Jim Goodreau, Department of Public Works
Southwick	Richard Grannells, Department of Public Works
South Hadley	Dan Murphy, Department of Public Works
Springfield	Kevin Chaffee, Conservation Commission
West Springfield	Jim Lyons, Department of Public Works
Westfield	Casey Berube, Water Resources Department

#### Green Infrastructure Workshop and Pre-Workshop Survey

PVPC in partnership with EPA region 1 and the EPA Office of Research and Development (ORD) co-held a workshop entitled "Green Infrastructure for Developers, Designers, contractors, and Municipal Officials" on June 13, 2013. There were 58 attendees plus 19 EPA and PVPC staff in attendance. The full day workshop took several months of detailed planning with EPA and EPA's contractor Horsley Witten Group. The workshop was designed to provide information on design, construction, and maintenance for local and regional projects through a peer to peer format. Workshop presentations included:

- Introduction to GI and LID
- Alternative Models for GI/LID Site Design and Project Benefits: Panel Discussion
- Costs and Benefits of GI/LID
- Incorporation of GI/LID in Retrofits and Redevelopment Projects

- Importance of Construction Administration
- Resources and Tools to Get the Job Done

Of particular interest to EPA and PVPC were understanding barriers to green infrastructure implementation. Thus, ORD developed a very detailed pre-workshop survey that was sent to all registered attendees. A total of 44 attendees completed the survey and results will be used to inform future outreach and training. See attached pre workshop survey results as well as workshop flier and agenda.

### **Soak up the Rain Stormwater Education Campaign**

Much of the work for the Connecticut River Stormwater Committee this year was devoted to working with EPA’s new “Soak up the Rain” education campaign to adapt it for the Pioneer Valley. The campaign — a call to action for property owners to reduce stormwater runoff through strategies that soak up the rain — involved several major outreach efforts for the Connecticut River.

- ***Pioneer Valley Soak up the Rain Logo***

PVPC worked with the standard EPA Soak up the Rain logo to modify and adapt it for the Pioneer Valley. The logo is being used in all materials associated with stormwater education events and materials going forward. Colors of the logo are integrated with print and other elements for other products.



- ***Pioneer Valley Soak up the Rain Website***      [www.pvpc.org/soakuptherain/](http://www.pvpc.org/soakuptherain/)

Developed over the course of several months, the Pioneer Valley Soak up the Rain website promotes a range of practices, including rain gardens, permeable pavements, dry wells, and green roofs through examples from the region, a semi weekly blog, and a library of and links to other informational resources. For the website, PVPC had an intern collect and develop narrative, images, and video on 15 local stormwater projects that are scheduled to be introduced as part of the semi weekly blog and then cataloged on the website within a local stormwater gallery feature. Property owners throughout the Pioneer Valley are invited to submit projects that they know of to feature on the website. As this website becomes further established, PVPC plans to phase out the Connecticut River Think Blue website.

- ***Demonstration Workshops for Homeowners and Businesses - EPA Matching Funds \$7,000***

The first of two half-day workshops for homeowners and businesses was held in October in Northampton and attracted 29 participants. Led by staff from PVPC and the University of Connecticut NEMO program, the workshop covered a range of techniques appropriate for residential and commercial sites, including rain barrels and cisterns, porous pavers, rain gutter downspout diversion, rain gardens, and green roofs. As part of the workshop, participants had an opportunity to try out the new NEMO rain garden app and understand exactly how to conduct a soil perc test and cut a downspout to accommodate a rain barrel. In a post workshop evaluation, participants gave the entire event high marks. The evaluation results will be used to slightly revise a very similar workshop that will be held in Holyoke in June of 2014. In promoting the workshop, the Springfield Republican newspaper provided very high profile coverage on the front of their Home & Garden Section. See attached: flyer for workshop, agenda, Republican article, and evaluation results.

- ***Design of templates for interpretive signs at green infrastructure stormwater management facility - EPA Matching Funds \$3,000***

PVPC began working to develop a series of interpretive sign templates that will be offered to property owners for use where they would like to celebrate and highlight their best stormwater management practices, particularly rain gardens, porous paving, and green roofs. For rain gardens and porous paving, sign templates will include one version (varying in size and content) for residential use and another for commercial, municipal, or institutional use. The green roof sign will be designed in only one version as need for such a sign at the residential scale is negligible. The intent is that signs will help to not only inform people about the good practices that are around them, but also inspire additional good practices by example.

### **Additional Stormwater Outreach and Education Events**

In 2013, the following outreach events were held:

- Saturday, April 27, 2013, Agawam Little League Jamboree and Earth Day celebration - Think Blue display booth
- Tuesday, June 11, 2013, Citizens Restoring Congamond Lakes meeting – Presentation on green infrastructure stormwater management practices for homeowners, as well as brief summary of organic lawn care.

## **Springfield Rain Gardens Project Planning**

*Matching Funds \$49,000 CWA SEP*

The Pioneer Valley Regional Ventures Center (PVRVC) received mitigation funds in the amount of \$49,000 as the result of Clean Water Action's Notice of Complaint against Don Casters Inc. for use to support rain garden workshops and training and construction within the City of Springfield. PVPC initiated this project in December with a meeting of Springfield municipal officials. Work will continue into the coming year and PVPC is hoping to extend the training program into other communities in the region.

## **US Forest Service Urban and Community Forestry Grant Application**

In partnership with the Franklin Regional Council of Governments and Massachusetts Workforce Alliance, PVPC submitted a \$187,000 grant application to the U.S. Forest Service to: work with a steering committee of stakeholders to identify market drivers for Green Infrastructure, analyze existing successful initiatives, and make recommendations for expanding and growing the green infrastructure cluster. The intended result was to be: 1) a detailed report that presents data, analyzes job opportunities and career paths, and makes recommendations to implement training and job development initiatives, and 2) a brochure in hard copy and .pdf form that summarizes key findings and recommendations and provides resources. The grant was not funded.

## **Appendixes**

### Green Infrastructure Workshop – June 13, 2013

Pre workshop survey results

Workshop flyer and agenda

### Soak up the Rain Workshop for Homeowners and Businesses – October 26, 2013

Workshop flyer

Workshop agenda

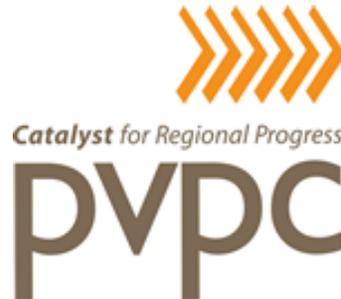
Springfield Republican newspaper article

Workshop evaluation results

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# **The Voice of Pioneer Valley**

## **Summary of Results from the Pre-Workshop Exercise & Next Steps**



### **Green Infrastructure/Low Impact Development Workshop**

**June 13, 2013**

**Pioneer Valley Planning Commission**

**US Environmental Protection Agency Region 1**

**US Environmental Protection Agency, Office of Research & Development**

# PVPC Responding to Participants

## What We Heard & Next Steps

Thank you to everyone who took the time to complete the exercise for the 6/13 Pioneer Valley GI/LID workshop. Your input helps us plan for the future.

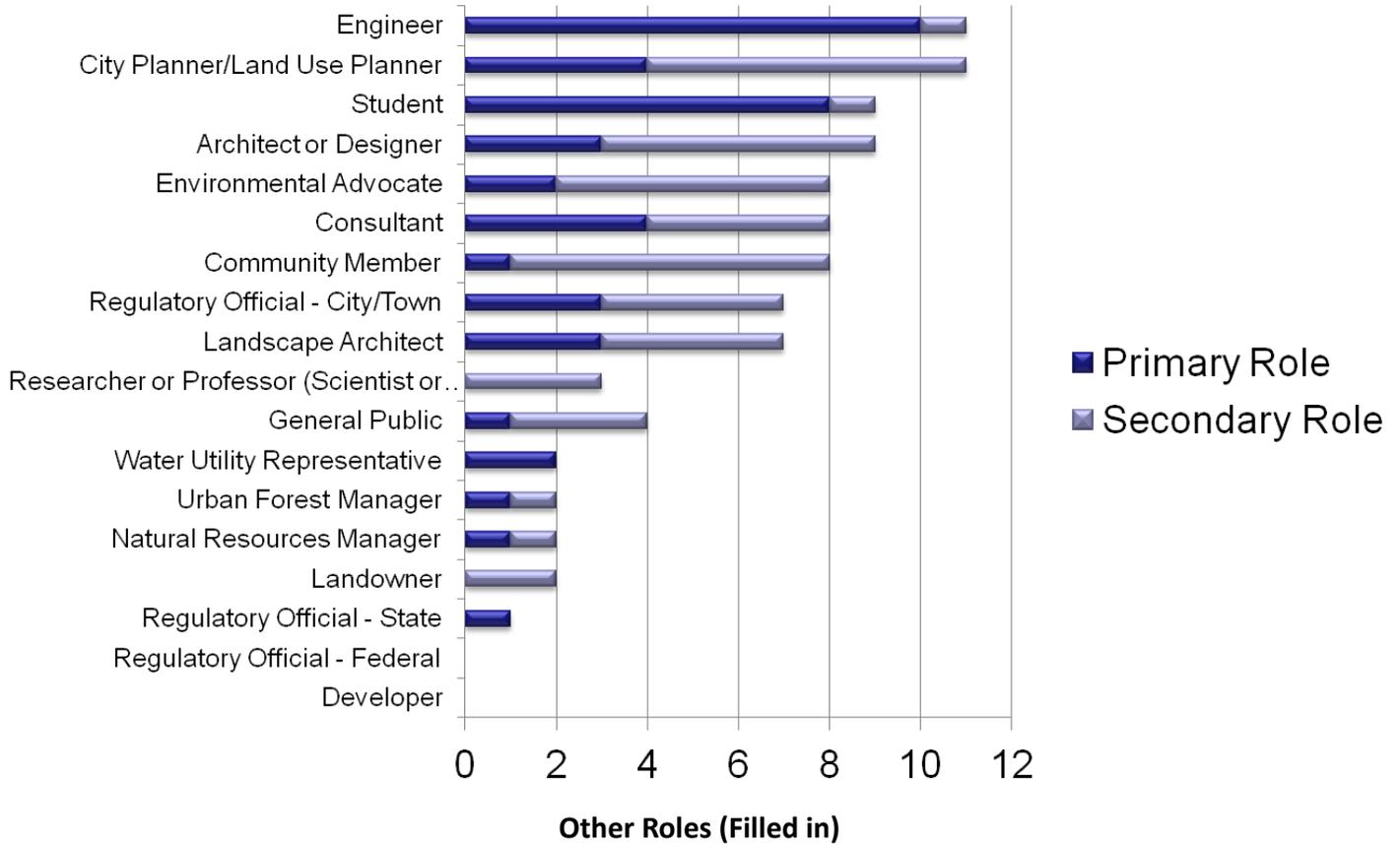
### Topics of Interest to Participants

- CSO Mitigation
- Meeting MS4/NPDES permit requirements
- Cost
- Operations & Maintenance
- Removing or navigating state/federal regulations & problematic zoning or local code issues that can be an impediment to GI/LID implementation
- Proof that a given BMP works; avoiding costly mistakes
- Resource area/library of local projects
- Options for residential BMPs

### Next Steps

- ⇒ Continue to seek funding sources for CSO mitigation in the region. Funding will support design and construction of GI/LID projects in the three CSO communities: Chicopee, Holyoke, and Springfield.
- ⇒ Like many communities, PVPC is in a holding pattern in anticipation of the new MS4 regulations.
- ⇒ PVPC aims to improve practitioners understanding of ways that GI/LID can save costs in both capital investment and O&M.
- ⇒ More targeted guidance on finding extra-budgetary funding sources
- ⇒ O&M presentations at the workshop were one example of PVPC's ongoing efforts to supply practitioners with the technical information that they need.
- ⇒ PVPC has produced LID code reviews for communities within Pioneer Valley, and will continue working with the state and assisting Pioneer Valley communities in efforts to improve their local code and navigating state regulations.
- ⇒ Continue to add your projects to the *Soak up the Rain Website* so that others within Pioneer Valley can learn
- ⇒ EPA's Green Infrastructure Tools & Resources Database (GITAR), once it is complete, will also provide a wealth of tools, resources, and case studies, to help you find relevant tools, resources, and case studies.
- ⇒ PVPC is currently devising a strategy for a more formalized central location for local information resources.
- ⇒ For more general resources, GITAR will be available in late 2013/early 2014.
- ⇒ PVPC, with the help of EPA Region 1, is initiating its own Soak Up The Rain campaign.

# Roles of Respondents



- ◆ Tree warden, parks, commons, cemeteries, Athletic fields, pools Division Director
- ◆ Ecological Landscape Designer (self-employed, Northampton) and part-time Project Designer (Green Infrastructure Planning) for an engineering firm in Boston (Nitsch Engineering, Inc.)
- ◆ I am a community volunteer for the Northampton Board of Public Works and the city's Storm Water Ad-Hoc Advisory Task Force
- ◆ Grant Writer
- ◆ Head gardener at a 3 acre public garden surrounding Wistariahurst Museum in Holyoke. I am dealing with storm water issues from building roofs and the need to water the gardens and turf and would like to consider a cistern system to keep all of the water that falls on site.

Response Rate: 98%

41 Responses

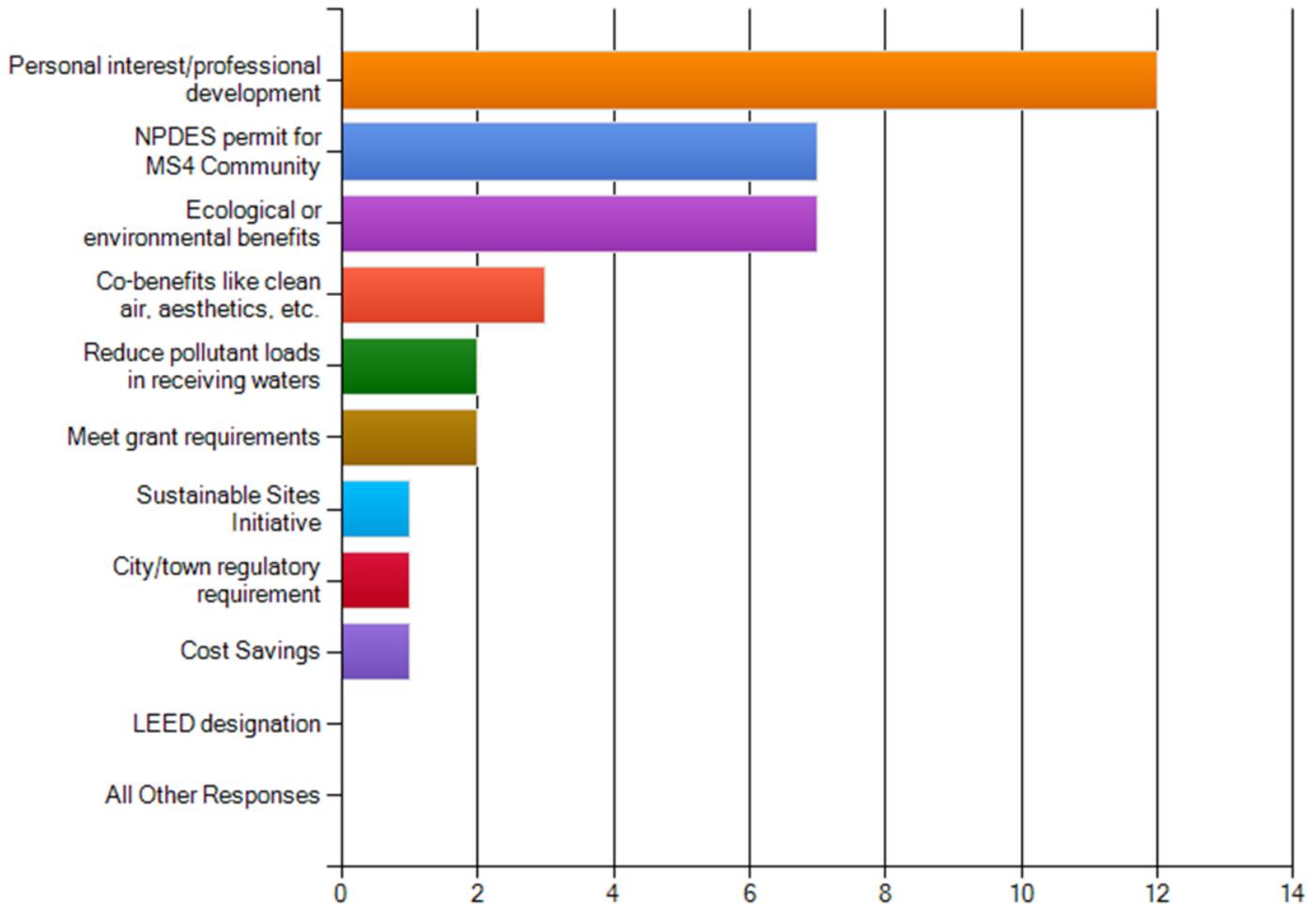
42 Participants (not including speakers)

72 People registered

Note: Some responses may have come from people that registered but did not attend.

## Drivers

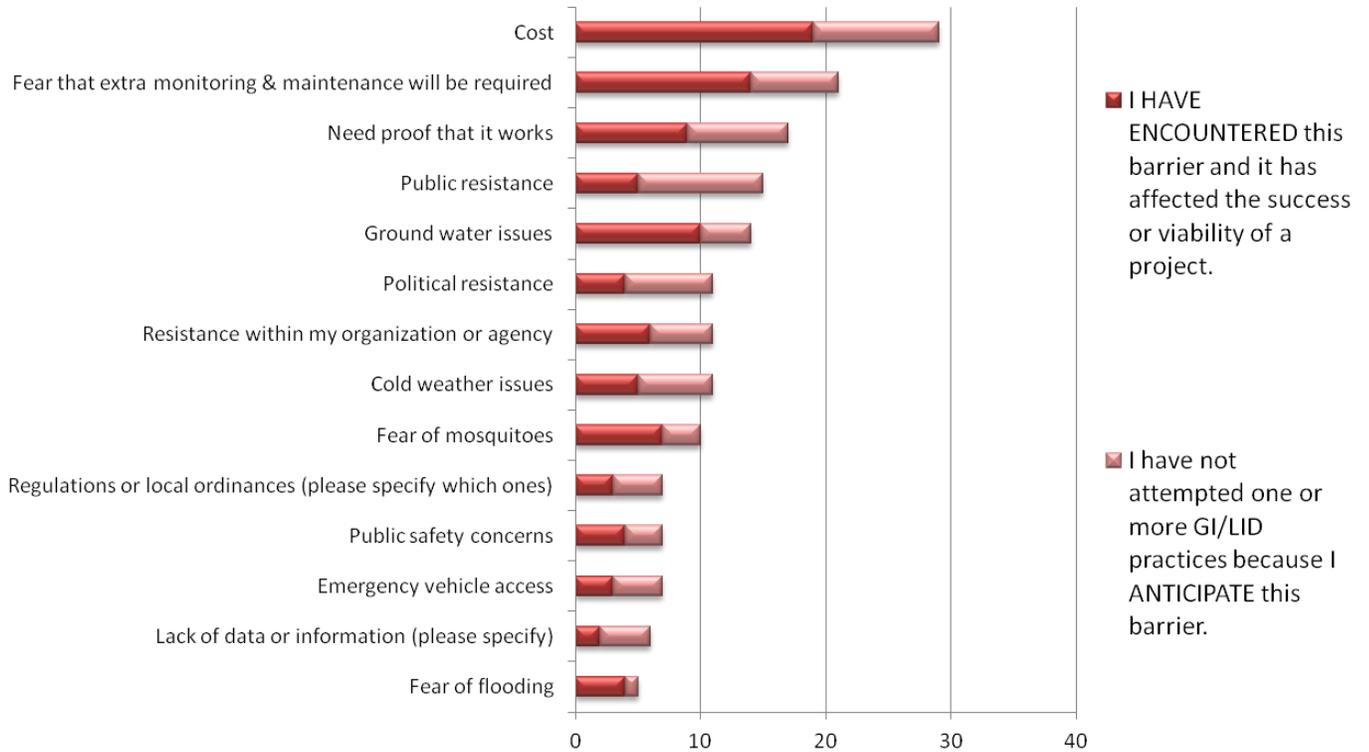
What is the primary reason that participants are interested in GI?LID?



- ◇ "I am an engineering consultant practicing in the area of stormwater management and green infrastructure/LID"
- ◇ "Reduce peak flow rates of stormwater into wastewater collection systems in City sewersheds which have a combined sewer system, and thereby help reduce the frequency of combined sewage overflow from that sewershed into the Western MA rivers."
- ◇ "reduce stormwater flows to collection systems and improve stormwater quality"
- ◇ "Looking to develop a vision for the multi-functional landscape."
- ◇ "this goes hand-in-hand with "reduce pollutant loads in receiving waters""
- ◇ "As Northampton considers the implementation of a storm water fee, we are looking at ways that residents and commercial properties might utilize GI to qualify for credits/fee reductions as part of a comprehensive incentive program."

# Barriers

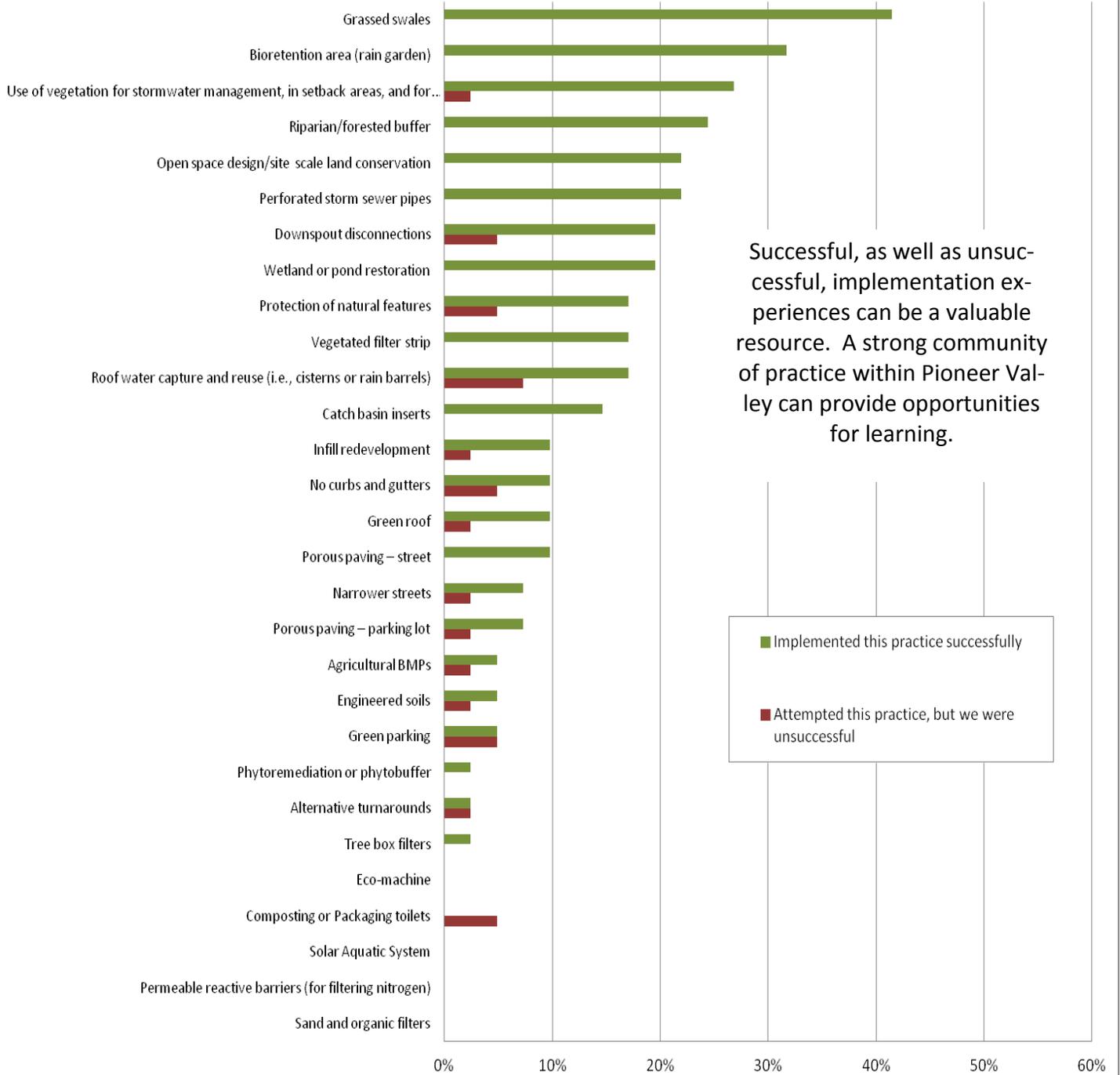
## What is in the way?



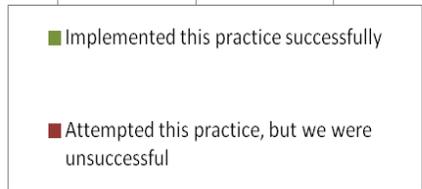
### Other Fill-in

- ◇ Such resources aren't widely known in my country (Brazil).
- ◇ State and Federal
- ◇ Test pits needed to determine whether ledge present (water quality swale). Extra design time & cost to implement over traditional project. Deep sump basins are easily implemented.
- ◇ Lack of experience successfully constructing GI
- ◇ Zoning, land use, etc.
- ◇ I have not implemented GI/LID practices yet

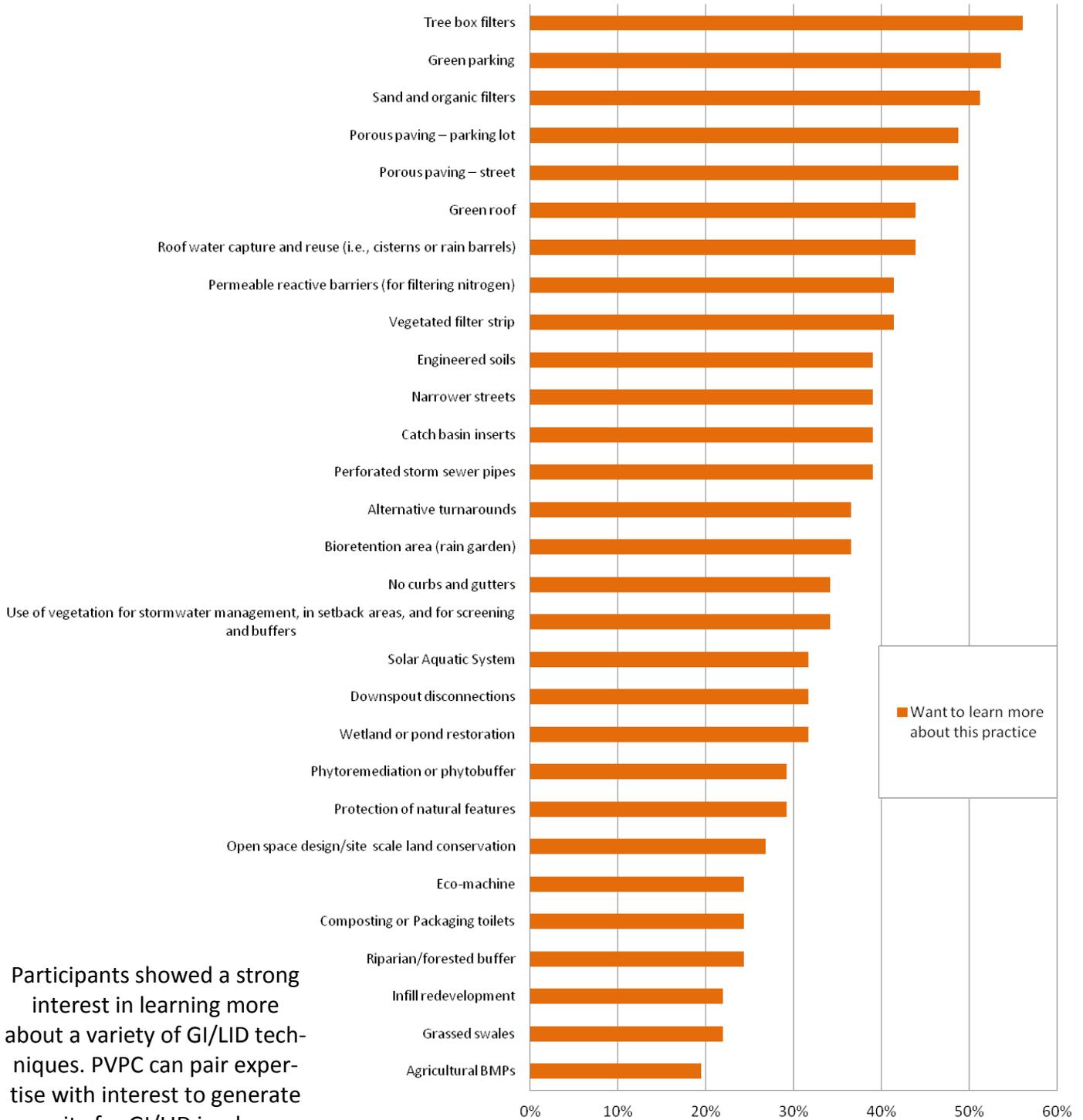
# Implementation Success



Successful, as well as unsuccessful, implementation experiences can be a valuable resource. A strong community of practice within Pioneer Valley can provide opportunities for learning.

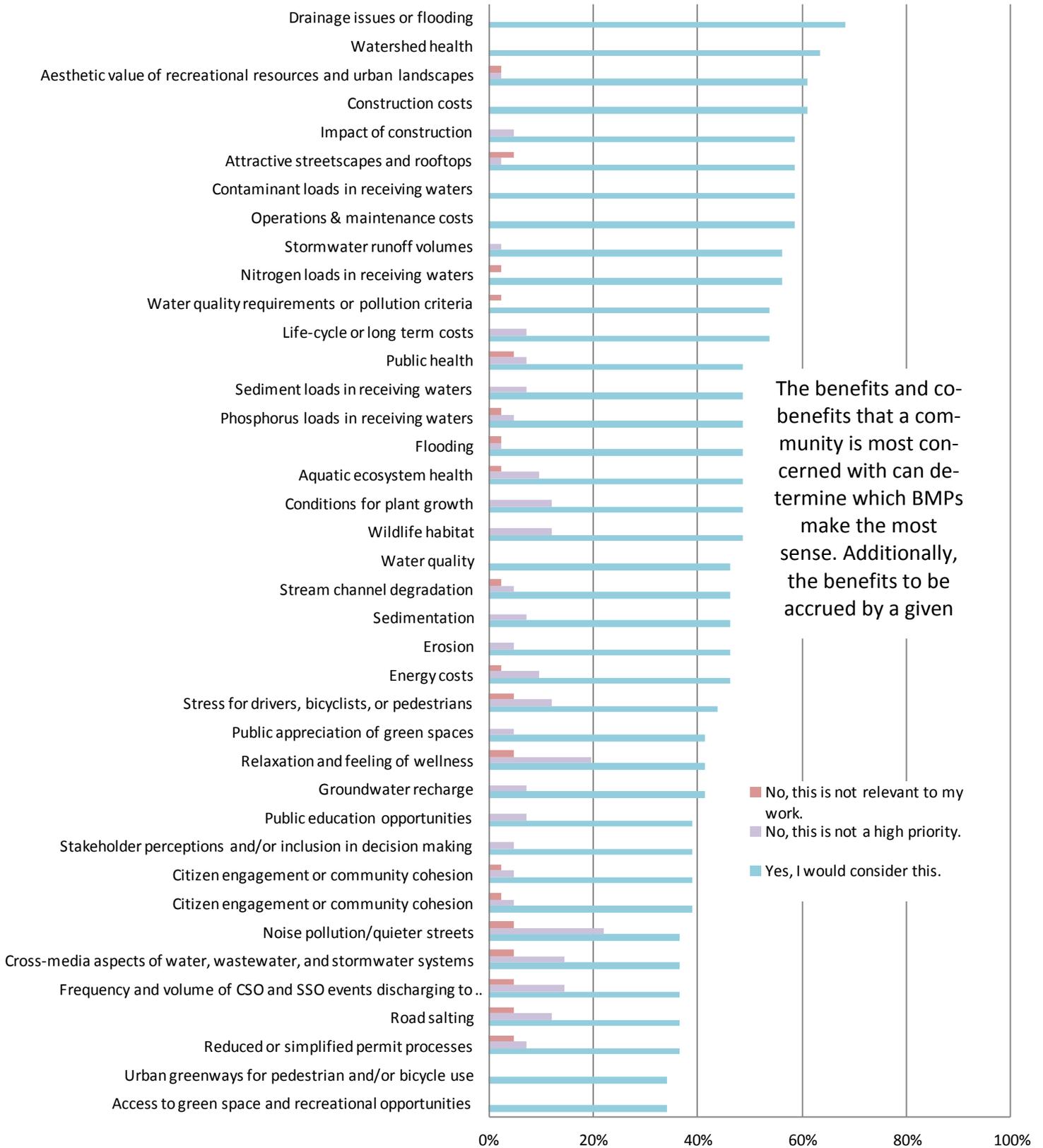


## Interest in Management Practice

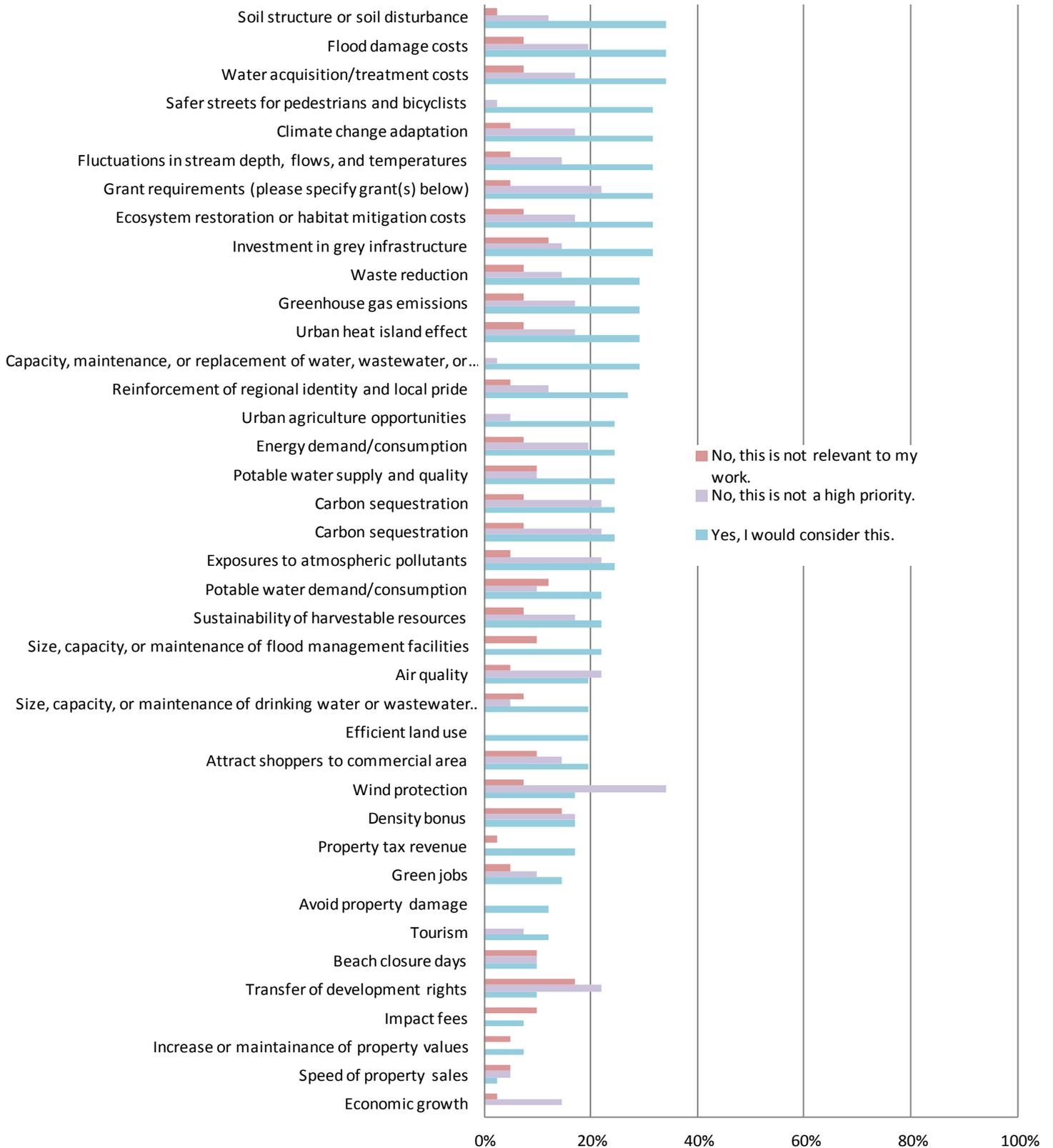


Participants showed a strong interest in learning more about a variety of GI/LID techniques. PVPC can pair expertise with interest to generate capacity for GI/LID implementation, maintenance, and cost reduction.

## Priorities - Highest 39/78

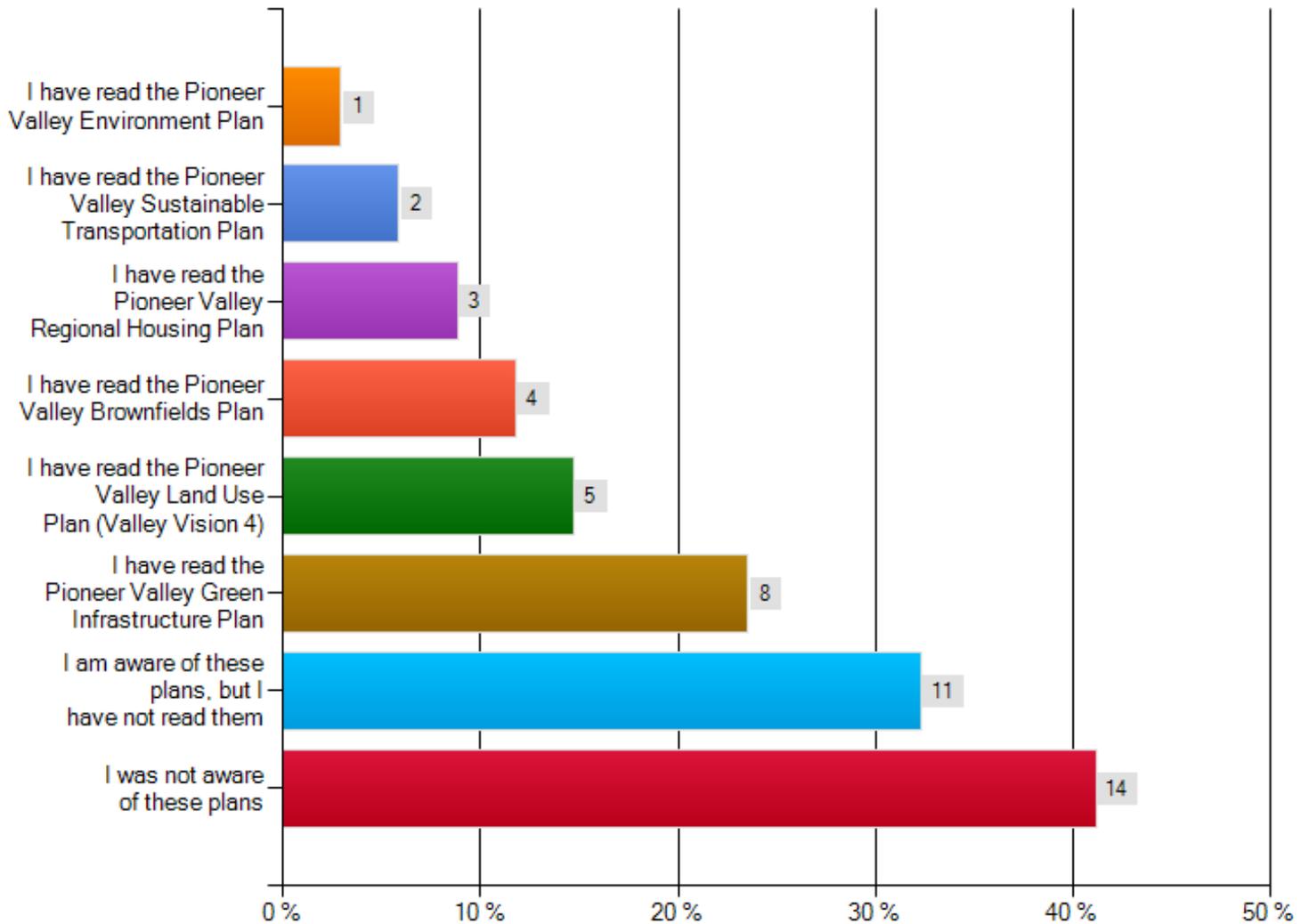


## Priorities - Lowest 39/78



# Awareness of PVPC Plans

Are you aware of, or have you read, any Pioneer Valley Regional Plans?



PVPC Plans are a resource to the region. The Green Infrastructure plan, in particular, provides an assessment of and spatial analysis of communities within the region in order to determine cost-effective placement of BMPs. Practitioners can use the results of the analysis as well as the process used within the plan to inform their own decision making.

# Tools & Resources Used by Participants

- ◇ Text books (Sarte, McMahon, etc.)
- ◇ Stormwater calculator
- ◇ design details from cities and towns
- ◇ <http://www.unh.edu/unhsc/>
- ◇ [http://www.flowstobay.org/ms\\_sustainable\\_streets.php](http://www.flowstobay.org/ms_sustainable_streets.php)
- ◇ [http://efc.muskie.usm.maine.edu/docs/roseen\\_right\\_practice\\_right\\_place.pdf](http://efc.muskie.usm.maine.edu/docs/roseen_right_practice_right_place.pdf)
- ◇ ArcGIS, Town Stormwater Ordinance, **MADEP website**
- ◇ **LEED Guidance, Sustainable Sites Initiative Guidance, Best Practices**
- ◇ green street design guidelines storm water calculator
- ◇ **Mass Stormwater Handbook** MassDEP stormwater website.
- ◇ Massachusetts Stormwater Handbook Stormwater calculator
- ◇ MA Wetlands Protection Act Stormwater guidelines/handbook, stormwater calculator, **EPA website**, CT River Stormwater Committee
- ◇ **stormwater calculator**, MA DEP stormwater management website
- ◇ **CT DEP Stormwater Quality Manual**
- ◇ **Case studies** of places implementing GI practices
- ◇ I am not aware of any. The gardeners at Wistariahurst are not represented on the board and have no input. We can only make suggestions and try to back them with good research.
- ◇ <http://precip.eas.cornell.edu/>
- ◇ **HydroCAD**
- ◇ <http://websoilsurvey.nrcs.usda.gov/app/>
- ◇ MA Stormwater Handbook

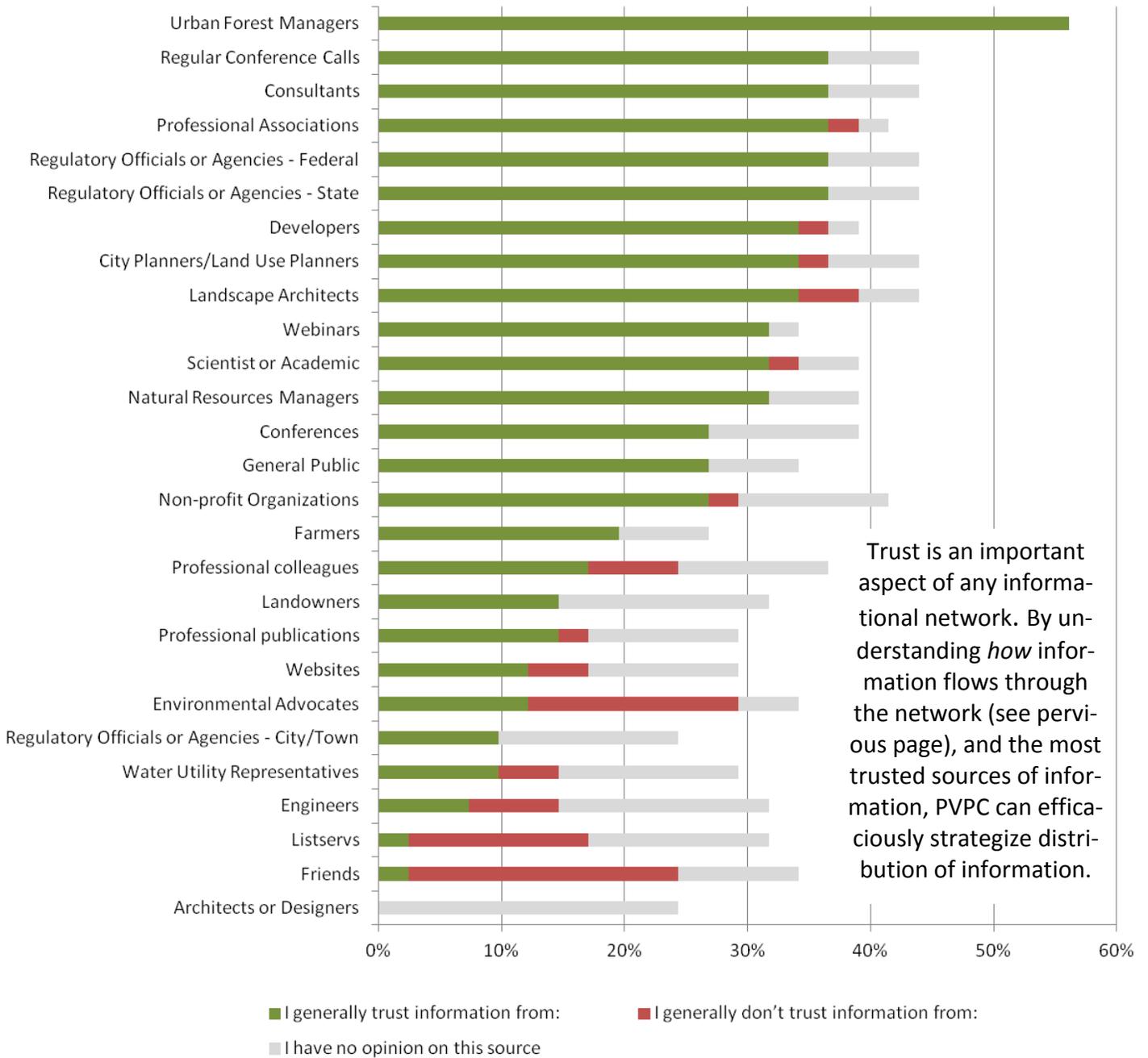
# Missing Tools, Resources & Information

## What has been difficult for participants to find?

- ◇ Open discussion of problems related to GI/LID projects esp in **cold weather climates**.
- ◇ **Contributing drainage area for specific projects/BMPs** - except for public 319 grant-funded projects, local groups/officials often do not have access to this information--need to contact project engineers/designers and they are often too busy to follow up.
- ◇ I'm interested in to what extent GI is practiced on a **residential** level. Many examples are of commercial sites and neighborhood-scale projects. Perhaps this is most effective scale at which to apply these principles. It would be interesting to know if which GI/LID practices are most appropriate to smaller-scale projects.
- ◇ **porous pavement design and cost analysis**
- ◇ What is the range of **stormwater fee** practices that would be legal and practicable in MA/CT? Are there monitoring and measuring technologies (ie to **meter stormwater** and grey water outflow) in recent years? What are the fed/state/regional resources available for support and training to assist DPW transition to GI/LID practices?
- ◇ It would be nice to have a **resource area (library) of sample projects** with specific implementation details which could be used on actual projects.

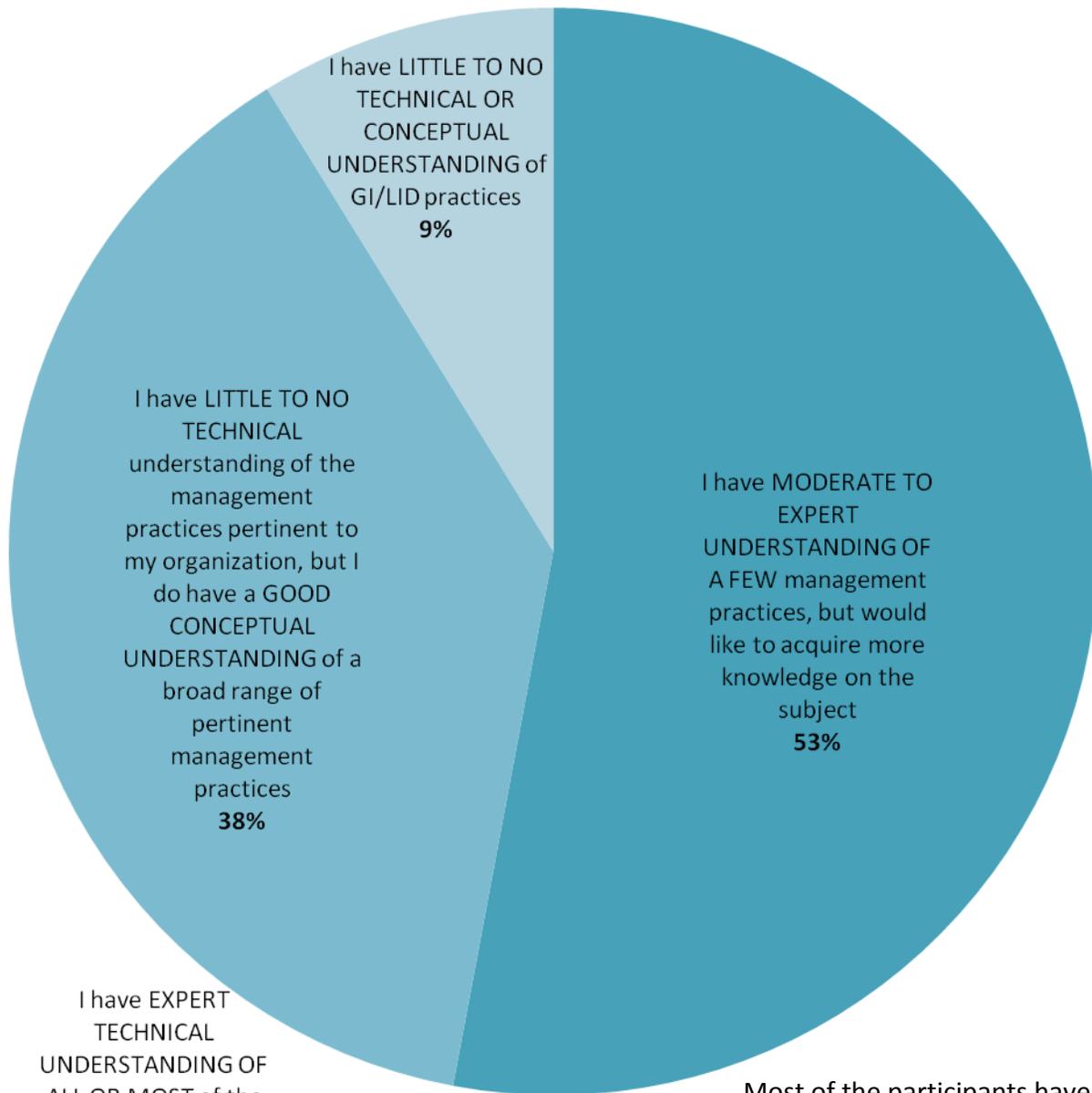
# Trust

## Participants' trust different sources of information differently



# Familiarity

## Technical & Conceptual Understanding of GI/LID



I have EXPERT TECHNICAL UNDERSTANDING OF ALL OR MOST of the management practices that would be appropriate for my organization to implement  
**0%**

I have MODERATE TO EXPERT UNDERSTANDING OF A FEW management practices, but would like to acquire more knowledge on the subject  
**53%**

I have LITTLE TO NO TECHNICAL understanding of the management practices pertinent to my organization, but I do have a GOOD CONCEPTUAL UNDERSTANDING of a broad range of pertinent management practices  
**38%**

I have LITTLE TO NO TECHNICAL OR CONCEPTUAL UNDERSTANDING of GI/LID practices  
**9%**

Most of the participants have a good conceptual understanding of GI, and are seeking more refined technical knowledge. PVPC can focus future efforts on expanding technical knowledge as much as possible through topical workshops and targeted information resources.

# GREEN INFRASTRUCTURE for Developers, Designers, Contractors & Municipal Officials

PROMOTING CLEAN WATER. GREENING OUR STREETS AND NEIGHBORHOODS

**ONE DAY – FREE WORKSHOP**  
Thursday, June 13, 2013  
Kittredge Center  
Holyoke Community College



Kathleen Ogden/VHB

Green Infrastructure practices for stormwater management are being incorporated into site design criteria for new and re-development projects. Come learn how these systems can be incorporated into a range of site design scenarios based on completed projects in New England. This workshop will focus on design, construction, budget, and maintenance challenges from completed projects and how they were overcome.

Representatives from regional projects will be present to share their experiences, tools and resources used to get the job done. Workshop format will be interactive with lots of opportunity to get answers about how to make Green Infrastructure work in your next project.



**REGISTRATION IS REQUIRED BY JUNE 10<sup>th</sup>**

Email Anne Capra at [acapra@pvpc.org](mailto:acapra@pvpc.org)

Events to Come:

September 17, 2013 – Green Infrastructure Supplies, Tools, Resources, and Services Fair for Western Massachusetts

## AGENDA

8:30 – 9:00

**Registration**

9:00 – 9:15

**Greeting and Introductions**

9:15 – 10:00

**Green Infrastructure (GI) and Low Impact Development (LID) Introduction (Michelle West and Rich Claytor, Horsley Witten Group - HW)**

Stormwater Impacts, GI/LID definition, regional and local examples, benefits overview, applicable MS4 requirements, and other drivers (LEED, Sustainable Sites Initiative).

10:00 – 11:00

**Alternative Models for GI/LID Site Design and Project Benefits: Panel Discussion (60 minutes)**

Facilitated discussion with a panel of four regional/local experts – examples of programs/policies where GI/LID have been applied.

- **Andrew Bohne**, New England Environmental, Inc.  
Porous paving, Amherst headquarters building
- **John Furman**, VHB, Inc.  
Roof water capture and reuse, Mass Mutual, Springfield
- **Richard Klein**, The Berkshire Design Group  
Bioretention facilities, Northampton Senior Center
- **Stuart White**, Architect, and William Fuqua, Holyoke DPW  
Green roof, Jones Ferry River Access Center, Holyoke

11:00 – 11:15

**BREAK**

11:15 – 12:00

**Costs and Benefits of GI/LID (Rob Roseen and Tom Benjamin)**

Review of actual design/installation/maintenance costs for GI/LID practices, documented benefits and reference to resources/data with additional information.

12:00 – 1:00

**LUNCH**

Web tools for GI/LID information, poster session, networking.

1:00 – 1:45

**Incorporation of GI/LID in Retrofits and Redevelopment Projects (Michelle West - HW)**

Introduction and local/regional examples, unique aspects for redevelopment, cost implications.

1:45 – 2:30

**Importance of Construction Administration (20 minutes presentation- Rich Claytor - HW and 25 minute audience participation)**

Construction admin (specs, preconstruction meetings, inspections, communication), sources for materials, contractor expertise. Question and answers.

2:30 – 2:45

**BREAK**

2:45 – 3:30

**Importance of GI/LID Maintenance (20 minutes presentation- Rich Claytor - HW Representative and 25 minute audience participation)**

Perceptions/realities about GI maintenance requirements, special equipment and training. Routine and non-routine maintenance. Aesthetics and economics of well maintained practices. Questions and answers.

3:30 – 4:15

**Resources/Tools to Get the Job Done (EPA)**

What we heard from you in the pre-workshop exercise, where to find tools & resources, the Pioneer Valley Green Infrastructure Plan, next steps to get the job done, and future workshops.



Pioneer Valley  
Planning Commission  
60 Congress Street – Floor 1  
Springfield, MA 01104  
[www.pvpc.org](http://www.pvpc.org)



**GREEN INFRASTRUCTURE for Developers,  
Designers, Contractors & Municipal Officials**  
**June 13, 2013 8:30-4:15**  
**Kittredge Center**  
**Holyoke Community College**

**REGISTRATION IS REQUIRED BY JUNE 10<sup>th</sup>**

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Supplies, Tools, Resources, and Services Fair for  
Western Massachusetts



# Soak up the Rain:

## Benefits for Your Home and Business

*Save Money   Beautify your landscape   Prevent Pollution   Reduce Flooding*

### Demonstration Workshop for Homeowners and Businesses

Saturday, October 26<sup>th</sup> 11 am – 3 pm  
Lilly Library, 19 Meadow Street, Florence, MA

Come learn how you can soak up the rain. This is a hands-on demonstration workshop on how citizens and businesses can capture and treat rain water and snow melt. You'll learn about:

- Rain barrels and cisterns
- Porous pavers
- Rain gutter downspout diversion
- Rain gardens
- Green roofs

**Registration is required – deadline October 18<sup>th</sup>**

To register contact Pioneer Valley Planning Commission at [acapra@pvpc.org](mailto:acapra@pvpc.org) or Anne Capra at (413) 781-6045.

Workshop is FREE. Refreshments provided.

Instructors are from the Pioneer Valley Planning Commission, UCONN Center for Land Use Education and Research, and the U.S. Environmental Protection Agency

Sponsored by Pioneer Valley Planning Commission, Connecticut River Stormwater Committee, and U.S. Environmental Protection Agency





# Soak up the Rain:

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#### AGENDA

- 10:30-11**      **Registration, Light Refreshments, Rain Barrel Raffle sign up, Materials Display Table**
- 11-11:15**      **Welcome**      *Anne Capra, Pioneer Valley Planning Commission*  
*Josh Secunda, U. S. Environmental Protection Agency, Region 1*
- Round Robin w/Attendees – Where are you from and why are you here?**
- 11:15-11:35**      **Watershed Dynamics, Stormwater Pollution, and the Residential Landscape in the Connecticut River Watershed – How does it all work?**  
*Anne Capra, Pioneer Valley Planning Commission*
- 11:35-12:45**      **Rain Garden Design, Construction and Maintenance – Residential Primer**  
Michael Dietz, UCONN NEMO
- 12:45-1:00**      **BREAK**
- 1:00-1:30**      **Rain Garden App Demonstration Exercise**  
Michael Dietz, UCONN NEMO
- 1:30-2:45**      **Rain Barrels, Cisterns, Porous Pavers, Green Roofs and Other Systems**  
*Anne Capra, Pioneer Valley Planning Commission*  
*Hands-on demonstration and discussion:*
- *Rain barrels and cisterns*
  - *Roof leader diversion*
  - *Drywells and infiltration devices*
  - *Porous pavers and pavement-*
  - *Green roofs*
- 2:45-2:50**      **Resources**  
*Anne Capra, Pioneer Valley Planning Commission*  
*Web tour of two websites: [www.ConnecticutRiver.us](http://www.ConnecticutRiver.us) and [www.PVPC.org/soakuptherain](http://www.PVPC.org/soakuptherain)*
- 2:50– 3:00**      **Next Steps – How will you Soak up the Rain?**  
**Rain Barrel Raffle**  
**Post-Workshop Evaluation**

Sponsored by Pioneer Valley Planning Commission, Connecticut River Stormwater Committee, and U.S. Environmental Protection Agency Region 1

# HOME & GARDEN REAL ESTATE

**OPEN HOUSES**  
Inside Real Estate



**AUCTIONS, TAG SALES**  
Inside Real Estate



**WESTERN MASS. DEEDS**  
Page F6



**MORTGAGE RATES**  
Page F7



## Soak it up!

Control storm water, snow melt to help curb pollution ■ Page **F4**

For the Best Local Real Estate listings, log onto [masslive.com](http://masslive.com)

# Soak it up!

## Control rain, snow melt to help curb pollution

By CORI URBAN

Concerns are rising over more frequent large storm events that push municipal sewer systems past their limits, causing not only flooding but increased water pollution.

That's why the Pioneer Valley Planning Commission is sponsoring a demonstration workshop for homeowners and businesses on ways to control storm water and snow melt.

"Soak up the Rain: Benefits for Your Home and Business" will take place on Oct. 26 from 11 a.m. to 3 p.m. at Lilly Library, 19 Meadow St., in the Florence section of Northampton.

"The Connecticut River is probably the most important natural resource in the region, and it is getting polluted at times during wet weather from combined sewer overflows," said Anne M. Capra, principal planner for the Pioneer Valley Planning Commission.

Some cities - like Chicopee, Springfield and Holyoke - have storm sewers that are combined with sanitary sewers, and thus during storms raw sewage can be discharged into the river, causing elevated bacterial levels in the water and making swimming, boating and fishing unsafe.

In addition, heavy runoff can cause erosion.

But if property owners were to use methods to use or to soak storm water into their grounds, it would not have to pass through the sewer system, Capra explained. Overflows and resulting problems would be less likely.

"Our goal is to reduce peak overflows," she said.

The hands-on demonstration workshop will help property owners and businesses learn how they can

### IF YOU GO

**Event:** Soak up the Rain: Benefits for Your Home and Business

**When:** Saturday, Oct. 26, from 11 a.m. to 3 p.m.

**Where:** Lilly Library, 19 Meadow St., in the Florence section of Northampton

**Cost:** Free

**To register by Oct. 21 and for more information:**

Email [acapra@pvpc.org](mailto:acapra@pvpc.org) or call (413) 781-6045

“Our goal is to

reduce peak

overflows.”

Anne M. Capra

capture and treat rainwater and snow melt. Participants will learn about rain barrels and cisterns, porous pavers, rain gutter downspout diversion, rain gardens and green roofs.

Instructors will be from the Pioneer Valley Planning Commission and the University of Connecticut Center for Land Use Education and Research and sponsors include the U.S. Environmental Protection Agency.

The Connecticut River is probably the most important natural resource in the region, and it is getting polluted at times during wet weather.

"Storm water nationwide is the leading cause of water pollution, according to the EPA," Capra said.

In addition to pollutants entering the river through the sewer system, she said, pollutants get into rivers, streams, lakes and other water systems when rain hits the ground and picks up and distributes pollutants including pesticides, fertilizer, oil, manure, trash and road salt.



Submitted photo

A rain garden, designed by Berkshire Design Group, at the Northampton Senior Center. On the cover: An infiltration swale designed and maintained by Tree Frog Landscapes runs down the center of the parking area at River Valley Market Co-operative on King Street in Northampton.

Again, if rainwater is captured on properties to reduce the amount of water washing into bodies of water, the less water will be polluted, Capra emphasized, noting that rain gardens and rain barrels help with this process.

She said there is a greater interest in this process because of the increased frequency of large storm events in New England and because communities are being regulated by the EPA to better manage storm water on all scales, including municipal, business, industrial and resi-

dential.

Some communities - like Chicopee - have storm water utilities; Northampton is considering one, and residents would pay a fee to manage the storm water infrastructure in the community.

Capra said communities are realizing that because of the increase in large storm events and the federal regulations, they cannot "get by" with the storm water work done through the regular municipal budget funds. Thus a storm water utility "needs to be funded as its own infra-

structure," she said.

Sponsored by Pioneer Valley Planning Commission, Connecticut River Stormwater Committee and the U.S. Environmental Protection Agency, the demonstration workshop for homeowners and businesses is free. Refreshments will be provided.

Registration is required; the deadline is Oct. 21.

To register, contact Pioneer Valley Planning Commission at [acapra@pvpc.org](mailto:acapra@pvpc.org) or Anne Capra at (413) 781-6045.

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f

## 10-26-13 Soak up the Rain Workshop Evaluation Results

# of attendees: 29      # of completed evaluations: 20

For each category below, please CIRCLE the number that best reflects your evaluation.

	Poor		Good		Excellent
	1	2	3	4	5
<u>A. Round Robin w/ Attendees</u>					
1. Relevance and usefulness	0	0	5	11	1
<i>one person noted: Nice to see the geographic spread of attendees. Perhaps give a reminder in beginning to be concise.</i>					
<u>B. Rain Garden Design, Construction and Maintenance – Residential Primer</u>					
1. Relevance and usefulness	0	0	0	6	14
2. Quality of presentation	0	0	0	5	15
<u>C. Rain Garden App Demonstration Exercise</u>					
1. Relevance and usefulness	0	0	1	6	13
2. Quality of presentation	0	0	1	6	12
<u>D. Other Systems</u>					
1. Relevance and usefulness	0	0	2	6	12
2. Quality of presentation	0	0	2	8	10
<i>one person noted: Not super relevant for me, also I was tired of sitting and listening at this point.</i>					
<u>E. Resources</u>					
1. Relevance and usefulness	0	0	1	9	10
2. Quality of presentation	0	0	1	9	10
<i>one person noted: Would love resources/phone numbers on rebates, incentives, etc.</i>					

### F. Strengths and Weaknesses

#### 1. Which topics of the training did you consider most beneficial?

- Rain gardens
- When/where/why/how of rain gardens. Also thank you for the printouts.
- Calculating runoff
- Rain garden (I was surprised at all the info on paving!)
- Pavers (other systems). Would have liked more.
  - Rain barrels, rain gardens, that paving systems were immensely helpful.
- Rain gardens, rain barrel catchment.
- Rain barrels
- Rain barrel info, rain garden info
- Internet access would have improved demos
- Rain garden designs; porous pavers, and water catchments.
- All
- Local resources, UConn's department was helpful
- Building rain gardens
- Apps, web site resources, actual products to view
- Rain gardens, initial background by Anne.
- Could have had some other hands-on experiential component.

2. Which topics of the training did you consider least beneficial?

- Underground cisterns
- none
- They were all relevant!
- Green roofs, not so practical for homeowners - good that not much time devoted to topic.
- Connecticut specific stuff.
- Some terms were completely new - just beginning with this. Perhaps a terminology sheet would be helpful.
- Math, cannot remember how to do
- None, it was all beneficial, interconnected
- Cisterns, dry wells, commercial scale.

G. Did this training meet your expectations?

<u>Yes</u>	<u>No</u>
18	0

H. How would you rate the facilities?

<u>Poor</u>		<u>Good</u>		<u>Excellent</u>
1	2	3	4	5
0	0	1	8	10

I. Overall rating of the entire workshop

<u>Poor</u>		<u>Good</u>		<u>Excellent</u>
1	2	3	4	5
0	0	0	7	11

J. What will your next steps be for addressing stormwater issues at your home or business?

- Rain garden
- Talking and convincing my husband to do pervious overflow parking
- Redirect roof water, figure out whether rain garden can help
- Expand my collection system
- Rain barrels and rain gardens. Also researching options for replacing my driveway.
- Rain gutters to be installed. Need to calculate collection amounts to decide rain barrels v. cistern. Rain water garden very possible too.
- Adding more rain barrels
- Landscaping around a newly constructed barn, which is causing flooding issues.
- Rain barrels connections and putting them away for winter. I didn't know they should go in. My
- Empty rain barrel, get gutters clean and reevaluate stones around part of foundation
- Removing asphalt and concrete; installing rain barrels; building rain gardens; altering gutters
- Detailed look at alternatives from resources mentioned; check costs of materials, schedule work
- Begin a rain garden design, look into porous pavement options
- Implementing strategies suggested by presenters for slope situation.
- Measuring and assessing space, starting to physically do the work.
- Running water from gutter away from house
- Testing areas in my yard for absorption levels. Making my own water barrel.
- When go to buy land for a home, will have a more educated and creative eye.
- At work there is some kind of a rain garden in the parking lot. I'm interested in transitioning the vegetation from cattail and bittersweet to something more functional.

K. What would be most helpful to you for implementing your next steps? What additional resources, information, incentives do you need?

- Money and list of products and where to buy
- Step by step instructions. Will need the time and \$s, but that will come.
- Local area contacts for future questions.
- Vendors. Where to get rain barrels and paver/asphalt info.
- Establish Soak up the Rain program in Berkshire County too
- Materials, supplies in area and to go look at sites referred to in this workshop.

- A person to come out one time to do a consult on our property to help see what would work best and possible pitfalls to avoid.
- Plan to check out websites
- Wegsites, books, I am curious to look at the phone app.
- Will check resources given
- Referral for materials list - local
- I would like to see this workshop offered in my town of Belchertown. Development is increasing and there seems to be a lack of planning with regard to stormwater planning.
- Availability of a site consultation (West Springfield) even if a fee.
- Wish the Uconn smart phone app was on the web. I don't have a smart phone.
- Resource links look like they have valuable information
- Besides having someone else do the digging for me, the web sites will help me implement my
- Sources, phone numbers to help me create a pitch to my organization that targets economic benefits
- Incentive/programs for new homeowners and young farmers

L. Do you know any groups or organizations that would be interested in this workshop? Please provide contact information.

- Try contacting Stanley Park or Grandmother's Garden both in Westfield
- Pascommuck Trust in Easthampton
- Berkshire Regional Planning Commission
- Sustainable Berkshires
- Center for Eco Technology
- Master Gardeners
- Greening Greenfield
- High schools, colleges with horticultural/landscaping classes such as STCC.