

Municipality/Organization: Town of Ludlow

EPA NPDES Permit Number: MA041014

MaDEP Transmittal Number: W-036097

Annual Report Number

& Reporting Period: No. 12: May 1, 2014-April 30, 2015

NPDES Phase II Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: James Goodreau

Title: Assistant Town Engineer

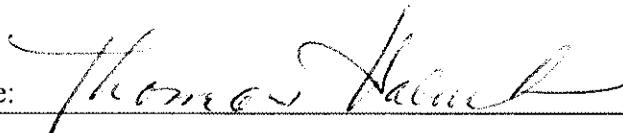
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Certification:

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: Thomas Haluch

Title: Chairman – Ludlow Board of Public Works

Date: April 8, 2015

Part II. Self-Assessment

The Town of Ludlow has completed the required self-assessment of compliance with the Phase II Stormwater Management Program. In accordance with the NPDES Phase II Stormwater requirements, the following topics were evaluated for the completion of the Annual Report

1. Compliance with the Phase II Permit Conditions
2. Appropriateness of the Selected BMPs
3. Progress Towards Achieving the Program's Measurable Goals
4. Results of Any Information that has been Collected and Analyzed
5. Activities for the Next Reporting Cycle
6. Changes in Identified BMPs or Measurable Goals

Regulatory Mechanisms

The Town of Ludlow adopted a General Stormwater Bylaw at the October 2005 Special Town Meeting, Article 18, amended at the October 2006 Special Town Meeting, Article 24. The Bylaw provides mechanisms that 1) prohibit non-allowable, non-stormwater discharges to MS4s; 2) require sediment and erosion control at construction sites; and 3) control post-construction stormwater runoff from development or redeveloped parcels. A copy of the adopted bylaw was provided in permit year IV annual report.

Public Education and Outreach

Since joining the Connecticut River Clean-Up Committee – Stormwater Subcommittee (CRCC-SC) in 2005, the Town of Ludlow has participated in a regional media marketing campaign to educate residents about stormwater. Attachment A of this report contains details of public education and outreach programs accomplished by the CRCC-SC and the Town of Ludlow. The attachment details activities completed during permit year XII.

Illicit Discharge Programs

As outlined in the Permit, the Town of Ludlow has completed its storm sewer system map (100%) in a GIS format and, as mentioned above, Ludlow adopted regulatory mechanisms to prohibit non-stormwater discharges to its MS4. The Town of Ludlow was successful in eliminating the last Combined Sewer Overflow in Town. This work was completed and the last overflow in Town was eliminated in 2010. The Town of Ludlow discovered a catch basin tied into a sewer system during one of their projects and eliminated the connection by constructing a new drain line.

Outfall Mapping Requirement

The Town of Ludlow completed the outfall mapping requirement. The database was developed to allow for tracking the frequency of maintenance operations.

It should be noted that some portions of the Town of Ludlow MS4 is interconnected with the MS4 owned and operated by the Massachusetts Department of Transportation (MassDOT). A total of eight (8) outfalls are located on property with limited access and have stormwater contributions from both the Town of Ludlow and MassDOT. Therefore, assessing and maintaining these outfalls cannot be accomplished without relying on the MassDOT.

Certification of Eligibility – Endangered Species Act (ESA) and National Historic Preservation Act (NHPA)

The Town of Ludlow complied with this requirement of the permit during permit year II and was detailed in the annual report.

Discharges into Water Quality Impaired Waters

According to the *Massachusetts Year 2004 Integrated List of Waters*, published by MassDEP, water bodies in Ludlow are categorized as the following: Category 2 Haviland Pond, Red Bridge Impoundment, and Springfield Reservoir; Category 3 Harris Pond and Murphy Pond; Category 4a Minnechoag Pond; and Category 5 Alden Pond and Chicopee River. In addition, the *2004 Integrated List of Waters* lists Minnechoag Pond as the only water body covered by a TMDL within Ludlow.

Discharges into Waters with Approved Total maximum Daily Load Allocations

The Town of Ludlow's MS4 discharges to Minnechoag Pond for which a TMDL has been approved. Ludlow had design plans completed for the reconstruction of a portion of the drainage system discharging to Minnechoag Pond. The drainage improvement project was constructed in concert with a roadway/intersection improvement project, both of which are being funded by the Commonwealth of Massachusetts. This project was completed including all punch list items in 2011.

Stressed Basins

According to the *Stressed Basins in Massachusetts* report published by the Massachusetts Water Resources Commission, the Town of Ludlow is located within a Low Stress Basin. Therefore, the Town of Ludlow is not required to address the annual loss of recharge to groundwater. However, the Town of Ludlow requires development and redevelopment project to maximize groundwater recharge through the regulator mechanisms adopted by the Town Meeting.

Measurable Goals

As discussed above, most of Ludlow's original measurable goals were met prior to the end of permit year V and have maintained compliance each permit year.

Summary

The Town of Ludlow has nearly completed all activities as presented in the Original Notice of Intent for the implementation of Stormwater Management Program. Over the past five permit years, Ludlow has also added Best Management Practices that provide further resource protection.

The Town of Ludlow purchased a vacuum truck for the purposes of maintaining our MS4 and sanitary sewer system. This purchase will help to meet some BMPs outlined in the Town of Ludlow's Stormwater Management Plan.

The following projects were completed in 2014 that improved storm water quality.

1. Lyon Street reconstruction project was completed in 2014 and included improvements to the drainage system.
2. Winsor Street drainage project to eliminate an illicit connection found during work.

The following project with stormwater system improvements is scheduled for 2015.

1. Ventura Street reconstruction project.

This project will include the reconstruction of Ventura Street from house #192 to Poole Street and could include the installation of a storm water system and deep sump catch basins.

2. Rood Street reconstruction project.

This project will include the reconstruction of Rood Street from Center Street to Church Street and could include the installation of a storm water system and deep sump catch basins.

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 12 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
1a.	Create website links	DPW	Post links to EPA & DEP stormwater information	Links to DEP and EPA Stormwater information posted on Town of Ludlow website and DPW website.	Update links as necessary and continue EPA and MA DEP stormwater information links.
1b.	Make Stormwater Management Plan available.	DPW	Have Plan copies available at Town Hall, Library & DPW	The plan is available.	Keep copies of the plan available & update as necessary.
1c.	Hold a household hazardous waste collection day.	DPW	One collection per year.	A household hazardous waste day was held in September 2014. 35 Ludlow Residents participated in a regional event in September.	A household hazardous waste collection day is scheduled for September 2015. Document # of participants.
1d.	Cable access bulletins.	DPW	Air bulletins each year.	Bulletins aired during the year with upcoming stormwater events.	Continue to run bulletins and update with upcoming stormwater related events.
1e.	Regional Public Outreach	DPW	Regional Multi-Media Campaign	See Attachment A “Connecticut River Stormwater Committee Progress Report Jan. 1 to Dec. 31, 2014	Continue participation in CRSS and document outreach materials distributed.

1a. Additions – No addition at this time

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
2a.	Form a stormwater committee.	Selectmen	Have meetings as necessary.	No meetings held	Continue to hold committee meetings as needed.
2b.	Develop stormwater bylaws.	Stormwater Committee	Public hearing held.	No public meetings held.	Hold public hearings, as needed, to revise/update general bylaw for future Annual Town Meeting.
2c.	Develop a catch basin stenciling program.	DPW	Number of catch basins selected.	Stenciling program developed. None stenciled due to budget constraints.	Continue stenciling program and recruit volunteers as funds allow
2d.	Town Meeting consideration of Bylaws.	Selectmen	Recorded vote of Town Meeting.	No revisions to Stormwater Management Bylaw adopted Article 18 October 2005 Special Town Meeting.	Revise/Update bylaw as necessary.

2a. Additions - No additions at this time

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
3a.	Draft a drainage system bylaw.	Stormwater Committee	Draft bylaw ready for Town Meeting in year 2. Record Vote	Language added to existing Stormwater Management Bylaw governing penalties illicit discharge connections. Voted passed: Article 24 October 2006 Special Town Meeting	Revise/update bylaw as needed.
3b.	Map the MS4.	DPW	Completed map.	Map Completed. Continue field verification and inspection project. MTA reliance.	Continue map updates and outfall and receiving water inspections to identify high priority area.
3.c	Remove illicit connections	DPW	Eliminate illicit connection	Discovered and eliminated catch basin tied into the sewer system	Remove any illicit discharges discovered during daily activities.

3a. Additions No additions at this time

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
4a.	Develop construction site runoff control regulations.	Stormwater Committee	Interdepartmental policy in place	General Stormwater Bylaw adopted in October 2005 Special Town Meeting, Article 18. Encompasses development construction activities.	Revise/update bylaw to include more stringent enforcement options for violations.
4b.	Multi-Departmental Pre-Project Release Form	Building Department	Institute Multi-Department Release Form	Draft form adopted in October 2005. Use for every development project in Ludlow.	Revise/update development form as needed.
4c.	Pre-Construction Stormwater Permit	DPW	Record number of Permits Filed	Conducted 6 permit reviews and site inspections	Continue to review permits and site plans for adequate stormwater controls for any construction activity.

4a. Additions - No additions at this time

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 12 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
5a.	Adopt bylaw.	Stormwater Committee	Prepare for Town Meeting.	Revise General Stormwater Bylaw adopted in October 2005. Encompasses development construction activities.	Revise/update bylaw to include more stringent enforcement clauses for violations.
5b.	Detention/Retention/Infiltration Basin Inspections	DPW	Inspection Log	Developed maintenance plan of action to be accomplished. Due to budget constraints these inspections could not all occur.	Develop inspection program for all detention, retention, and infiltration basins to ensure proper function during future storm events.

5a. Additions - No additions at this time

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 12	Planned Activities – Permit Year 13
6a.	Clean catch basins.	DPW	Clean all catch basins once per year.	Critical Catch basins were cleaned due to budget constraints.	Clean as many catch basins as possible within the budget.
6b.	Sweep streets.	DPW	Sweep all streets.	All streets were swept.	All streets will be swept subject to funding.
6c.	Management Education	DPW	Remain up-to-date with current Stormwater policies and regulation.	Stormwater seminars attended by staff.	Attend Stormwater management classes and/or seminars.
6d.	Catch Basin Replacement	DPW	Document No. of Catch Basins Replaced	13 deep sump catch basins were installed,	Replace existing non deep sump, non-hooded catch basin with deep sump and hood catch basins throughout urbanized area.

6e.	Vacuum Truck	DPW	Purchase Vacuum Truck to Maintain MS4	The DPW utilize the Vacuum Truck to maintain the MS4	Utilize Vacuum Truck to maintain MS4 including cleaning drain lines and catch basins.
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6a. Additions - No additions at this time.

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 12 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
7.	Reconstruct drainage system to Minnechoag Pond from East Street.	DPW	Reduce sediment load reaching the pond from a major street via flow from a substantial discharge.	Construction was completed on this project.	The completion of the drainage system four construction seasons ago removed sediment/phosphorous loading to Minnechoag Pond.

7a. Additions - No additions at this time

Part IV. Summary of Information Collected and Analyzed

No significant amount of information has yet been collected.

Part V. Program Outputs & Accomplishments (OPTIONAL)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	No
Annual program budget/expenditures **	(\$)	~100,000
Total program expenditures since beginning of permit coverage	(\$)	~1,093,000
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		General Fund

Education, Involvement, and Training

	(Preferred Units)	Response
Estimated number of property owners reached by education program(s)	(# or %)	~1250
Stormwater management committee established	(y/n)	Yes
Stream teams established or supported	(# or y/n)	No
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	Yes
Shoreline cleaned since beginning of permit coverage	(mi.)	0.25
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	1
▪ community participation **	(# or %)	35 households
▪ material collected **	(tons or gal)	~545gal
School curricula implemented	(y/n)	No

Legal/Regulatory

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

Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre) **	(#)	2
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(%)	100
Site inspections completed **	(%)	100
Tickets/Stop work orders issued **	(#)	0
Fines collected **	(# and \$)	0
Complaints/concerns received from public **	(#)	0

Post-Development Stormwater Management

	(Preferred Units)	Response
Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	100
Site inspections (for proper BMP installation & operation) completed **	(%)	100
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	Y
Low-impact development (LID) practices permitted and encouraged	(y/n)	Y

Mapping and Illicit Discharges

	(Preferred Units)	Response
Outfall mapping complete	(%)	100 paper 100 electronic
Estimated or actual number of outfalls	(#)	310
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	100
Mapping method(s)		
▪ Paper/Mylar	(%)	100
▪ CADD	(%)	0
▪ GIS	(%)	100
Outfalls inspected/screened **	(# or %)	0
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	0
Illicit discharges identified **	(#)	0
Illicit discharges identified (Since beginning of permit coverage)	(#)	0
Illicit connections removed **	(#); and (est. gpd)	0
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	0
% of population on sewer	(%)	60
% of population on septic systems	(%)	40

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **	(times/yr)	~1 (as budget
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	1 allows)
Qty of structures cleaned **	(#)	~30
Qty. of storm drain cleaned **	(%, LF, mi.)	0 lf
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	20 cy
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Disposal
Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	\$80,000
• Hourly or per basin contract rate **	(\$/hr or \$ per basin)	\$300/hr
• Disposal cost**	(\$)	\$
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	0
• Vacuum truck(s) owned/leased	(#)	1
• Vacuum trucks specified in contracts	(y/n)	Yes
• % Structures cleaned with clam shells **	(%)	0
• % Structures cleaned with vector **	(%)	30
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	1
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	3
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	300cy
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Compost
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	~\$25,000
• Hourly or lane mile contract rate **	(\$/hr. ln mi.)	\$
• Disposal cost**	(\$)	
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	1
• Vacuum street sweepers owned/leased	(#)	0
• Vacuum street sweepers specified in contracts	(y/n)	no

Operations and Maintenance (cont)

• % Roads swept with rotary brush sweepers **	%	100
• % Roads swept with vacuum sweepers **	%	0
Reduction (since beginning of permit coverage) in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	15%
▪ Herbicides	(lbs. or %)	15%
▪ Pesticides	(lbs. or %)	15%
Integrated Pest Management (IPM) Practices Implemented	(y/n)	Y
Average Ratio of Anti-/De-Icing products used ** (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)		
	% NaCl	95
	% CaCl ₂	5
	% MgCl ₂	
	% CMA	
	% Kac	
	% KCl	
	% Sand	
Pre-wetting techniques utilized **	(y/n or %)	Yes
Manual control spreaders used **	(y/n or %)	Yes
Zero-velocity spreaders used **	(y/n or %)	Yes
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/l _n mi. or %)	No change
Estimated net reduction or increase in typical year sand application rate **	(±lbs/l _n mi. or %)	No change
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100
Storage shed(s) in design or under construction	(y/n or #)	N
100% of salt/chemical pile(s) covered in storage shed(s) by May 2008	(y/n)	Yes

Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	None
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	None
• Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	None

Attachment A

**Connecticut River Stormwater Committee Progress Report
January 1 to December 31, 2014**

Attachment B

2014 Household Hazardous Waste Day Results

**Connecticut River Stormwater Committee
Annual Report
January 1, 2014 to March 31, 2015**

The Connecticut River Stormwater Committee

The Connecticut River Stormwater Committee is an intergovernmental compact of 13 municipalities organized to collaborate on education and outreach about stormwater impacts on the Connecticut River. Facilitated and staffed by the Pioneer Valley Planning Commission, committee work helps NPDES MS4 regulated member communities meet stormwater education and outreach permit requirements. Based on the Memorandum of Agreement under which the committee was formed in 2008, work also helps member communities with related bylaws/ordinances and other compliance measures. Member communities are shown in Table 1 below. The City of Northampton joined the committee in this past year.

Table 1: Connecticut River Stormwater Committee Member Communities

Member Community	Committee Representative and Department
Agawam	Tracey DeMaio, Department of Public Works
Chicopee	Joe Kietner, Department of Public Works
Easthampton	Jim Gracia, Department of Public Works
Granby	Dave Derosiers, Highway Department
Holyoke	Matthew Sokop, Department of Public Works
Longmeadow	Yem Lip, Department of Public Works
Ludlow	JT Gaucher, Department of Public Works
Northampton	Doug McDonald, Department of Public Works
Southwick	Richard Grannells, Department of Public Works
South Hadley	Jim Reidy, Department of Public Works
Springfield	Kevin Chaffee, Conservation Commission
West Springfield	Jim Lyons, Department of Public Works
Westfield	Casey Berube, Department of Public Works

Education and Outreach over the Past Year

To challenge individual behaviors that negatively impact the health of the Connecticut River, the Stormwater Committee continued to use a variety of strategies over the past year. The bulk of work has been focused on promoting green infrastructure stormwater management practices, though the Committee continued its collaboration with the Greenscapes program and began to respond to forthcoming requirements with some initial research toward developing outreach on bacterial contamination in stormwater.

The following is a summary of the work of the Connecticut River Stormwater Committee during the 2014 reporting year. This includes part of the 2014 calendar year as well because the Committee is transitioning from a calendar year reporting timeline to make these reports better line up with permit timelines:

Continued collaboration with the Greenscapes Program www.Greencscapes.org

The committee continues to participate in Greenscapes coalition to advance the Greenscapes program. The program's website and publications promote understanding about the connection between better lawn and garden care practices and reduced impacts on water resources and human and environmental health. On the coalition's website, there are clear instruction and links to resources about how to make these important changes in practice. Links to this website are on all member community stormwater web pages.

Initiated research to develop effective messaging on bacterial contamination

The committee defined goals and objectives relative to the forthcoming stormwater permit and other regulatory requirements and local needs. Beginning with the goals and objectives relative to bacteria, the committee began its effort to develop effective messaging with the creation of a survey that will be distributed in spring-summer 2015 to pet owners. The survey will collect information about this target audience and help to define messaging going forward that is aimed at helping to reduce bacterial contamination in the Connecticut River. At the same time, the survey itself should elevate awareness about practices and the possibility of making changes to practices that promote improved water quality.

Promoted "Soak up the Rain" stormwater education campaign

The Connecticut River Stormwater Committee continued to devote time to developing and promoting the "Pioneer Valley Soak up the Rain" education campaign (a local version of the EPA's New England campaign). The campaign — a call to action for property owners to reduce stormwater runoff through strategies that soak up the rain — involved several outreach efforts for the Connecticut River this year.

- ***Demonstration workshops and event tabling for homeowners and businesses***
September 20, Central High School Springfield - Led by staff from PVPC and the Regenerative Design Group, this workshop described the nature of stormwater impacts on the Connecticut River and covered a range of techniques appropriate for residential and commercial sites, including rain barrels and cisterns, porous pavers, rain gutter downspout diversion, and rain gardens. In a post-workshop evaluation, the event's 18 participants gave the event high marks. Promoting the workshop entailed reaching out to: Springfield's neighborhood associations, Western Massachusetts Master Gardener Association, Ecological Landscape Alliance, local public libraries, and notice placements with area newspapers and social media resources. This was the second of two half-day workshops supported with \$7,000 in funding from EPA. (*See program flyer next page.*)

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

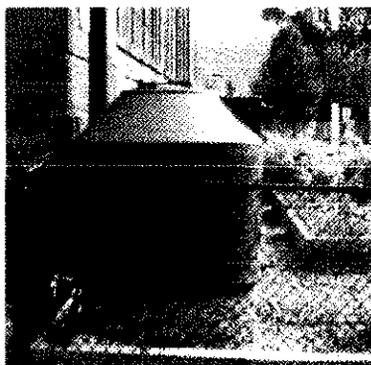
Saturday, September 20, 8:30 am – 1 pm
Central High School, 1840 Roosevelt Ave., Springfield, MA

Come learn how to better manage rainfall at your home or business at a demonstration workshop. Presenters include Landscape Architect Thomas Benjamin, Ecological Designer Keith Zaltzberg, and Stormwater Specialist Patty Gambarini. The workshop will cover a range of techniques appropriate for residential and commercial sites, including:

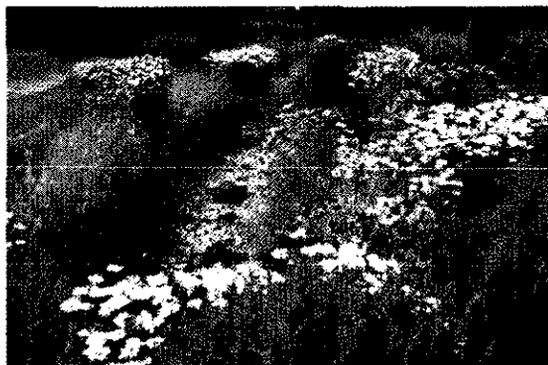
rain gardens • cisterns • rain barrels • drywells •
porous pavers • rain gutter downspout diversion

The workshop is part of "Soak up the Rain Pioneer Valley," a campaign to encourage and showcase the use of green infrastructure stormwater management practices around the region. It is brought to you by the Pioneer Valley Planning Commission and Connecticut River Stormwater Committee under contract with U.S. Environmental Protection Agency, Region 1.

Registration is required by September 16th to Patty Gambarini at pgambarini@pypc.org or (413) 781-6045. Visit soakuptherain.pypc.org to see the workshop agenda and learn more about green infrastructure stormwater management practices in the Pioneer Valley.



Cistern - Center Peppin Elementary
School, Easthampton



Rain garden - Northampton EA

(photo courtesy Thomas Benjamin)

Flyer that was widely distributed for Soak up the Rain program in September 2014.

November 8, Holyoke Public Library, Holyoke – PVPC joined the Enchanted Circle Theater and other organizations for a stormwater education and advocacy event that included the unveiling of stormdrain art created by students. PVPC’s table at the event highlighted ways to Soak up the Rain on residential properties with an interactive model showing the differences between impermeable and permeable surfaces in a typical neighborhood. The model will be further developed for future events.

March 21, Western Massachusetts Master Gardener Symposium, Frontier Regional High School, Deerfield – Invited to this event to talk about Soak up the Rain strategies for around the home and garden, PVPC gave a slide-show presentation that covered drainage analysis of a property, soil evaluation techniques, and several strategies to improve stormwater management, including rain gutter downspout diversions, trees, rain barrels and cisterns, rain gardens, and porous paving. While the event was held in Deerfield, a show of hands in the workshop revealed that all but one participant was from Hampshire or Hampden County, where the stormwater committee is active. The presentation is posted on the Pioneer Valley Soak up the Rain website and will be adapted for use at other events in stormwater committee communities.

- ***Design of Soak up the Rain porous paving and rain garden signs***

PVPC completed its work with EPA in September 2014 to develop sign templates for use at rain garden and porous paving stormwater locations. This work was supported with \$3,000 in funding from EPA. The designs for the signs have since been revised based on feedback from workshop participants and stormwater committee members to be more legible and more instructive about how a system functions. Each of the signs have two different sides to them, giving property owners the option to display a message that connotes pride in having such a facility or a more involved message that describes what the system does. Signs are currently being fabricated for use at residential, business, and municipal sites throughout the region. *See sign design on next page.*

- ***Pioneer Valley Soak up the Rain website*** www.pvpc.org/soakuptherain/

The Pioneer Valley Soak up the Rain website promotes a range of practices, including tree plantings, rain gardens, permeable pavements, dry wells, and green roofs. An occasional blog that includes photos and video provides examples from the region. Property owners throughout the Pioneer Valley are also invited to submit projects that they know of to feature on the website. A “Cool resources” heading provides connection to the latest information and a “resources” menu item links to a library of informational resources. Links to this website are on all member community stormwater web pages.

Keep our rivers clean



soak up
the rain

Rain garden



Connecticut River Stormwater Committee
soakuptherain.pvpc.org

Rain garden

This garden is designed to let rainfall or snowmelt soak into the ground...

- reducing flooding
- replenishing groundwater drinking sources; and
- eliminating flows that carry pollutants to nearby rivers



soak up
the rain



Connecticut River Stormwater Committee
soakuptherain.pvpc.org

Rain garden signs – both sides

Keep our rivers clean



soak up
the rain

Porous paving



Connecticut River Stormwater Committee
soakuptherain.pvpc.org

Porous paving

This paving is designed to let rainfall or snowmelt soak into the ground...

- reducing flooding
- replenishing groundwater drinking sources; and
- eliminating flows that carry pollutants to nearby rivers



soak up
the rain



Connecticut River Stormwater Committee
soakuptherain.pvpc.org

Porous paving signs – both sides

Rain gardens design and installation project

PVPC is working with Springfield officials and a hired consultant, the Regenerative Design Group, to design and build up to 10 rain gardens in the City. To date, 3 sites have been selected where the equivalent of 5 gardens will be constructed. These sites include the Springfield Museums, Gardening the Community's new site on Walnut and James Street, and a private residence in the northern part of the City. A hands-on training session has been scheduled to teach people how to construct rain gardens, using the Springfield Museums site. From these trainees a corps of volunteers will be deployed to work with the consultant and PVPC in building the other gardens in the City. This work is made possible through a settlement agreement reached by Clean Water Action. It is hoped that based on the materials, contracts,

and know-how developed through this work in Springfield, that the project can be easily duplicated in other stormwater committee member communities for the future.

Green infrastructure workshop and vendor's fair

A survey from last year's stormwater workshop events identified two of the more significant barriers to greater use of green infrastructure stormwater management as being the need for better understanding of:

1. Proper design, construction, and oversight of green infrastructure stormwater management facilities; and
2. Where to acquire materials needed for building green infrastructure facilities

As such, PVPC partnered with EPA region 1, EPA Office of Research and Development (ORD), and the University of Massachusetts Water Resources Research Center to co-hold a workshop entitled "Nuts & Bolts of Green Infrastructure Design and Construction for Developers, Designers, Contractors, and Municipal Officials." Held on March 17, 2014, at Holyoke Community College's Kittredge Center, the day-long event drew 47 participants, including 15 engineers, 10 planners, 6 architects and designers, and 6 regulatory officials. This number does not include the 17 vendors or 10 workshop organizers also in attendance. Morning sessions included:

- Design and construction considerations and process on green infrastructure BMPs, a session led by Engineer Richard Claytor of Horsley Witten Group
- The nitty gritty of design and construction on three green infrastructure projects
 - Streetside Bioretention in a Downtown (*Douglas Clark, P.E., City of Pittsfield and Jon Dietrich, Fuss & O'Neill*)
 - Porous Paving and Bioretention on a University Campus (*Edward Marshall, ASLA, Stephen Stimson Associates*)
 - Gravel Wetlands in a Municipal Park (*Michael F. Clark, Polaris Consultants LLC*)

The afternoon involved a fair with vendors and contractors representing the range of materials and services used for stormwater green infrastructure projects. Participants were divided into groups to "speed date" with the vendors, a technique used to promote learning about the full breadth of New England's network of materials, resources, and contractors involved in green infrastructure.



Mike Clark from Polaris Consulting talks about the details of design and construction of a gravel wetlands he built at a park in Leominster, Massachusetts.



Sounding the drums was the signal for “speed daters” to proceed to the next vendor. This method gave workshop participants the opportunity to spend 5 minutes with each vendor, but also get to every vendor to learn about the full breadth of New England’s network of materials, resources, and contractors involved in green infrastructure

Stormwater financing workshop

The Pioneer Valley Planning Commission (PVPC) collaborated with EPA-New England staff to develop and present a one-day workshop on funding municipal stormwater management programs. Work in developing and presenting the workshop was supported with \$6,000 in funding from EPA. The workshop, held on September 24, 2014 at Holyoke Community College's Kittredge Center, drew 36 participants, representing 11 municipalities from throughout the region. Participants included 9 "decision makers" (DPW directors, city councilors, selectboard member), 2 private consultants, with the balance representing municipal public works and engineering staff.

The morning program was designed with municipal decision makers in mind and included:

- Annie Kitchell , Senior Planner for the Horsley Witten Group, who described stormwater management requirements and realistic funding options
- Richard Niles of AMEC who described stormwater utilities and provided pointers for moving forward
- Four municipal officials - City of Westfield DPW Superintendent David Billips; Northampton Chair of Board of Public Works Terry Culhane; Portland City Councilor Edward Suslovic; and City of Chicopee DPW Project Supervisor Tom Hamel—who all provided good information about their personal experiences with stormwater funding from their municipalities.

The afternoon program went into more detail with a program to suit interested decision makers, as well as providing more "how to" information for stormwater managers. The program included:

- Carri Hulet, Senior Associate with The Consensus Building Institute, talked about the importance of community engagement and how to design and implement a collaborative process
- Virginia Roach, Vice President of CDM Smith, and Jim Laurila, Northampton City Engineer, drew from Northampton's recent experience in developing a stormwater utility to talk about how to evaluate your community's stormwater management funding needs
- All workshop presenters, plus the addition of City of Westfield Deputy DPW Superintendent Casey Berube, then came together as a panel for a conversation about making the case for stormwater program funding

Pioneer Valley Green Infrastructure Plan and Toolkit

Working with an advisory committee that included members from six stormwater committee municipalities, PVPC finalized the "Pioneer Valley Green Infrastructure Plan: Promoting Clean Water, Greening our Streets and Neighborhoods." The plan is meant to assist communities in the region as they continue the journey toward a more environmentally sustainable stormwater management program. The plan identifies the three existing infrastructures

(stormwater, combined sewers, and roads) where green infrastructure might best be integrated; describes useful criteria for mapping potential green infrastructure facility locations; explores important opportunities and challenges; and proposes workable strategies for local and regional actions that will help to address polluted stormwater flows and meet forthcoming stormwater permit requirements. An executive summary of the plan has been widely distributed throughout the region. A companion toolkit for the plan includes fact sheets on 16 pertinent topics, including best management practices, model regulations and policies, and financing. The plan and toolkit were part of a larger regional sustainability initiative funded through a Sustainable Communities Initiative grant from the U.S. Department of Housing and Urban Development.

Grants

Community Innovation Challenge Grant

PVPC prepared and submitted a grant for the Massachusetts Community Innovation Grant program, requesting \$193,000 to develop three stormwater permit compliance tools and to help several communities explore establishment of local stormwater utilities. Chief elected officials from all 13 Connecticut River Stormwater Committee member communities signed on to the application. Unfortunately, the grant program was eliminated by the governor as part of mid-year cuts to close a \$329 million state budget deficit.

State and Private Forestry FY15 Northeastern Area Landscape Scale Restoration Program

PVPC has received a \$239,000 grant award to coordinate a project to implement tree planting as part of a green infrastructure stormwater management approach. Funded under the State and Private Forestry FY15 Northeastern Area Landscape Scale Restoration Program, the project involves the municipalities of Chicopee, Holyoke, and Springfield, the Executive Office of Energy and Environmental Affairs, and a number of local grassroots organizations. The project includes: outreach and education to better inform local residents about the stormwater benefits of trees in streetscapes; development of green street design templates for use by public works departments in street construction projects; engineering design for tree box filter installations at nine locations; installation of 1,220 trees in street reconstruction projects; and development of a stormwater street tree model ordinance.

