

Municipality/Organization: Town of Longmeadow

EPA NPDES Permit Number: MA041013

MaDEP Transmittal Number:

Annual Report Number

& Reporting Period: No. 10: March 2013-March 2014

NPDES PII Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: Yem Lip, P.E.

Title: Town Engineer

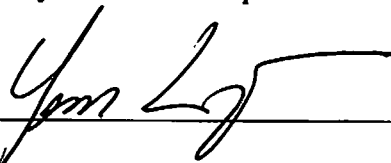
Telephone #: (413) 567-3400

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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: Yem Lip, P.E.

Title: Town Engineer

Date:

4/28/14

Part II. Self-Assessment

The Town of Longmeadow performed a review of the Town's progress on the goals for meeting the minimum control measures under the NPDES MS4 Phase II permit. The Town publicizes stormwater related issues and supports and encourages active participation by Town residents in addressing pollution and stormwater concerns. The town complete the maps of stormwater outfalls, and continued to update map of drainage pipes and catch basins, and inspect outfalls, catch basins and drain lines for potential illicit discharges. The Town has completed review of existing regulations, including the Massachusetts Wetlands Protection Act and the recently revised MADEP Stormwater Management Standards, and has enacted bylaws. The Town's efforts to meet the identified measurable goals including ongoing compliance efforts are summarized in Part III Summary of Minimum Control Measures, which follows.

Acronyms Used in Following Pages

Con Com = Conservation Commission

DPW = Department of Public Works

PVPC = Pioneer Valley Planning Commission

Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Additional Planned Activities
1A	Hazardous Waste Day	Board of Health/DPW	Give residents opportunity to drop off hazardous waste	Hazardous Waste day was held on September 2013.	Hazardous Waste day is scheduled for September 2014.
1B	Pet Waste By-law	Public Works Director	Completed	By-law in place. Public education included posting notice on web page. Distributed pet waste flyers prepared by PVPC.	Public education: to include posting notice on local cable access TV and press release.
1C	Longmeadow Website	Town Engineer	NPDES Information on DPW website	The Department of Public Works has incorporated NPDES information on the town web site	The Department of Public Works will continue to incorporate NPDES information on town web site.
1D	Public Outreach	PVPC	Variety of public outreach activities	Contributed \$2,000 to participate in regional public outreach and education stormwater program. Actively participate in committee programs	Continue to be part of PVPC's regional public outreach and education stormwater program.
1E	Newspaper Press Releases	Town Engineer	Publish stormwater/ water quality info 2x / year	Advertised sale of rain barrels in newspaper and submitted articles on stormwater issues	Publish stormwater/water quality info twice in the year.
1F	Classroom Education	School District/Town Engineer	Incorporate water quality into curriculum	Offered grant as part of regional planning organization for curriculum development. Distribute Curriculum prepared by grant will to schools for use.	Work with School Science Coordinators to incorporate into curriculum.
1G	Public displays/handout	Public Works Director	Post stormwater related educational posters and handouts in Town Hall	Posted stormwater related educational posters and handouts in Town Hall. Distributed "Greenscapes" materials to public. Displayed materials at "Longmeadow Days" Town Fair. Included bill stuffers on lawn care practices	Post stormwater related educational posters and handouts in Town Hall. Greenscapes materials distribution to public. Post materials at Longmeadow Days. Bill stuffers on conservation and "green" topics.
1H	Public Announcements	Town Engineer	Present Public Service Announcement (PSA) on local cable station	Stormwater program PSA aired on the cable channel throughout the year.	Periodic airings of PSAs.

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Additional Planned Activities
2A	Stream Cleanup and Monitoring	DPW Director and Town Engineer	Organize concerned residents to walk and clean up stream. Support interested groups by providing tools and disposing of trash bagged by participants.	Had discussions with Con Com to develop ideas and cooperative efforts. Had discussion with DEP and PVPC as their contractor regarding potential use of Longmeadow stream for WQ monitoring. Supported Connecticut River Cleanup activities by picking up and disposing of trash bagged by participants.	Continue to support interested groups by providing tools and disposing of trash bagged by participants. Providing flyers regarding disposal of dog waste.
2B	Adopt a Stream	Public Works Director	Organize concerned citizens to adopt streams. Support interested groups by providing tools and disposing of trash bagged by participants.	Supported Connecticut River Cleanup activities by picking up and disposing of trash bagged by participants.	Continue to support interested groups by providing tools and disposing of trash bagged by participants.
2C	Stormwater Committee	Board of Selectmen	Stormwater Committee formed	Formed stormwater committee with representation from Conservation, Board of Health, Building, Planning and DPW.	Raised issues at select board meeting to promote stormwater utility. Included in annual Engineering Report.
2D	Invasive Species Removal	Public Works Director	Provide appropriate disposal area for removed vegetation	Provided appropriate disposal area for water chestnut vegetation removed by volunteers coordinated by EPA.	Continue to provide appropriate disposal area for removed vegetation to support efforts to eradicate invasive species
2E	Adopt-a-Triangle	Parks Dept.	Support interested groups by providing tools and disposing of trash bagged by participants.	Supported volunteer activities by picking up and disposing of trash bagged by participants.	Support interested groups by providing tools and disposing of trash bagged by participants.

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Additional Planned Activities
3A	Sanitary Sewer Maintenance Program	Public Works Assistant Director	Develop plan of cleaning and inspecting sewer mains	Town is inspecting sewer interceptors along brook valleys to identify areas of breakage, erosion, or other physical conditions that may impair the integrity of the pipeline. Video inspected 1/4 of the sewer system in 2013.	Continue to inspect sewer interceptors for potential impact to resource areas. Perform \$40,000 of video inspection of sewers in 2014. Repair leaks.
3B	Storm Drain System Map	Engineering Dept/Town Engineer	Develop a storm sewer system map and locate outfalls	All outfalls GPS'd. Bringing data into AutoCAD and GIS program to generate more accurate storm sewer map.	Continue developing the storm sewer map and GIS to organize system data and maintenance efforts. Continued Update GIS Map.
3C	Non-Stormwater By-law	Town Engineer	By-law established	Town approved bylaw at Town meeting. ConCom reviews project for compliance with the MA Stormwater Management Standards under the MA Wetlands Protection Act.	Identify if additional regulations are needed, draft regulations for Town Meeting vote.
3D	Entrance Permit	Public Works Director	Completed	Discussed options for permitting and including language in deeds making owner responsible for discharges.	Continue to work with Town Attorney and Select Board to determine best course of action.
3E	Develop Illicit Discharge Program	Town Engineer	Completed	DPW has approved a by-law to address illicit discharges and connections. DPW assessed outfalls for potential illicit discharges.	Complete illicit discharge program.
3F	Illegal Dumping	Public Works Director	Perform regular patrols/cleanup	DPW performed regular patrols and cleaned up illegal dumped trash.	Continue to perform regular patrols/cleanup.
3G	Assess Outfalls	Engineering	Assess 10% of municipal outfalls per year	DPW hired T&B to inspected 100% of municipal outfalls in 2013.	Assess 10% of municipal outfalls per year.

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Additional Planned Activities
4A	Stormwater Pollution Prevention Plan for Construction	Public Works Director/Town Engineer	Require pollution prevention plan for construction sites	Town approved bylaw at Town meeting. ConCom reviews project for compliance with the MA Stormwater Management Standards under the MA Wetlands Protection Act.	Identify if additional regulations are needed, draft regulations for Town Meeting vote. Develop inspection program for all significant construction projects. Work with Building department to control and contain stormwater.
4B	Construction Runoff By-law	PB/ Con Com/ DPW	by-law.	Town approved bylaw at Town meeting. ConCom reviews project for compliance with the MA Stormwater Management Standards under the MA Wetlands Protection Act.	Identify if additional regulations are needed, draft regulations for Town Meeting vote. Develop inspection program for all significant construction projects. Work with Building department to control and contain stormwater.
4C	Plan Review	PB/ Con Com/ DPW/BOH	Enforcement under by-law	Continued plan review per new bylaw.	Continue plan review per new bylaws. By-law enforcement proposed following enactment.
4D	Inspection / Reporting	DPW/PB/ Con Com	Enforcement under by-law	Continued inspection / reporting under existing regulations.	Continued inspection / reporting under existing regulations. By-law enforcement proposed following enactment.

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 10 (Reliance on non-municipal partners indicated, if any)	Additional Planned Activities
5A	Post Construction Runoff By-law	Director DPW	By-law Established	Town approved bylaw at Town Meeting. ConCom reviews project for compliance with the MA Stormwater Management Standards under the MA Wetlands Protection Act.	Identify if additional regulations are needed, draft regulations for Town Meeting vote.
5B	Construction Site Plan Review	PB/ Con Com/ DPW	Enforcement under by-law	Continued plan review per new regulations.	Continue plan review per new regulations. By-law enforcement to be part of plan.
5C	Stormwater System Maintenance Plan	PB/Con Com/ DPW	Enforcement under by-law	Continued inspection / reporting under new regulations.	Continued inspection / reporting under new regulations. By-law enforcement proposed following enactment.

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 10 (Reliance on non-municipal partners indicated, if any)	Additional Planned Activities
6A	Catch Basin Maintenance	Public Works Asst. Director for Highways	Organize program for cleaning and inspecting catch basins. Clean 400 catch basins annually	Approximately 850 catch basins cleaned and inspected . Numerous basins repaired. Video inspected suspect drain lines.	Clean approximately 600 catch basins. Repair and replace as necessary.
6B	Street Sweeping	Public Works Assistant Director for Highways	Organize program for sweeping streets	100% of paved town streets were swept in the month of April. Certain commercial area streets were swept two or three times.	Sweep 100% of streets.
6C	Municipal Maintenance Activity Program	DPW Director	Evaluate and draft additional policies	Reviewed existing policies and started to draft new policies	Review existing policies. Formalize in writing and draft new policies as necessary.
6D	Training of all municipal employees	DPW Director and Assistant Director for Highways	Initiate good housekeeping training	In-house training is done for new hires or anyone transferring within DPW. Conducted good housekeeping training for DPW staff in 2013.	Conduct good housekeeping training in June 2014.

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 10 (Reliance on non-municipal partners indicated, if any)	Additional Planned Activities
7A	TMDL	Various	Performance of previously identified BMPs.	The BMPs described in the above tasks will also address TMDL issues in the Connecticut River.	The BMPs described in the above tasks will also address TMDL issues in the Connecticut River.

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/***

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.

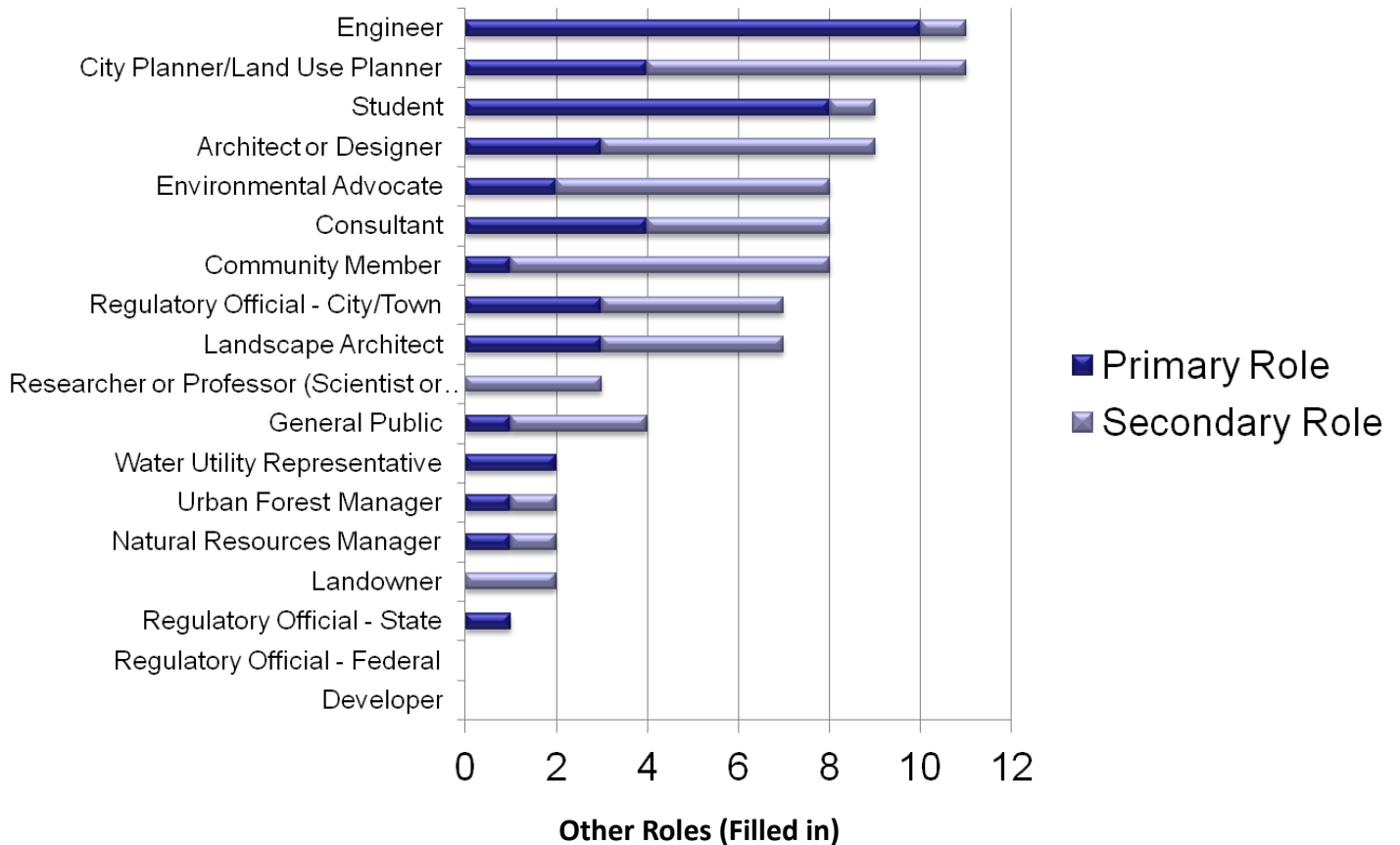
Topics of Interest to Participants

- 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

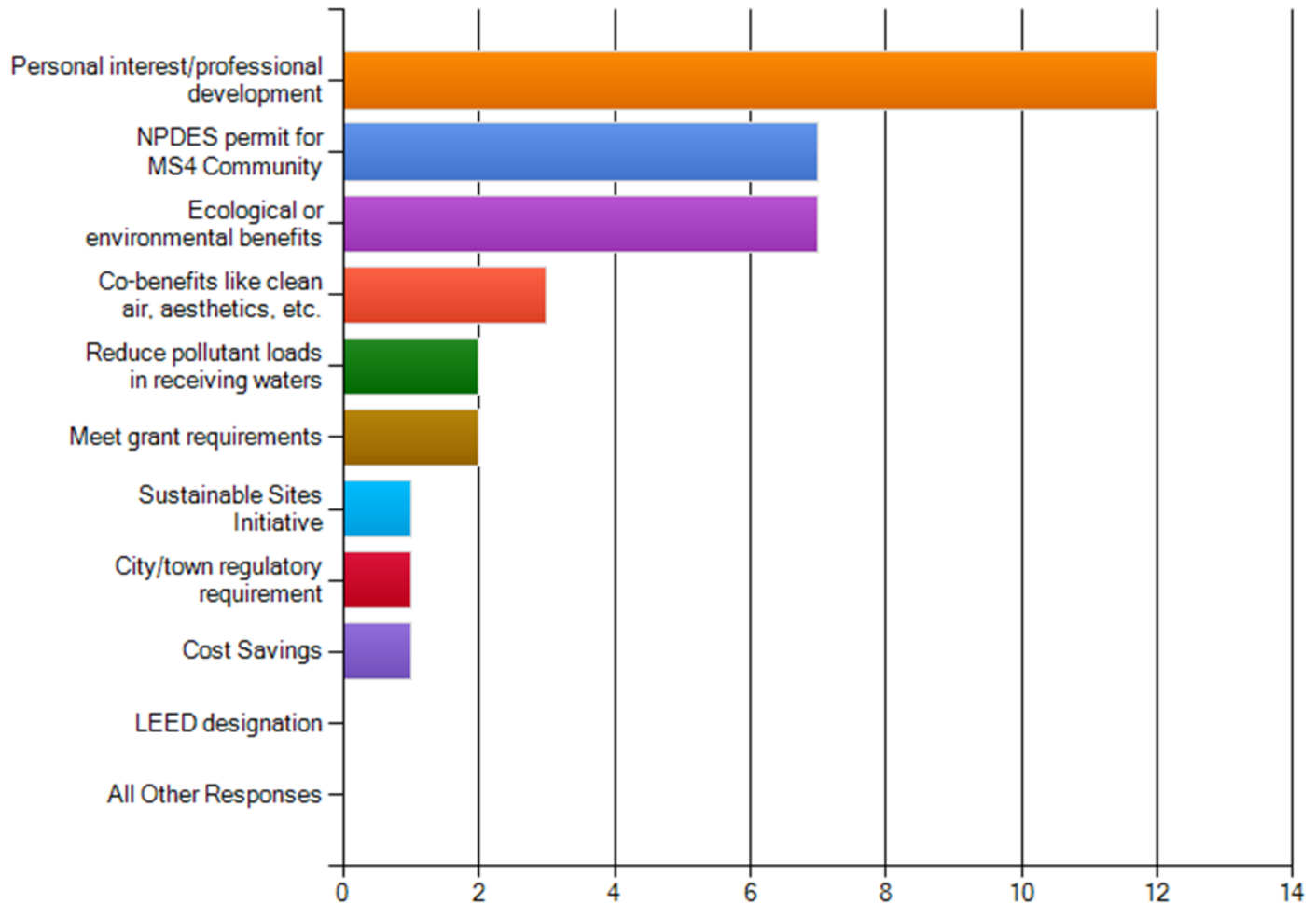
42 Participants (not including speakers)

72 People registered

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

Drivers

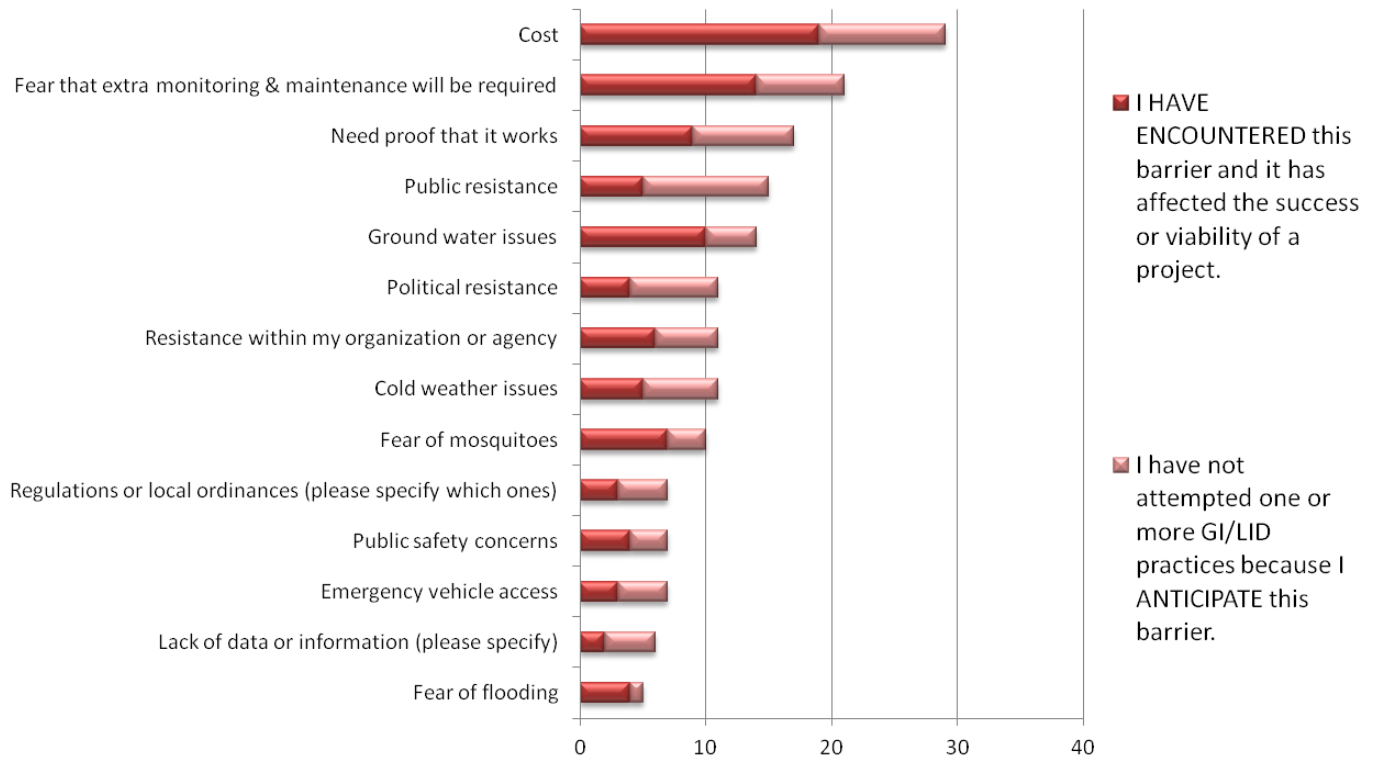
What is the primary reason that participant are interested in GI?LID?



- ◇ "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

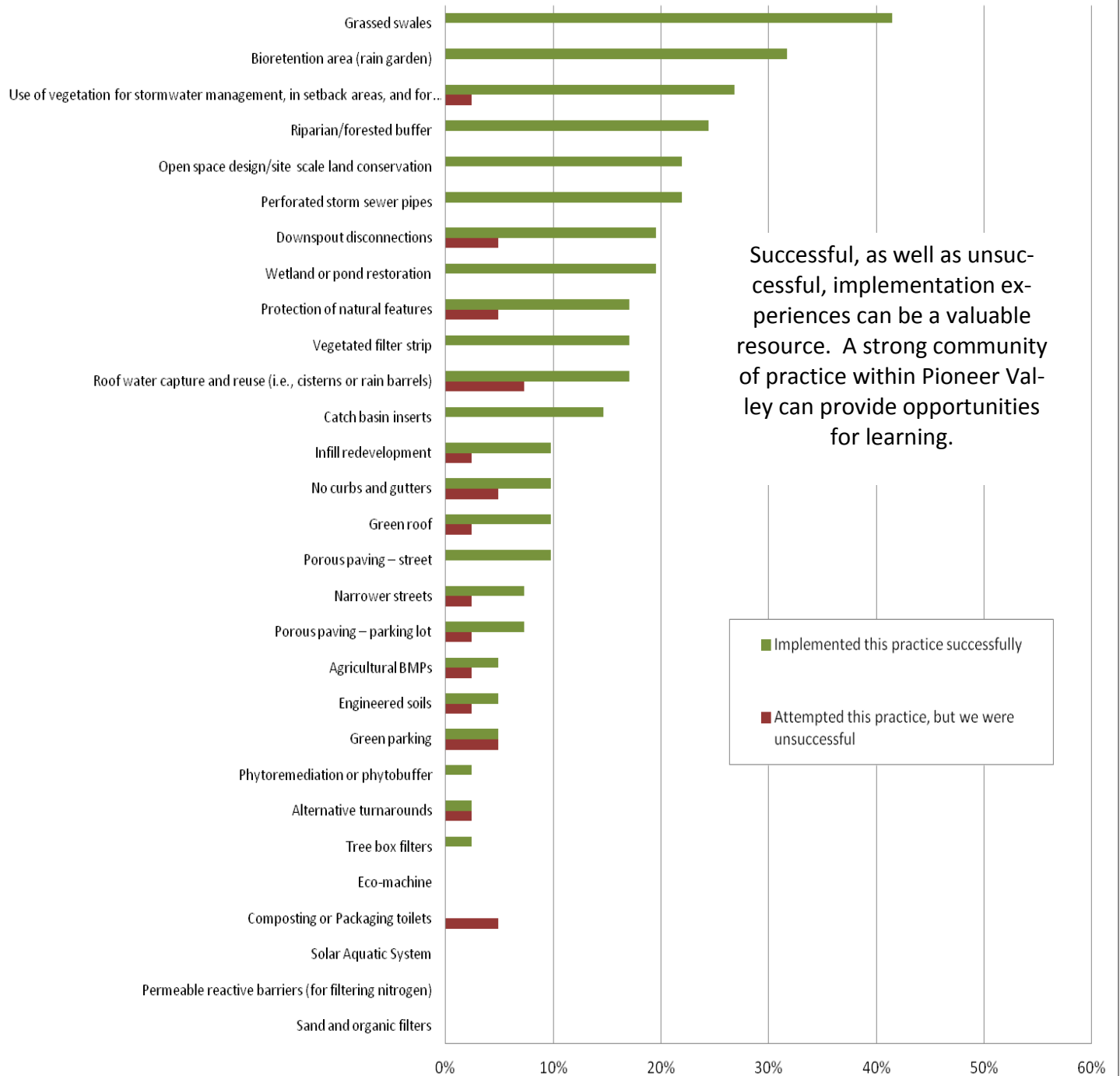
What is in the way?



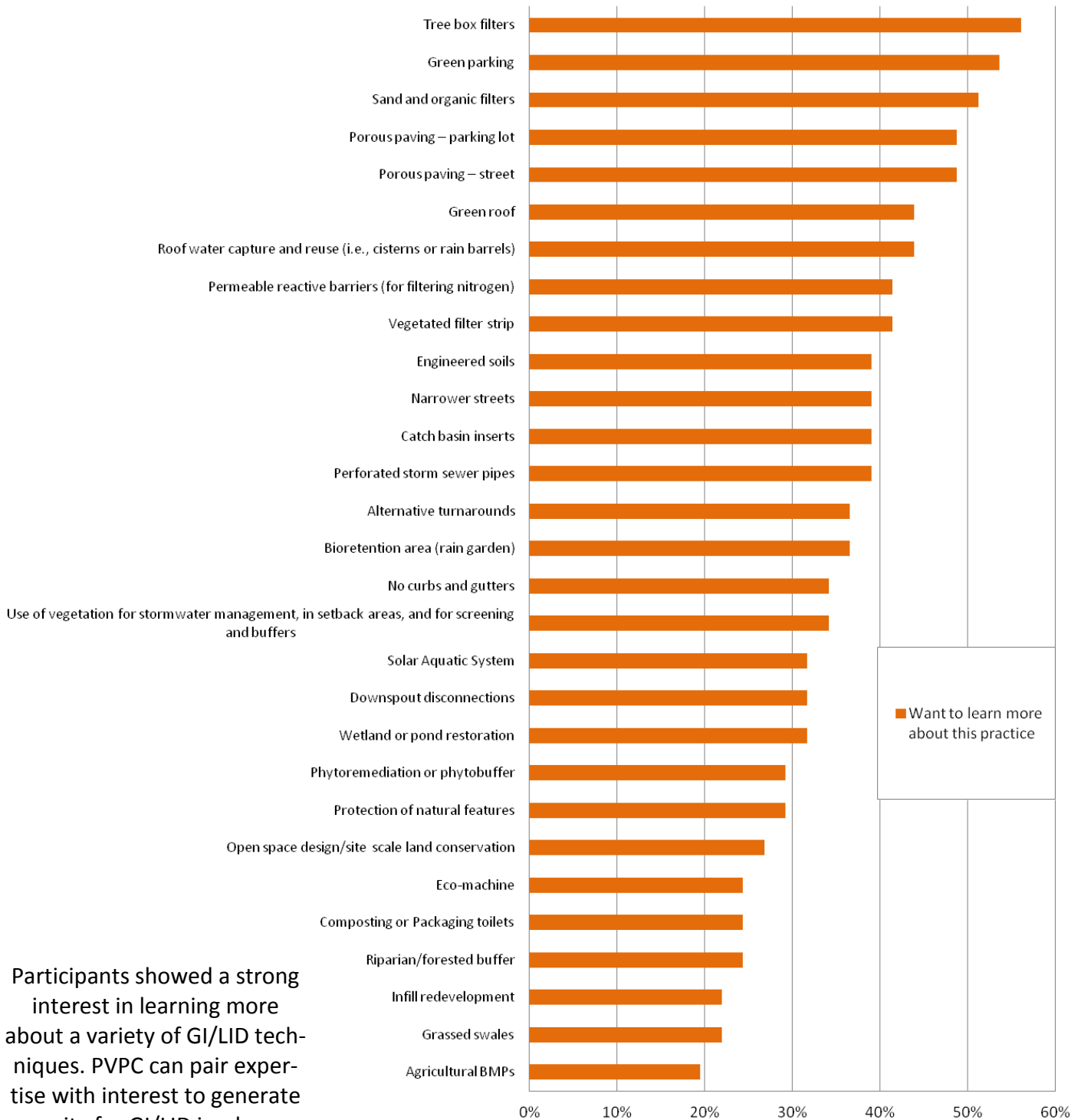
Other Fill-in

- ◇ 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

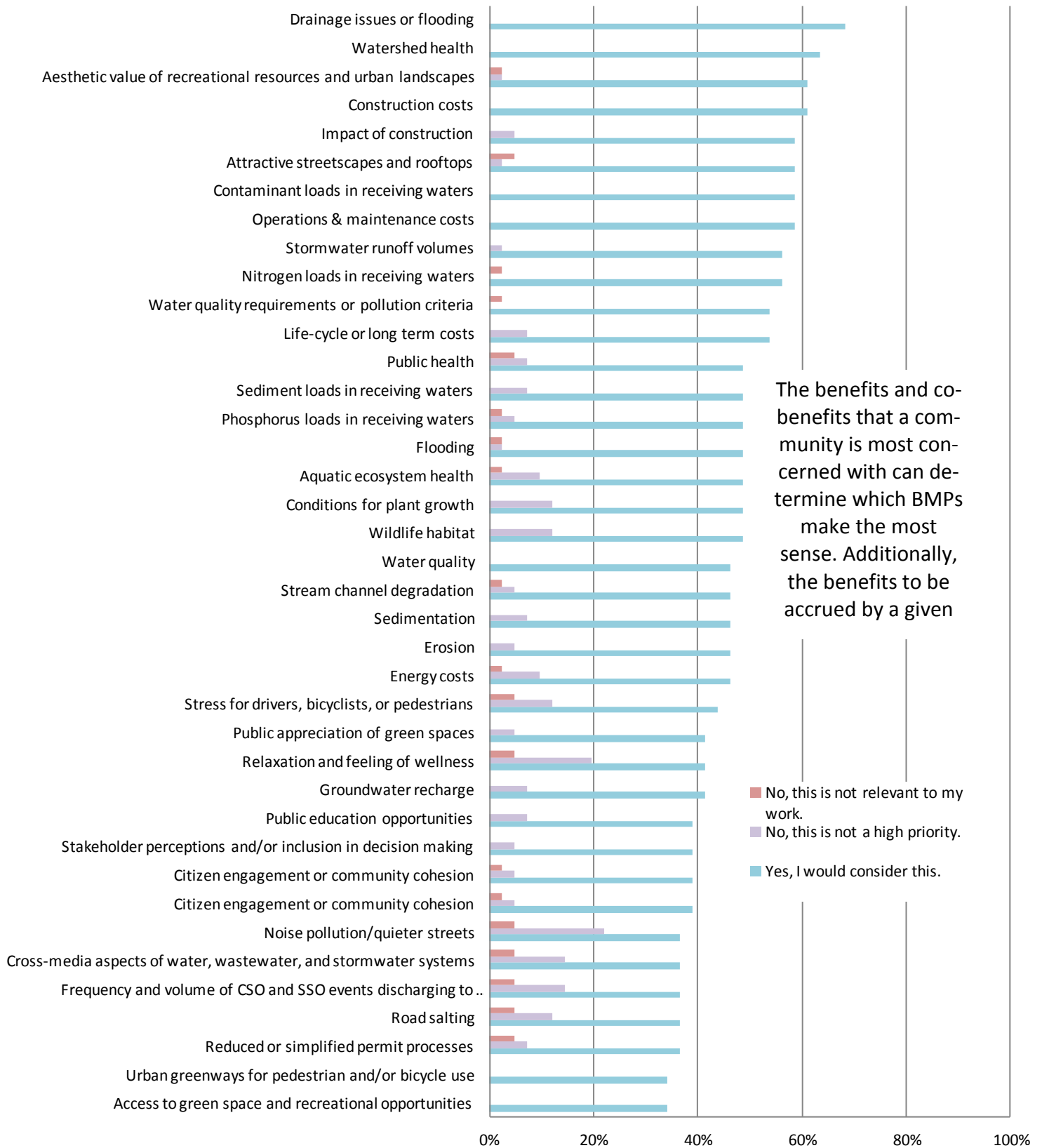
Implementation Success



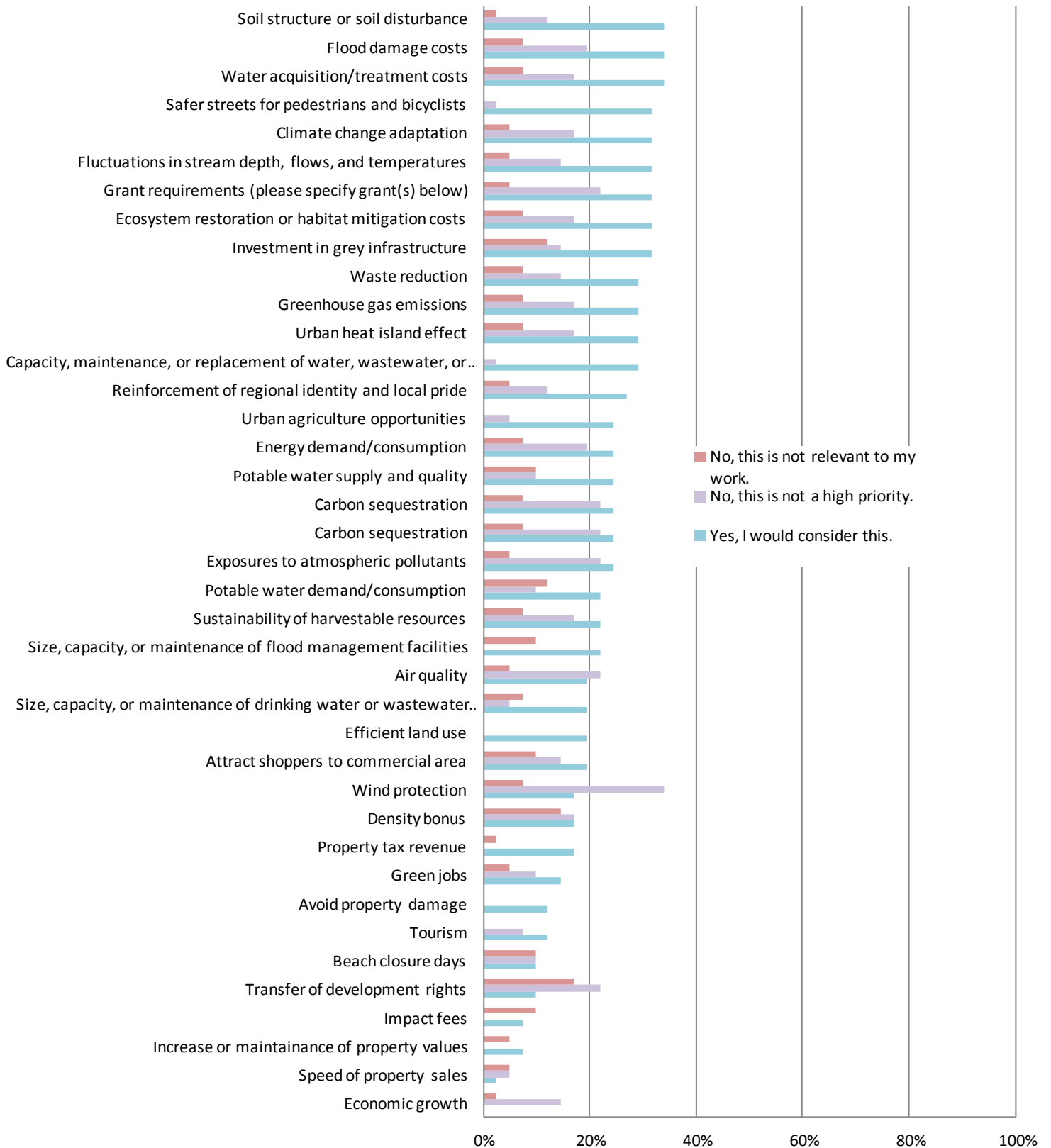
Interest in Management Practice



Priorities - Highest 39/78

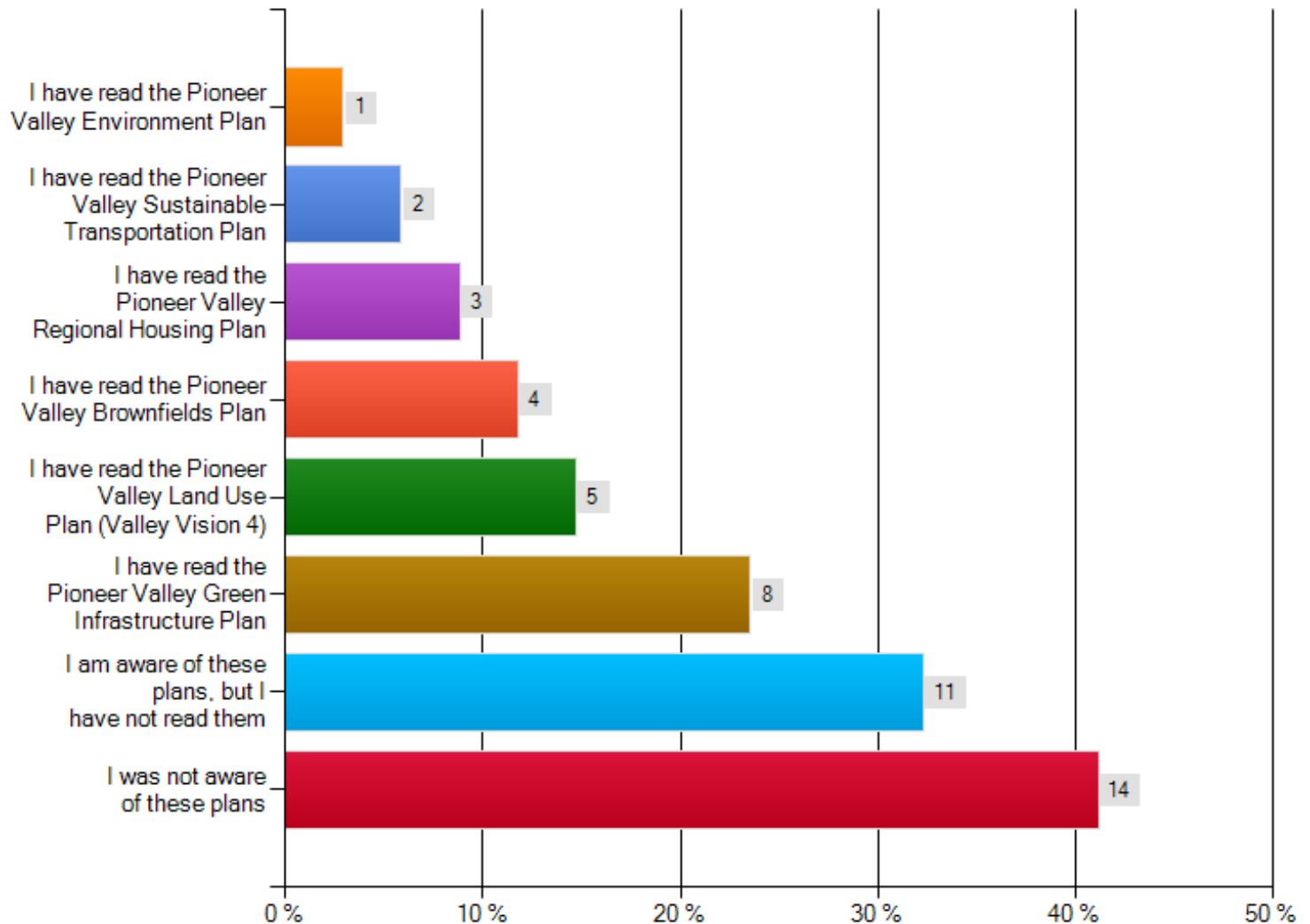


Priorities - Lowest 39/78



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://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

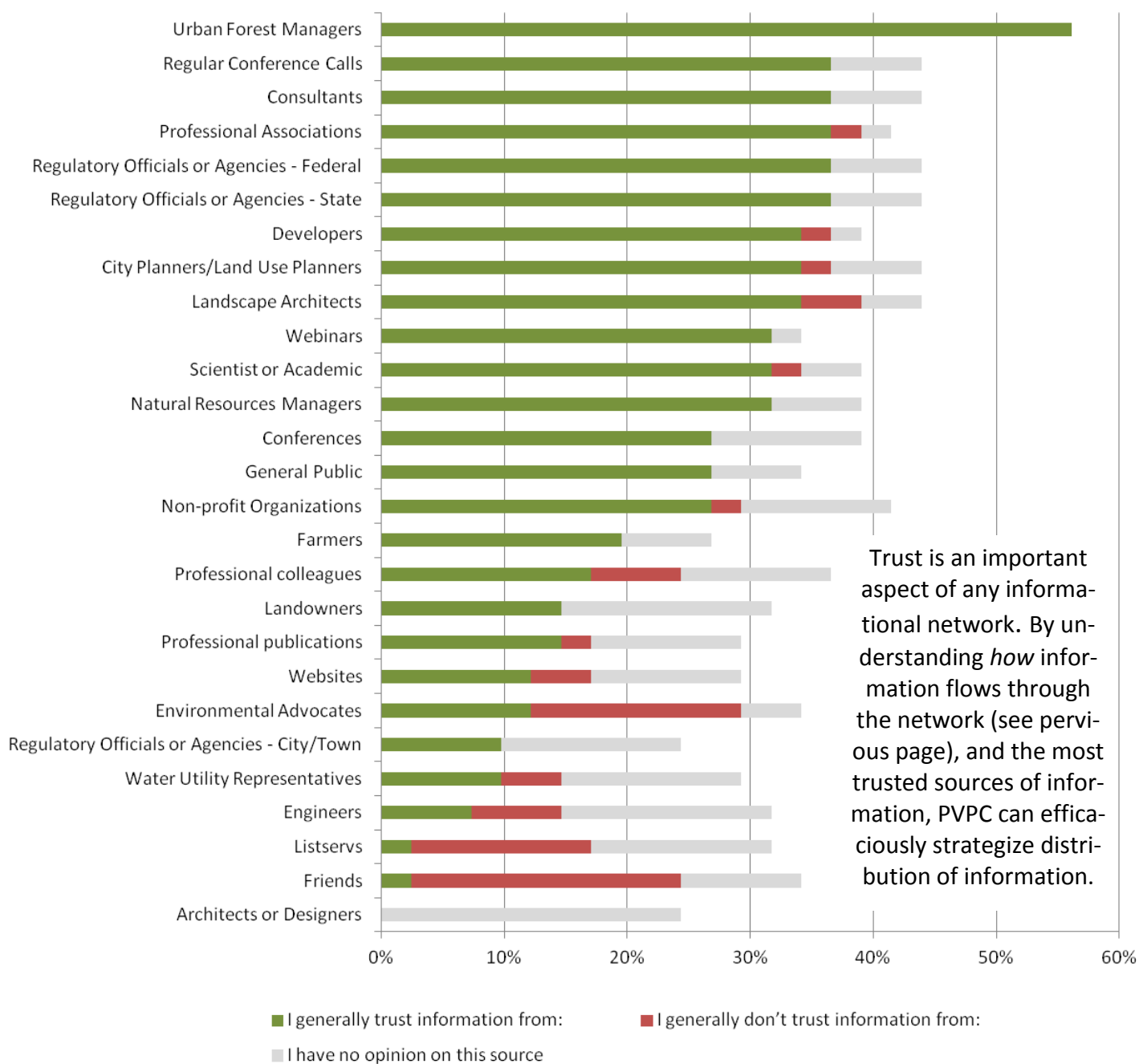
Missing Tools, Resources & Information

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.

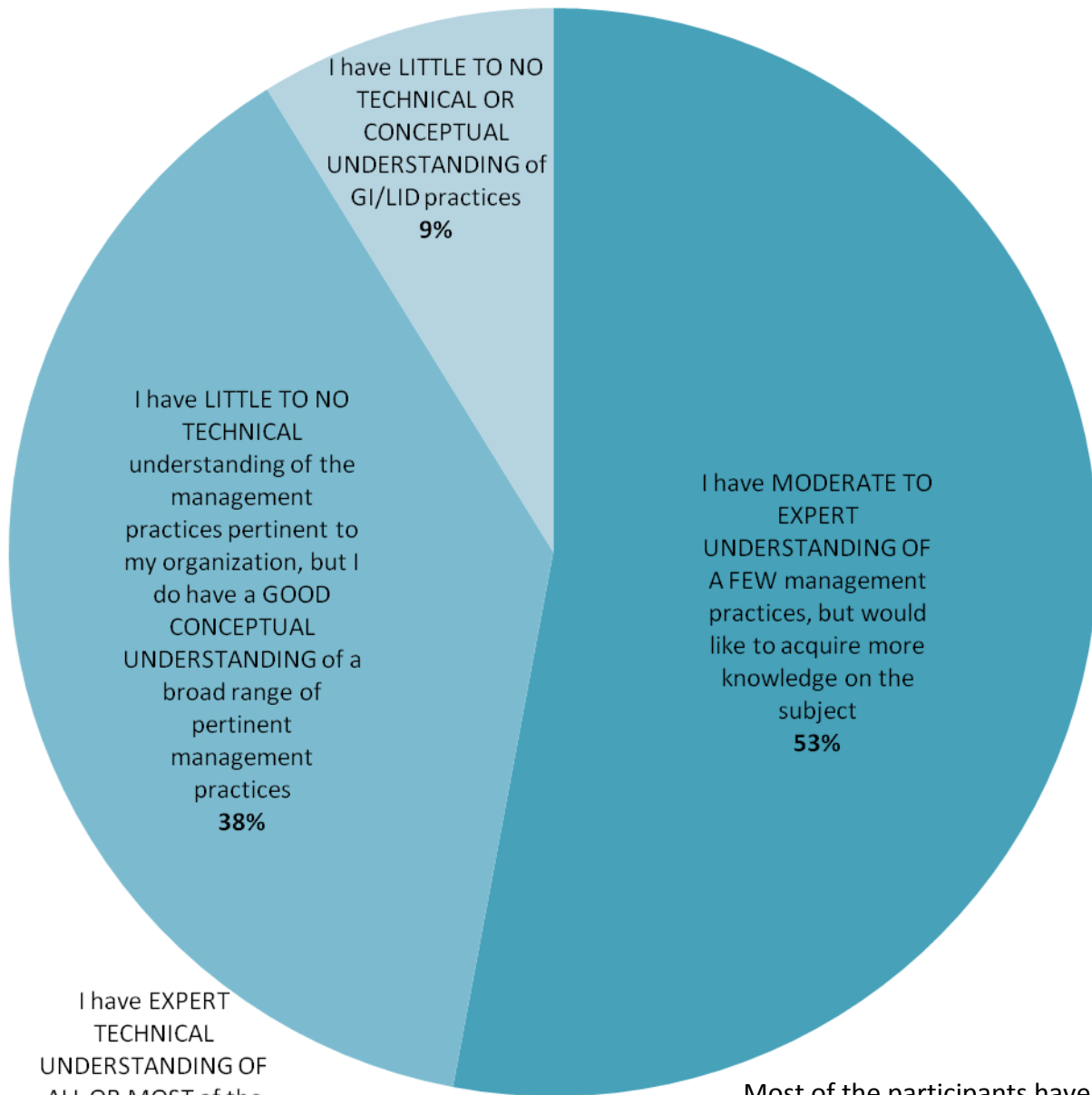
Trust

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



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 10th

Email Anne Capra at 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



**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 10th

Email Anne Capra at acapra@pvpc.org

Events to Come:

September 17, 2013 – Green Infrastructure
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 26th 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 18th

To register contact Pioneer Valley Planning Commission at 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



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

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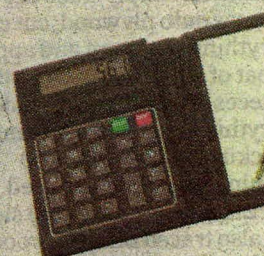
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Soak it up!

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

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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 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 or Anne Capra at (413) 781-6045.

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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.