Municipality/Organization: **Town of Ludlow**

EPA NPDES Permit Number: **MA041014**

MaDEP Transmittal Number: **W-036097**

Annual Report Number
& Reporting Period: No. 15: May 1, 2017-April 30, 2018

NPDES Phase II Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: James Goodreau Title: Assistant Town Engineer

Telephone #: (413) 583-5625, ext. 1414 Email: jgoodreau@ludlow.ma.us

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: Steve Frederick, P.E.

Title: Director of Public Works/Town Engineer

Date: April 30, 2018

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 XV.

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. If any illicit discharge is discovered it is remedied immediately by the Town. The Town completed an I and I Study with Mott MacDonald to examine any possible deficiencies with the sanitary system in Town. Topside inspection of flow metering manholes and other I/I related sub-basin manholes to the extent of approximately 10% of the total system under study (134

manholes) were conducted to ascertain the general physical condition of manholes and sewers for the I/I Analysis report prepared for the MassDEP. Flow monitoring was conducted to collect accurate, current information on the flow characteristics of the study area. Continuous monitoring was conducted for a period of ten (10) weeks. 9 piezometers tubes were installed through manhole walls during the continuous flow monitoring period. Rainfall monitoring was conducted during the continuous flow monitoring period to obtain data to compare variations in recorded flow rates to rainfall intensity, total volume and rate per event, and duration per event for identifying inflow and its components. The I/I Analysis report issued to the MassDEP on December 29, 2017 summarized findings identified during the flow monitoring period and provides specific recommendations for additional evaluation efforts. The Town will be looking at and addressing the recommendations provided for in the report.

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 2014 Integrated List of Waters*, published by MassDEP, water bodies in Ludlow are categorized as the following: Category 2 Higher Brook and Red Bridge Impoundment; Category 3 Haviland Pond, Murphy Pond and Springfield Reservoir; Category 4a Minnechoag Pond; and Category 5 Alden Pond and Chicopee River.

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 were funded by the Commonwealth of Massachusetts. This project was completed 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 with in 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 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 2017 that improved storm water quality.

1. Poole Street repaving project.

This project included an overlay of paving of Poole Street from East Street to Belchertown Town Line.

2. Aldo Drive repaving project.

This work included the reclamation and paving of Aldo Drive from Poole Street to the cul de sac correcting defects in the pavement and directing the stormwater into the stormwater system.

3. Tower Road repaving project.

This project included an overlay of paving from East Street to James Street.

4. Goddu Street project

This project involved the installation of an infiltration system with 4' sump catch basin to improve stormwater quality.

5. Philip Street Project

This project involved the installation of an infiltration system with 4' sump catch basin to improve stormwater quality.

The following projects with stormwater system improvements are scheduled for 2018.

1. Holyoke Street reconstruction project.

This project will include the milling and paving of Holyoke Street from Cady Street to the Chicopee Town Line.

2. Miller Street repaving project.

This project will include a combination of some areas being milled and paved and other areas being a complete reclamation on Miller Street from the Wilbraham Town Line to house number 274.

3. Center Street project

This project thru MassDOT will involve improvements on Center Street from Sewall Street to Beachside Drive approximately 4300 LF. The project will involve pavement rehabilitation, traffic signal reconstruction, sidewalk and wheelchair ramp installation, bicycle accommodation improvements, installation and/or resetting of granite curbing, drainage improvements, and associated signs and pavement markings.

4. Chapin Street repaving project.

This project will include the milling and paving of Chapin Street from Batista Circle to Miller Street.

5. Owens Way repaving project.

This project will include the overlay of Owens Way from Miller Street to East Street.

6. Nick Silva Field parking lot project.

This project involves adding drainage improvements to a gravel parking area and paving the parking area.

7. Cady Street, Grimes Street, Rood Street sewer project.

This project involves the installation of sanitary sewer lines including laterals and then the milling and paving of the roadway surface after the sewer work is completed.

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 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
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 2017. 38 Ludlow Residents participated in a regional event in September.	A household hazardous waste collection day is scheduled for September 2018. 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 April 1, 2017 to March 31, 2018	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 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
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 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
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.
3c.	Remove illicit connections	DPW	Eliminate illicit connection	No illicit connections discovered.	Remove any illicit discharges discovered during daily activities.
3d.	I+I Study	DPW	Complete Study Identify Problems	I and I Study Completed	Correct any problems identified.

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 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
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 8 permit reviews and site inspections	Continue to review permits and site plans for adequate stormwater controls for any constriction 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 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
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 15	Planned Activities – Permit Year 16
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	6 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.

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 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
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 six 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 **	($)	~90,000
Total program expenditures since beginning of permit coverage	($)	~1,363,000
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 %)	~1500
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 %)	38 households
▪ material collected **	(tons or gal)	~727 gals
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) **	(#)	3
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 **	(#)	6
Qty. of storm drain cleaned **	(%, LF, mi.)	0 lf
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	6 cy
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Disposal
Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	($)	$40,000
• Hourly or per basin contract rate **	($/hr or $ per basin)	$250/hr
• Disposal cost**	($)	$100cy
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	0
• Vacuum truck(s) owned/leased	(#)	1
• Vacuum trucks specified in contracts	(y/n)	Yes
• % Structures cleaned with clam shells **	(%)	0
• % Structures cleaned with vactor **	(%)	100
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	1
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	3
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	150 cy
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Compost
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	($)	~$25,000
• Hourly or lane mile contract rate **	($/hr. ln mi.)	$300
• Disposal cost**	($)	
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 % $CaCl_2$ % $MgCl_2$ % CMA % Kac % KCl % Sand	95 5
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/ln mi. or %)	No change
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln 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
April 1, 2017 to March 31, 2018

Attachment B

2017 Household Hazardous Waste Day Results

Connecticut River Stormwater Committee
Annual Report
April 1, 2017 to March 31, 2018

The Connecticut River Stormwater Committee

The Connecticut River Stormwater Committee is an intergovernmental compact of 17 municipalities that is organized to collaborate in meeting NPDES MS4 permit requirements for stormwater education and outreach (Minimum Control Measure #1). Facilitated and staffed by the Pioneer Valley Planning Commission, the Committee also works together to meet other permit compliance activities where appropriate and needed. Member communities are shown in Table 1 below.

Table 1: Connecticut River Stormwater Committee Member Communities

Member Community	Committee Representatives and Departments
Agawam	Tracey DeMaio, Department of Public Works
Belchertown	Steve Williams, Department of Public Works
Chicopee	Quinn Lonczak, Department of Public Works
East Longmeadow	Bruce Fenney, Department of Public Works
Easthampton	Dan Murphy, Department of Public Works
Granby	Dave Derosiers, Highway Department
Hadley	Marlo Warner, Department of Public Works
Holyoke	Michael McManus, Department of Public Works
Longmeadow	Mario Mazza and Peter Vancini, Department of Public Works
Ludlow	Jim Goodreau, Department of Public Works
Northampton	Doug McDonald, Department of Public Works
Southwick	Randall Brown, Department of Public Works
South Hadley	Melissa LaBonte, Department of Public Works
Springfield	Kevin Chaffee, Planning/Conservation
West Springfield	Jim Czach and Connor Knightly, Department of Public Works
Westfield	Casey Berube and Joe Kietner, Department of Public Works
Wilbraham	Tonya Basch, Department of Public Works

* Member that joined Committee this year.

Education and Outreach over the Past Year

The Connecticut River Stormwater Committee has moved forward several education and outreach activities under the 2003 permit. At the same time, the delayed start of the 2016 MS4 permit has provided time for the Stormwater Committee to lay further groundwork for its education and outreach program over the longer term. This includes developing a draft matrix of education and outreach activities for the next permit term, participating in the state-wide stormwater coalition education and outreach subcommittee to procure a consultant to develop a state-wide education and outreach campaign, and most recently, meeting with students from Worcester Polytechnic Institute

who are working with MassDEP to prepare a repository of stormwater education and outreach materials for use by MS4 permittees.

The narrative below summarizes the work of the Connecticut River Stormwater Committee during the 2017-2018 reporting year, which includes the following:

1. Produced 30-second radio spot as part of continued Soak up the Rain stormwater education campaign that will run on 3 stations throughout the Pioneer Valley in April 2018
2. Designed website for Connecticut River Stormwater Committee and began developing content
3. Worked with state-wide coalition on procuring services to help with design and materials for state-wide education program
4. Continued to lead urban tree planting project in Chicopee, Holyoke, and Springfield
5. Continued to lead project in Holyoke to reduce urban flows into Day Brook

In addition to these public education and outreach activities described in fuller detail below, members of the Stormwater Committee have joined PVPC in other MS4 permit related activities, including:

- Conducting a series of two training workshops for municipal staff that were videotaped and organized into specific modules that can now be used for subsequent annual training required by the new permit. Designed in consultation with consultant Wright Pierce, topics covered elements under the "good housekeeping" and the "illicit discharge detection and elimination" categories of the stormwater permit. Funding for these workshops was provided in part by the Massachusetts Department of Administration and Finance's Efficiency and Regionalization grant. The videos have already been shared with other MS4s in the state and are being loaded to YouTube for easy access by any other MS4 in Massachusetts who wishes to use them. Going forward, Connecticut River Stormwater Committee members have decided to use the video training modules as part of annual events where trainees from the region come together, watch the video modules, and then engage in discussion and problem solving. This will provide for more meaningful engagement than trainees watching videos on their own. Such an annual training event might also include field visits to learn about specific and/or sampling techniques. PVPC will plan to host these events as part of its Stormwater Committee work.

- Reviewing and updating municipal land use code in nine communities to meet new construction, and development and redevelopment standards within the 2016 federal stormwater permit. Funding for the code review was provided by the Massachusetts Department of Administration and Finance's Efficiency and Regionalization grant. A 10th stormwater committee member community elected to undertake code review through a fee for service arrangement with PVPC. This work included review and update of provisions for control of illicit discharges, erosion and sediment control, stormwater management permitting, subdivision regulations, and zoning. A detailed checklist with recommended code language was developed as part of this work to facilitate review in additional communities going forward.

  As there are still many issues to be worked out relative to code, including updating of the Massachusetts Stormwater Standards so that they better relate to the new MS4 permit requirements, and development of model language and procedures to help with off-site mitigation for redevelopment projects, PVPC staff has recommended that communities not immediately adopt code changes developed under this project. PVPC has noted that these

updates are not required to be in place until Year 2 of the permit effective date. PVPC staff is currently working with other members of the state-wide coalition of stormwater coalitions to fold these changes into a state-wide resource package on code updates, including a model bylaw, and the guidance being developed on off-site mitigation.

- Procuring services regionally of Wright Pierce to provide integrated stormwater system mapping and data collection to meet requirements of the new 2016 permit. Seven stormwater committee members—Agawam, Belchertown, Granby, Ludlow, Northampton, South Hadley, and Southwick – are participating in this work. Research conducted in concert with communities prior to this procurement showed significant cost savings in collaborating on this work rather than going it alone.

  To date, project work has entailed development of the mapping interface with stormwater infrastructure, and development of forms to ensure that all data required in the new permit (outfall screening and sampling, manhole inspections, catch basin cleaning, etc.) can be captured in the field during inspections and then uploaded to reference with geographically specific locations within Arc GIS mapping of the storm system for analysis in defining priority catchments and annual reporting to EPA.

1. Aired Soak up the Rain radio spot

The Stormwater Committee produced a 30-second radio spot to air, starting April 2. The Soak up the Rain spot is narrated by a local radio personality and calls on people to take notice and take action. It will air 183 times in a three-week period on three different radio stations in the region, covering all Stormwater Committee member communities. It will be aired at peak and non-peak listening hours to reach a variety of different audiences. The 30-second spot reads as follows:

> When stormwater flows across yards, driveways or parking lots, it picks up leaked car oil, lawn chemicals, litter and animal waste.
>
> This contaminated water ends up in the Connecticut River.
>
> Help keep our river clean. Don't let rain run – soak it up.
>
> Redirect downspouts to your lawn. Use a rain barrel. Create a rain garden or install porous pavement.
>
> Brought to you by the Connecticut River Stormwater Committee, a coalition of 17 Pioneer Valley communities.
>
> Learn more at soakuptherain.pvpc.org

Radio stations in the region that will air the Soak up the Rain radio spot.

It his hoped that interested listeners will follow the reference to the soak up the rain web page and the Committee will be able to make some determination of the spot's effectiveness by counting the increase in clicks on the web site. Results will provide some direction to the Committee as it continues to develop its 5-year education and outreach program under the new 2016 permit.

Production of the radio spot follows on an unsuccessful 4-month effort toward adapting a stormwater video from West Michigan Environmental Action Council. Members had researched stormwater messaging videos, selected the West Michigan video, engaged a local video producer for the adaptation, and worked out the terms of an agreement with the West Michigan group. The problem arose, when the local video producer learned that the Michigan group had no high resolution video file from which to work. Given that the Connecticut River Stormwater Committee members had talked about more than website use of the adapted video, a low resolution file was not adequate. It was surprising that without a high resolution file of the video, the West Michigan group would take the conversation so far. Nonetheless, this was an important lesson in learning what the right first question is to ask when talking about video adaptation.

2. Designed website for Connecticut River Stormwater Committee

While each stormwater committee member continues to maintain and update stormwater information on each of their municipal websites, there is a need to promote stormwater information on a regional Connecticut River website. The regional stormwater website will provide one website reference for forthcoming publications and media outreach work. Links can be made from the local municipal websites to the regional website and vice versa.

Design of the Connecticut River stormwater website includes "portals" for exploring the site in two ways: as an audience enumerated in the MS4 permit (resident, business, developer, industry) and as someone interested in learning more about a specific stormwater best practice important to water quality issues in the region: lawn and yard care, pet waste management, car care, soak up the rain, turf management, and septic system care. Committee members have been talking too about the importance of finding ways to include materials for educators (stormwater curriculum lessons), and agriculture (perhaps connecting to resources through the Extension Program at the University of Massachusetts, Amherst, and any nonpoint source nitrogen reduction initiatives that may emerge).

Content for the website is currently under development by PVPC. It is expected that additional content will be available through the statewide coalition if stormwater coalitions, which has just hired Water Words that Work to outline a state-wide education and outreach Think Blue campaign with development of some associated materials.

One important facet of this regional Connecticut River stormwater website is building the connection between enjoying and appreciating the resource and connecting to action. As such, PVPC will be working with its current Connecticut River US website, maintained in partnership with the Connecticut River Conservancy, to draw stronger lines between getting out on the resource and taking action for stormwater. The Connecticut River US website has information on paddling, trails, and water quality.

Design of Connecticut River Stormwater website that is in development.

3. Collaborated with state-wide stormwater coalition of coalitions

On behalf of Connecticut River Stormwater Committee members, PVPC has been active on the larger coalition of state-wide stormwater coalitions committee and the group's education and outreach subcommittee. The group was successful in applying for and receiving a $200,000 MS4 assistance grant to lay the groundwork for a state-wide stormwater outreach campaign. The campaign will help to define messaging, lay out a plan of work to meet education and outreach permit requirements, and develop a selection of materials for use by coalitions and municipalities. Water Words that Work was just selected as the project consultant at the end of March. PVPC staff is excited by the prospect of working with such a talented consultant that has developed state-wide stormwater campaigns in several states already. At the same time, staff is hopeful that the 5-year education and outreach framework it has been developing with Connecticut River Stormwater Committee members can be further refined with consultant input.

The following two projects, while specific to certain municipalities, are expanding awareness regionally about stormwater. They also serve to build capacity and know-how in planning, design, and construction of better stormwater management practices. Each project has its own outreach and education component.

4. Continue to lead urban tree planting project in Chicopee, Holyoke, and Springfield

PVPC continues to lead an effort to promote urban tree planting in the region's 3 major cities in partnership with the US Forest Service, Massachusetts Executive Office of Energy and Environmental Affairs, the Valley Opportunity Council, Nuestras Raices, ReGreen Springfield, Conway School of Design, Mass DCR, and the Cities of Chicopee, Holyoke, Springfield. Aimed at reducing stormwater flows to combined sewer areas and promoting greater climate reslience, the project involves an integrated community outreach process involving multiple neighborhood workshops and workshops for public works officials. Once completed, the project will provide the following major deliverables:

- installation of 2,200 trees on local streets and yards
- final engineering design for a green streets in each municipality
- model stormwater tree rebate ordinance

The project is made possible thanks to a $239,000 grant award to PVPC from the US Forest Service under the State and Private Forestry FY15 Northeastern Area Landscape Scale Restoration Program.

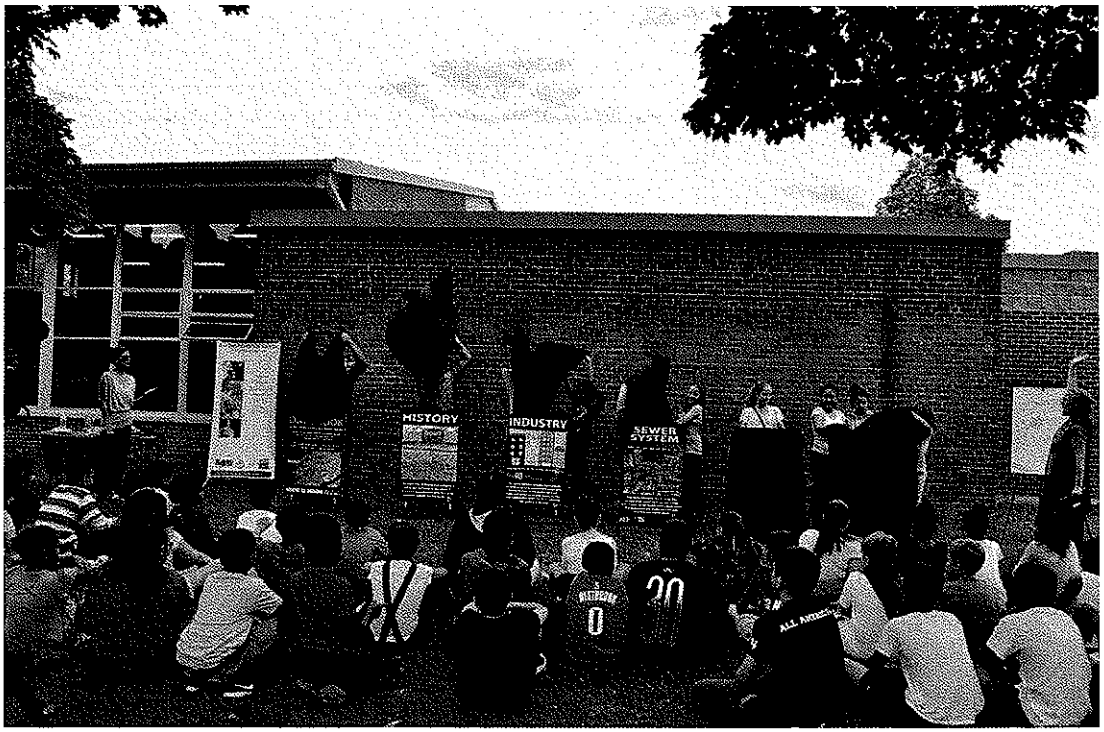
5. Continue to lead project in Holyoke to reduce urban flows into Day Brook

Through an EPA Urban Small Waters Grant, PVPC is developing a green infrastructure plan for Day Brook in Holyoke, which flows from west to east, remaining above-ground from Anniversary Hill Park and Community Field before being conveyed underground beneath the City and routed through the Waste Water Treatment Plant.

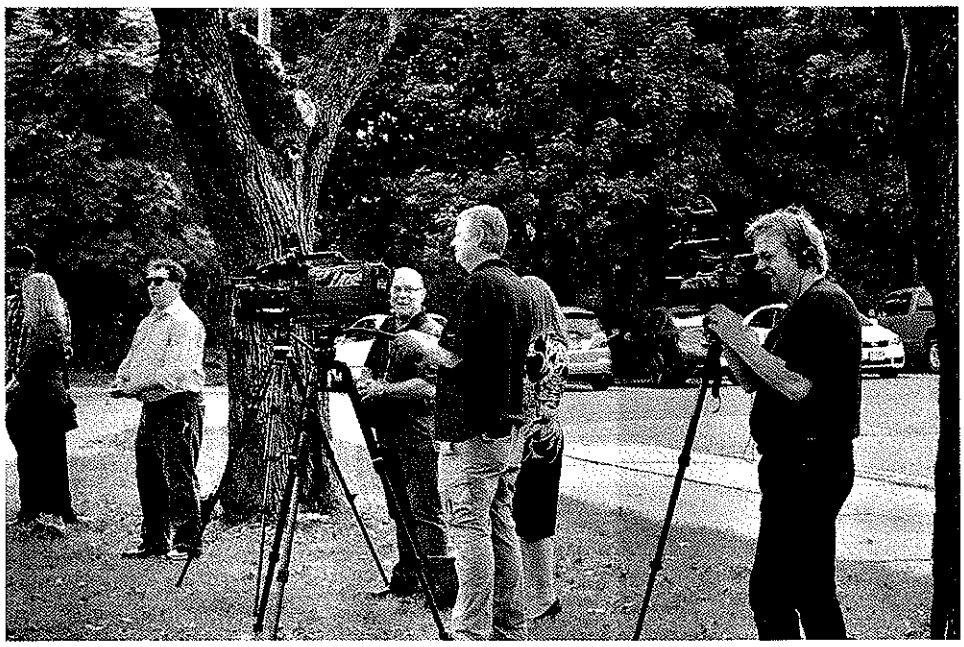
In this past year, the project completed work to increase awareness about this "secret stream" running unseen through the urban landscape. Conducted largely by project partner Enchanted

Circle Theater, awareness work this year followed a six-week lesson series that engaged third and fifth graders in learning about stormwater and producing artwork for use in a mural and "storywalk" about Day Brook.

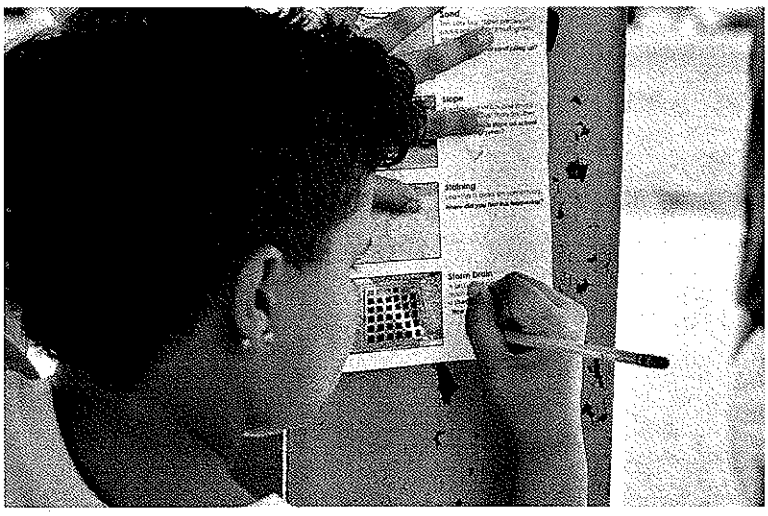
The mural, which relates the unseen journey of Day Brook in Holyoke, was unveiled at a ribbon cutting event at Community Field in June. The event for the mural included stormwater learning stations, including rain gardens in a cup activities. The storywalk unveiling occurred at the Sullivan School in September as part of Arts in Education Week. Students participated in the unveiling and then spent time being stormwater detectives on the school grounds, working in teams to check off items on a treasure hunt list. The story walk, conceived as movable artwork that tells the story of Day Brook in a series of six panels, has been installed for periods of time at the Sullivan School, Community Field, City Hall, and the Public Library.

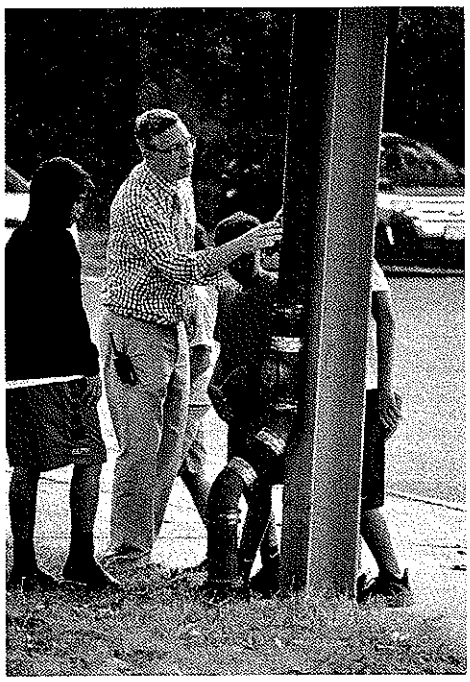


Students enjoyed the thrill of unveiling the Day Brook story walk at the Sullivan School in Holyoke. The story walk incorporated student artwork and words telling the history of Day Brook.



Local media provided good coverage of the story walk unveiling.





As part of the story walk unveiling event, a student records finding a storm drain in the stormwater detectives treasure hunt on school property in photo above. In photo at right, Sullivan School Principal John Breish talks with students about a pipe draining storm flow from the school's roof.

Longmeadow

Regional HHW Data
September 9, 2017

Town	total cars registered	total cars (includes pulled off) attended	1/3/car $20 (3 gal)	1/2 car $30 (10 gal)	full car $50 (25 gal)	1/3 car $20	Half car $30	Full car $50	Total Cost disposal only	Fixed Cost	Total Invoice
East Longmeadow	63	60	17	21	38	$340	$630	$1,900	$2,870	$331	$3,201
Hampden	32	32	10	10	20	$200	$300	$1,000	$1,500	$331	$1,831
Longmeadow	77	66	23	32	30	$460	$960	$1,500	$2,920	$331	$3,251
Ludlow	40	38	9	20	26	$180	$600	$1,000	$1,780	$331	$2,111
Palmer	16	15	4	7	7	$80	$210	$350	$640	$331	$971
Wilbraham	79	71	26	29	27	$520	$870	$1,350	$2,740	$331	$3,071
totals	307	282	89	119	142	$1,780	$3,570	$7,100	$12,450	$1,986	$14,436
XX no shows											
XX add ons											
about 10 pulloff						Clean Harbors Bill		$13,798			
Dehumififier take back		99				Fixed costs		$638			
						TOAL Event		$14,436			
Therm.		30									
Thermostats		7									
Give away therm		54									
smoke detector		0									
Fixed/shared costs											
set up	$1,000										
Roll-offs	$440										
Oil and Lead acid batteri	$348										
Handouts	$91										
Trash disposal (1.48T)	$107										
recycling (.18T)	$0										
total (divided 6 ways)	$1,986	$331									

Approved by:

Board of Public Works

BATCH # 201
WARRANT 911806 G
DATE 12-1-17
VENDOR # 86335 #3
CHARGE 2101-548000
VOUCHER 284186

ok