Municipality/Organization: Town of Ludlow

EPA NPDES Permit Number: MA041014

MaDEP Transmittal Number: W-036097

Annual Report Number
& Reporting Period: No. 6: May 1, 2008-April 30, 2009

NPDES PII Small MS4 General Permit
Annual Report

Part I. General Information

Contact Person: Paul Dzubek Title: Director of Public Works

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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: Carlos Chaves

Title: Chairman – Ludlow Board of Public Works

Date:

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 VI.

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 obtaining a SRF loan in the amount of $5 million dollars to eliminate the last Combined Sewer Overflow in Town. This work is in progress and should be completed by December 15, 2009.

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 Turnpike Authority. A total of eight (8) outfalls are located on property with limited access and have stormwater contributions from both the Town of Ludlow and MTA. Therefore, assessing and maintaining these outfalls cannot be accomplished without relying on the MTA.

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 is 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.

The Town of Ludlow received a 319 grant from the MassDEP to reduce primary pollutants for one of the discharges into the Chicopee River. Currently the design of said BMP project is concluded. The project will include a series of offline infiltration structures located within the paved roadway, as well as a detention/infiltration facility located on Town owned land abutting the Chicopee River. It is anticipated the construction will occur during permit year VII.

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 currently has design plans completed for the reconstruction of a portion of the drainage system discharging to Minnechoag Pond. The drainage improvement project will be constructed in concert with a roadway/intersection improvement project, both of which are being funded by the Commonwealth of Massachusetts. However, due to delays in the roadway design portion of the project and funding, the project has yet to be solicited for public bids. Therefore, construction and implementation of this BMP is re-scheduled for 2010 construction season.

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 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.

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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
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 2008. 36 Ludlow Residents participated in a regional event in September.	A household hazardous waste collection day is scheduled for September 12, 2009. Document # of participants.
1d.	Cable access bulletins.	DPW	Air 4 bulletins per year.	Bulletins aired May, July, September & March	Continue to run bulletin 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, 2008	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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
2a.	Form a stormwater committee.	Selectmen	Begin meeting.	Stormwater Committee held two meetings in YR VI to review bylaw implementation.	Continue to hold regular committee meetings.
2b.	Develop stormwater bylaws.	Stormwater Committee	Public hearing held.	Public meetings held September 2006 for revisions & additional to Ludlow Stormwater Bylaw.	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. Approximately 20 catch basins stenciled.	Continue stenciling program and recruit volunteers.
2d.	Town Meeting consideration of Bylaws.	Selectmen	Recorded vote of Town Meeting.	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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
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.	Hubbard Street Area Sewer Separation Project	DPW	Eliminate the remaining Combined Sewer Overflow in Town	Project went out to bid September 17, 2008.	Job to be completed December 15, 2009.

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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
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 3 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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
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 in May 2008	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 6	Planned Activities – Permit Year 7
6a.	Clean catch basins.	DPW	Clean all catch basins once per year.	Catch basins were cleaned.	Catch basins will be cleaned.
6b.	Sweep streets.	DPW	Sweep all streets.	All streets were swept.	All streets will be swept subject to funding.
6c.	Municipal Facility Assessment	DPW	Develop detailed map of all municipal facilities, identify receiving waters, and conduct clean up operations of all facilities.	DPW yard area plan developed. Additional municipal facility mapping in progress.	Continue mapping program for each municipally owned facility.
6d.	Management Education	DPW	Remain up-to-date with current Stormwater policies and regulation.	At least two stormwater seminars attended by all staff.	Attend Stormwater management classes and/or seminars, 2 per year minimum.
6e.	Truck Wash	DPW	Construct Truck Wash facility	Funding not approved thru Capital Improvement Committee in YR VI	Continue to seek fund for constructing of Municipal Truck wash
6f.	Catch Basin Replacement	DPW	Document No. of Catch Basins Replaced	5 deep sump catch basins were installed, when old Cb's replaced	Replace existing non deep sump, non-hooded catch basin with deep sump and hood catch basins throughout urbanized area.
6g.	Vacuum Truck	DPW	Purchase Vacuum Truck to Maintain MS4	The DPW began to utilize a new 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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
7a.	Map drainage to Minnechoag Pond.	DPW	Document drainage to pond & identify all possible sources.	The drainage to Minnechoag Pond has been mapped.	Complete drainage project.
7a-1.	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.	Public Hearing held in September 2007. 100% design plans submitted in March 2009.	Continue Work closely with consultant to design the drainage system to remove 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 **	($)	~115,000
Total program expenditures since beginning of permit coverage	($)	~398,000
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 %)	10,000
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 %)	36 households
▪ material collected **	(tons or gal)	~630 gal
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 **	(#)	6

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)	No
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
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	1
Qty of structures cleaned **	(#)	~500
Qty. of storm drain cleaned **	(%, LF, mi.)	2000 lf
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	500 cy
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Disposal
Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	($)	$92,000
• Hourly or per basin contract rate **	($/hr or $ per basin)	$190/basin
• Disposal cost**	($)	$
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	1
• 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)	4
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	900cy
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 %)	
▪ Herbicides	(lbs. or %)	
▪ Pesticides	(lbs. or %)	
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	50 5 45
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 %)	40%
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln mi. or %)	40%
% 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, 2008

Attachment B

2007 Household Hazardous Waste Day Results