



CITY OF BURLINGTON

PHASE II STORMWATER
2009 ANNUAL REPORT

General Permit #3-9014
NPDES Permit #VTR040000

Submitted by:
The City of Burlington Stormwater Program
Burlington Public Works

April 2010

A. INTRODUCTION

This report is being submitted as part of the City of Burlington's Phase II Stormwater Plan per the NPDES (National Pollution Discharge Elimination System) requirements. It follows the same format used in previous years and includes the following information as discussed in Section H of the city's plan:

- Status of compliance with permit conditions.
- Results of information collected.
- A summary of stormwater activities planned for the next annual cycle.
- Any proposed changes as outlined in Section F of the stormwater plan.
- If applicable, provide notice as to whether or not another entity is responsible for any of the permit obligations.

In addition to complying with the Phase II permit, much of 2009 has involved the official "start-up" of the Burlington Stormwater Program. With the adoption of the revised Chapter 26 ("Wastewater, Stormwater and Pollution Control) by the City Council in December 2008 and the approval of Stormwater User Rates in March 2009, as of April 1, 2009, the City of Burlington joined the ranks of neighboring community South Burlington in providing for a direct funding mechanism for stormwater activities in the City.

The complete Chapter 26 Ordinance is available at:

http://www.ci.burlington.vt.us/stormwater/docs/stormwater_regulations_burlington_vermont_adopted_20081215.pdf

Details relating to the implementation of Chapter 26 can be found below in the discussions relating to Minimum Measures 4 "Construction Site Stormwater Runoff Control" and 5 "Post-Construction Stormwater Management in New Development and Redevelopment".

In July 2009, the City hired a full-time stormwater manager, who, together with existing DPW engineers, billing staff, planning and zoning and the Right of Way Maintenance Group, works to coordinate the operational, financial, regulatory and outreach efforts related to stormwater in the City of Burlington.

Other highlights include contracting with Hartigan to clean the majority of the City's over 2000 catch basins and the installation of several LID practices on City property.

B. STATUS OF COMPLIANCE WITH PERMIT CONDITIONS AND INFORMATION RESULTS

This section outlines efforts taken by the City of Burlington under each of the six minimum control measures in accordance with our revised Stormwater Management Plan (2008).

1. Public Education/Outreach Program

The City of Burlington continues to be a participant in the Chittenden County Regional Stormwater Education Program (RSEP) in accordance with section E1 of the stormwater plan.

During the 2009, RSEP built on its previous efforts by expanding the media reach and toolbox of materials for its public education and outreach campaign. The multifaceted campaign used both paid and unpaid media to educate the public about the effects of stormwater runoff on water bodies and simple steps that the public can take to reduce these effects. Key messages

include stormwater runoff and stormwater systems, tips on prevention methods related to soil and lawn care (fertilizer/chemicals) and home construction erosion or debris and auto care. Marketing Partners, Inc. continues to work on contract with RSEP to implement the public outreach campaign. The complete 2009 Summary can be found in Appendix A, pages 8-9.

Additionally, the City undertook several other efforts to educate the public regarding stormwater. In April 2009, the billing department included a flyer reminding people of the issues related to stormwater and the reasons why the City chose to institute a stormwater user fee (see Appendix A, page 10-11). In May 2009, the City's Annual Water Quality Report included a map of the MS4 outfalls and a short summary of the need for stormwater management and funding (see Appendix A, page 12).

While publications and media are helpful to increase the public's understanding of stormwater in an urban environment like the City of Burlington, the City also believes that **demonstration projects** go a long way toward engaging the public. We have thus begun to incorporate various low impact development techniques into the City infrastructure, including pervious concrete parking bays at the Fletcher Free Library and the Pease Lot on the Burlington Waterfront and a rain garden in the cul-de-sac in front of the Echo Center. (see Appendix A, page 13) Stormwater Program: Green-Infrastructure 2009)

Additionally, funding was awarded in 2009 for the installation of additional pervious concrete parking bays at H.O Wheeler School and for the enhancement of already planned traffic calming curb extensions on Decatur Street with rain garden features. Both of these projects, scheduled for construction in 2010, will infiltrate stormwater, thus reducing the amount of runoff reaching the MS4 system.

2. Public Involvement/Participation

On May 2, 2009 the Community and Economic Development Office (CEDO) once again played a key role in sponsoring Green Up Day in Burlington. A total of nearly 469 volunteers collected 6.9 tons of garbage and 249 tires, removed graffiti and groomed the greenbelts that entailed raking debris and leaves.

Like in previous years, the Englesby Brook watershed was also targeted on Green Up Day. Given the limited pool of volunteers, we focused on an area behind Flynn Ave Coop and Champlain School Apartments just west of Pine Street. Many thanks to Kenneth Nosek for coordinating cleanup and providing photos from this area (Appendix D, page 14, "Stormwater Program: Green-Up Day in Englesby Brook").

On June 3, 2009 our own Laurie Adams teamed up with Emma Melvin from UVM to sponsor a rain barrel workshop. Twenty people showed up and learned how to construct their own barrels. Appendix D, page 15, "Stormwater Program: Public Workshops 2009" has photos from this well attended workshop.

3. Illicit Discharge and Elimination

The complete round of IDDE outfall testing originally scheduled for 2009 in our SWMP has been rescheduled for 2010, the first full year of the official City of Burlington Stormwater Management Program and funding. (This is reflected below in section D of the report).

However, at least one significant documented IDDE event occurred during 2009. As part of its NPDES permits, the Wastewater Division of Public Works dye tests sewer lines that cross streams and rivers twice a year. This involves adding a strong concentration of dye upstream of the crossing and placing optical brightener (OB) pads in multiple spots downstream to pick up fluorescence from the dye.

While the rivers and streams tested negative for dyes during the regular semi-annual testing, during sampling of a sewer crossing in Englesby Brook we decided to check out a manhole located within the stream channel (downstream of the Pine Street crossing and several 100 feet upstream of the Flynn Coop stormwater outfall). We thought this manhole was part of the abandoned sewer pipe that ran along the channel and discharged into Lake Champlain. This manhole tested positive for OB dyes found in clothes detergents and had very high *E. Coli* counts. Appendix E shows these results. Through a series of tests including smoke testing, we discovered that sewer from a single property on Pine Street flowed through this manhole and that the manhole was connected to our sewer and not the storm system, thus confirming that the positive results were NOT the result of an illicit connection. (see Appendix C, page 16)

4. Construction Site Stormwater Runoff Control

As of April 1, 2009, Article 3 of Chapter 26 of the City Ordinance “Wastewater, Stormwater and Pollution Control” provides for local regulatory oversight of projects engaging in earth disturbance. All projects disturbing greater than 400 sq. ft. are reviewed for compliance with minimum Erosion Prevention and Sediment Control measures.

At a minimum, projects must submit a “Small Erosion and Sediment Control Form” which is reviewed by DPW (see Appendix D, pages 17-19). Projects subject to Major Impact, Subdivision or Planned Unit Development zoning permit review must submit a more formal EPSC plan typical of that which is submitted to the State. In the initial phases of implementation of this ordinance, DPW was simply reviewing the form or the plan and providing a written sign off to Planning and Zoning indicating compliance with Chapter 26. As of October 2009, a more formal acceptance letter and notice has been established to clearly outline any additional conditions and inspections that may be required. (see Appendix D, pages 20-22 for an example). Emphasis is placed on preventing sediment from leaving the property through the following measures:

- Proper use of sediment control (silt fence)
- Daily sweeping of the right of way
- Short durations of disturbance without temporary stabilization. Depending on the site, temporary stabilization is required after the initial 7 to 14 days (similar to the VT CGP risk mitigation matrix) of disturbance.
- Permanent stabilization within 48 hours of final grading
- Inspection after permanent stabilization has occurred
- Inspection within 1 year of permanent stabilization to ensure that final stabilization (grass growth etc.) has occurred

In 2009, approximately **32 projects** were reviewed and accepted under this program. All projects are reviewed for compliance with State jurisdictional triggers related to earth disturbance, thus ensuring that the project complies with VT DEC requirements.

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

Article 3 of Chapter 26 also provides for the review of projects containing new and redeveloped impervious surfaces. While initial interpretations of the code as originally written seemed to indicate that the jurisdictional threshold might be set at ½ acres of impervious, inconsistency with the Applicability sections for Article 3 led to a reconvening of members of the Stormwater Task Force to discuss intent in November of 2009. As a result, a the ½ acre language was recently (March 2010) stricken from Division 4, meaning that all projects disturbing greater than 400 sq. ft. are required to be reviewed for their post construction impact on stormwater runoff.

For larger projects, Section 26-3-26 of the ordinance contains specific language regarding post-construction stormwater management. These specific requirements are typically put in place for Major Impact Projects, projects with known stormwater runoff issues and projects that are being reviewed by the Development Review Board. It includes requirements for:

- Stormwater design plans
- Operation, maintenance and repair plans
- Landscaping and stabilization requirements
- Access to stormwater systems for inspections during and after construction

The Burlington Stormwater Program is currently drafting more specific guidelines for the appropriate level of stormwater management for projects of varying sizes and various receiving waters/sewer systems. In general, the goals include water quality treatment for the 0.9" storm and peak discharge control for the 1 year, 24 hour design storm for 50% of the redeveloped impervious surface and the equivalent of 100% of the net new impervious surface.¹ Groundwater recharge/infiltration is encouraged where contaminated soils do not preclude such practices. Peak discharge control based on existing vs. proposed conditions is also evaluated for the 10 year storm is also evaluated to ensure that flooding issues are not worsened.

For small increases in impervious surface, and particularly for single family homeowners outside the stormwater impaired watershed (~1000 sq. ft.) where there are no known capacity issues and there is a reasonable amount of "simple" disconnection ability, homeowners are required to schedule a technical assistance meeting where the stormwater staff meet with the homeowner to 1) introduce the Burlington Stormwater Program and the reasons for needing to manage stormwater in Burlington 2) walk around the property and evaluate any additional opportunities for disconnection and 3) offer assistance if the homeowner has questions in the future.

Even with the initial confusion surrounding the threshold for post-construction stormwater review, several projects submitted in 2009 did receive direct stormwater review and the

¹ For water quality treatment, the stormwater management practice would need to provide water quality treatment for the equivalent of 50% of the redeveloped surface and 100% of the net new (credit is given for existing impervious that is removed). For peak discharge control, the "pre" point of comparison is meadow with the appropriate HSG designation. Under the 50% redevelopment and 100% net new development peak discharge control guideline, if a project was adding 10,000 sq. ft. of net new impervious and redeveloping 10,000 sq. ft. the "pre" model would consist of 15,000 sq. ft. of meadow and 5000 sq. ft. of impervious, and the post model condition would consist of 20,000 sq. ft. of impervious.

inclusion of specific stormwater conditions ranging from: the installation of rain gardens to the more standard practices of tank storage for detention or dry wells. Since the ordinance clarification, **all** projects with increases of impervious have been reviewed for post construction stormwater runoff impact.

6. Pollution Prevention and Good Housekeeping for Municipal Operations

Good Housekeeping

A system for inspection and cleaning of the municipal stormwater system continued in Burlington. Please see Appendix E, page 23, “Stormwater Program: Catch Basin Cleaning and Street Sweeping 2009” for a summary of the comprehensive catch basin and street sweeping efforts which, together, removed **2493 tons of grit/sediment** from our Right of Way system.

Outfall maintenance was performed on two outfalls in 2009, resulting in the prevention of future discharges of sediment from erosion. The outfall at the end of Central Ave was significantly eroded and was repaired with fabric and rip rap, with a diversion berm of asphalt added at the top to ensure that water flowed into the catchbasin instead of over the top of slope. As part of a storm sewer break at Flynn Coop, a large amount of material had to be removed from the outfall pipe and outlet of the outfall. Once the material was removed, a small plunge pool with a rock berm was constructed to capture sediment in the future. Additionally, DPW crews worked to restore a section of stream bank that had been disturbed during the emergency work using coir logs and tree plantings.

A significant drainage improvement was undertaken on the northern side of Colchester Avenue from the FAHC driveway to Fletcher Place. In addition to being a safety concern, the localized flooding was contributing to erosion of the green belt from splashing. The installation of 3 new catchbasins and stormline has greatly reduced the flooding and has likely reduced a source of sediment to the Fletcher Place outfall.

Employee Education

On September 15, 2009, two DPW employees attended the RSEP Municipal Employee workshop on Stream Stability (see appendix E, page 24). On November 10, 2009 a DPW and Parks & Rec employee attended a teleconference session of “Using Trees to Reduce Stormwater Runoff.” Also in November (11/23/09), 3 DPW plangineers participated in a Lorman teleconference on “Slope Stabilization.” In the fall of 2009, all of the plangineering staff and City Arborist hosted a SilvaCell presentation at DPW to discuss the use of SilvaCells for the dual purpose of tree health and stormwater mitigation.

C. ACTIVITIES PLANNED FOR THE CURRENT ANNUAL CYCLE

All activities starting in 2010 shall be in accordance with the current management plan. This includes complete outfall monitoring, training, construction site monitoring, post-construction monitoring of new projects, and continued review of municipal operations.

Additionally, we intend to kick off a “map modernization” effort of our existing stormwater infrastructure maps in GIS. This process will involve verifying/correcting our existing infrastructure data, collecting new information on catchbasins, manholes and stormlines not currently in our existing GIS and developing methods for keeping spatially oriented inventory/inspection data.

D. PROPOSED CHANGES TO THE STORMWATER PLAN OR TIMELINE

Since a complete round of outfall testing was not performed during 2009, IDDE work will occur in 2010 and 2012.

The contact for general correspondence should be changed to:

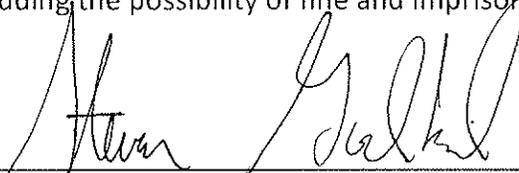
Megan Moir
Stormwater Plangineer
645 Pine Street
Burlington, Vermont 05401
mmoir@ci.burlington.vt.us
802-540-1748 (ph)
802-734-4595 (cell)

E. CHANGE IN RESPONSIBILITY FOR PERMIT OBLIGATIONS

No changes are proposed at this time. While the new stormwater employee is functionally in charge of the Burlington Stormwater Program, the Public Works Director, Steve Goodkind, will remain as authorized representative.

F. 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 information, the information 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."



Steven Goodkind, P.E. Director of Public Works

4/13/10

Date Signed

APPENDIX A – PUBLIC OUTREACH AND EDUCATION

Chittenden County Regional Stormwater Educational Program Annual Review: 2009- 2010 Program Year Summary

During the 2009-2010 program year (March 10, 2009 - March 9, 2010), RSEP built on its previous efforts by expanding the media reach and toolbox of materials for its public education and outreach campaign. The multifaceted campaign used both paid and unpaid media to educate the public about the effects of stormwater runoff on water bodies and simple steps that the public can take to reduce these effects. Key messages include stormwater runoff and stormwater systems, tips on prevention methods related to pet waste, car washing, fertilizer/chemicals, and home construction erosion or debris. Marketing Partners, Inc. continues to work on contract with RSEP to implement the public outreach campaign.

RSEP accomplished the goals outlined in the 2009-10 Communication Plan, including:

- Based on the results of the 2008 Baseline Survey & Key Results, we refined messaging and developed a new communication plan and media plan for 2009.
- Extended the “Soil Test” campaign for spring and fall, which included new print creative. The campaign also included a partnership with the University of Vermont Agricultural Testing Lab to provide residents with a free soil test. Media drove to web where eligible residents were able to download a printable coupon.
- Conducted a paid media campaign throughout Chittenden County in spring 2009 that included messaging around the importance of soil testing. The campaign consisted of 4 weeks of print ads in core community papers, spots airing on two of the top radio stations, a sponsorship on VPR, highly targeted broadcast television and cable television and placements on Front Porch Forum (an opt-in community e-newsletter).
- A fall 2009 media campaign to coincide with messaging that if needed, fertilizer should be used two weeks before Labor Day. The campaign consisted of 2 weeks of print ads in core community papers, spots airing on two of the top radio stations, a sponsorship on VPR, highly targeted broadcast television and cable television and placements on Front Porch Forum.
- Assisted in the development of a presentation on the overview of program and results for Dan Senecal-Albrecht, Senior Planner, which aired on CCTV (local public access channel).
- Reported on multi-channel paid advertising campaign for both the spring and fall effort.
- Made updates to the website including updating the Problems and Solutions page and adding links related to rain gardens, rain barrels and downspout facts.
- Compiled website and other media visibility tracking data in order to monitor outreach effectiveness.
- Continued to collaborate with partners, such as the Governor’s Clean & Clear Action Plan and public school officials, in furthering stormwater education outreach and the Lake Champlain Basin Program.

Prepared by Marketing Partners, Inc.

-Turn over for audience reach numbers-

Gross Impressions/Audience Reach
Chittenden County Regional Stormwater Educational Program
Annual Review: 2009-2010 Program Year Summary

1. Unpaid Media (Public Relations)

Insert: 47,000 (Champlain Water District Report)
 Online: No online unpaid media
 Total impressions*: 47,000

2. Paid Media

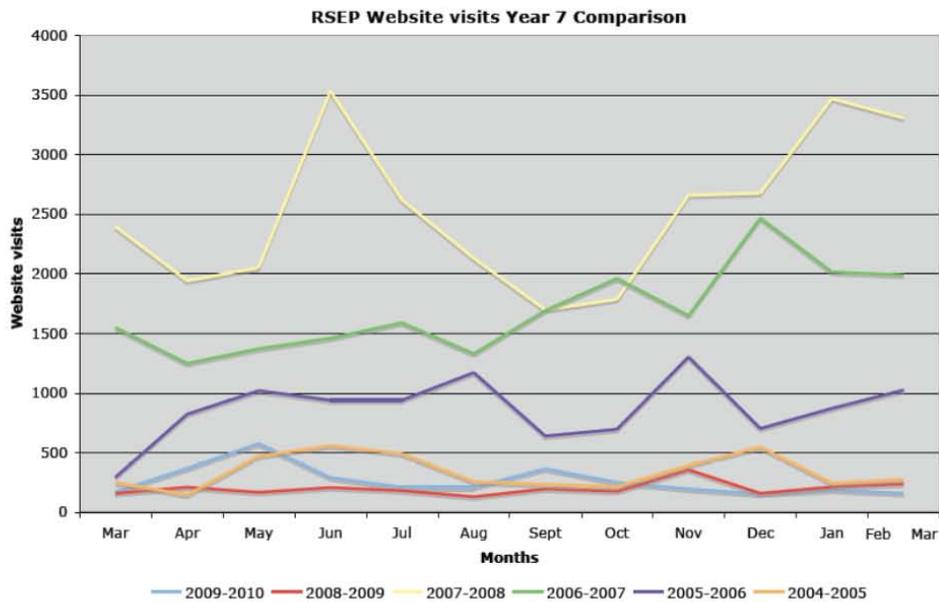
Print: 1,130,016 (based on circulation reported by media outlet)
 TV: 367,032 (gross impressions - based on Nielsen program ratings)
 Radio: 324,000 (based on number of listeners age 25-54 adults, M-Fri. 6a to Midnight per Arbitron ratings)
 Online: 67,800 (based on circulation reported by media outlet)

Total impressions*: 1,888,848

3. Website

Below is the website visitor information for 2009-2010. Website traffic increases are marked in conjunction with media campaigns.

**Impressions represent the total number of times a spot is heard/seen, not the number of persons who hear/see it.*



NOTE: This chart includes data using two different reporting methods. In program years 2004-5 to 2007-8, Urchin website pageviews were reported. From 2008 to 2010, Google Analytics reported visits per month. Google Analytics provides a more accurate picture of actual website traffic, hence the switch in 2008.

Prepared by Marketing Partners, Inc.

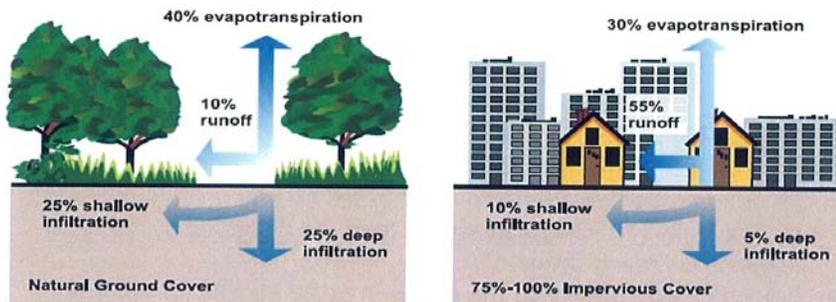
APPENDIX A – PUBLIC OUTREACH AND EDUCATION

Protecting our waterways: The inside scoop on Stormwater and the need for equitable funding

Burlington, like other communities, needs to manage Stormwater to protect properties, homes, the environment and water bodies, including Lake Champlain.

Stormwater: The Facts

- Stormwater is water originating from precipitation, like rain or snowmelt, that does not soak into the ground.
- Stormwater runoff also picks up pollutants, pet waste and debris from streets, parking lots and yards carrying them into nearby waterways. This runoff can be destructive, eroding streams and rivers.
- Impervious surfaces (parking lots, roads, buildings) do not allow stormwater to infiltrate or soak into the ground. Whereas, in rural settings, stormwater penetrates the ground more easily and there is less runoff.
- When communities do not manage stormwater properly, it can cause numerous problems like flooding, pooling, erosion, water pollution, beach closures, even property damage.



Get the most out of rain: Ideas for creating a rain-friendly yard

- You can redirect your downspouts to rain gardens, grassy areas, rain barrels - places where water can be reused or infiltrate the ground.
- On June 3rd 2009, Burlington Public Works & UVM are hosting a workshop on how to make your very own Rain Barrel. Rain barrels are used to collect and store rain runoff from roofs via rain gutters. You can utilize the collected runoff for gardens and lawns. Please contact Customer Service at 863-4501 for more information and to reserve your space.
- Planting a rain garden is an excellent way to allow stormwater runoff to be absorbed. Grading slopes away from your home and towards your rain garden will allow for the permeable soil and native plants to receive maximum runoff.
- In the summer of 2008, Burlington Public Works and UVM created a rain garden near our facility on Penny Lane. Please consider visiting us to see one of our very own stormwater solutions!
- For more solutions on reducing your stormwater impact, please visit www.smartwaterways.org.

The History: What is Burlington doing about Stormwater

- In 2006, Mayor Kiss created a Stormwater Task Force to assess the city's current stormwater regulations, practices, identify deficiencies and recommend solutions.
- In December 2008, the City Council adopted a comprehensive rewrite of city ordinance Chapter 26, Wastewater, Stormwater and Pollution Control.
- The revised ordinance incorporates all of the stormwater regulations into one document including, construction site erosion control, post construction stormwater management, enforcement and illicit discharges and connections.
- In March 2009, the City Council adopted a stormwater user fee that will allow for the necessary sustainable funding of this separate infrastructure.

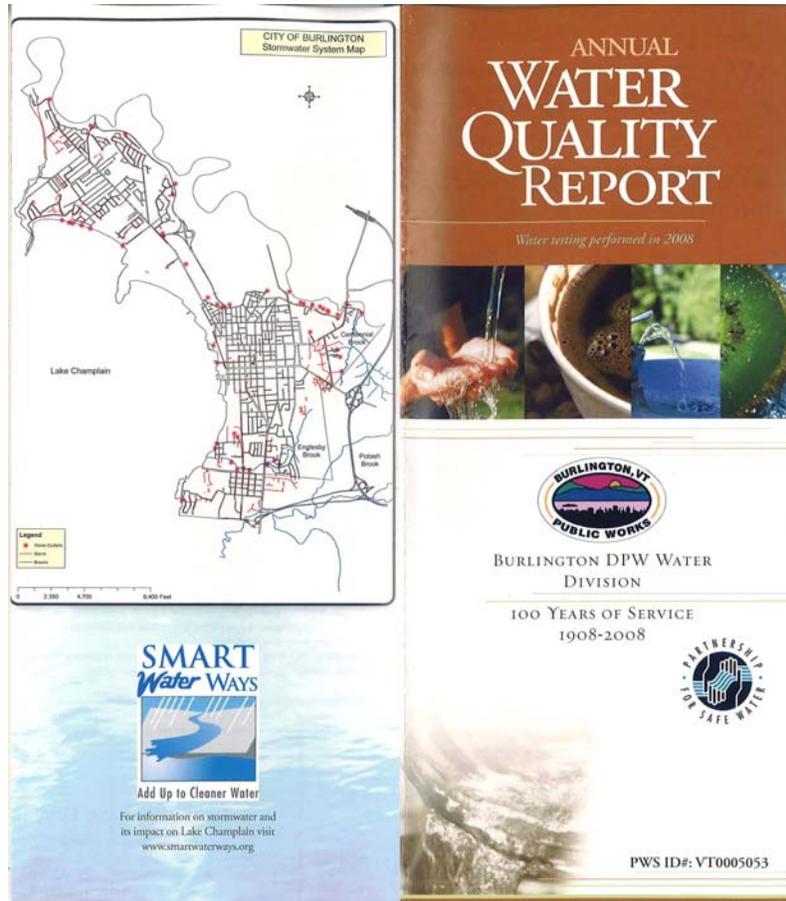
Stormwater: User Fees

- The Stormwater user fee is effective April 1, 2009 and customers will begin seeing this on their May invoice. This new charge will be on the monthly Water & Wastewater bill.
- The fee links user costs directly to impacts and applies to all properties with impervious surface including tax-exempt properties.
- There is a flat fee for all single family homes, duplexes and triplexes; this is a fixed monthly amount.
- The flat fee was developed due to the moderate variability of impervious surfaces among these property types.
- All other properties will be charged based on their actual impervious surface units (1 ISU=1,000 square feet), as identified by the Planning & Zoning Office.
- Properties **not** subject to the flat fee may be eligible for a credit on their stormwater user fee. See below for the website to download the credit manual or call 863-4501 for a copy.
- The fee structure was adopted at half for the first year of operation. This was done in response to the current economic climate.

Property Type	Monthly Charge April 2009-March 2010	Monthly Charge After April 2010
Single Family	Flat Fee=\$1.50	Flat Fee=\$3.00
Duplex	Flat Fee=\$1.50	Flat Fee=\$3.00
Triplex	Flat Fee=\$1.80	Flat Fee=\$3.60
All others	.59 per ISU	\$1.17 per ISU

Please visit www.ci.burlington.vt.us/stormwater for more information on the development of the Stormwater program. For questions regarding the new fee, please contact (802)863-4501, Monday-Friday 8:00 a.m.-4:30 p.m.

APPENDIX A – PUBLIC OUTREACH AND EDUCATION



Protecting our Waterways

Burlington, like other communities, needs to manage stormwater to protect people's homes and properties, the environment, and water bodies including Lake Champlain. If stormwater is not managed properly, it will cause flooding, pooling, erosion and water pollution. Heavy rains that flood streets and yards can result in property damage. Stormwater runoff also picks up pollutants and debris from streets, parking lots, and yards carrying them into nearby water bodies.

In 2006 Mayor Kiss created a Stormwater Task Force to assess current stormwater regulations and practices within the city, identify deficiencies, and recommend solutions. The task force drafted a comprehensive rewrite of the existing ordinance (Chapter 26 Wastewater, Stormwater, and Pollution Control) that was subsequently adopted by the City Council in December 2008 with an effective date of April 1, 2009. The revised ordinance incorporates all of the stormwater regulations in one document including construction site erosion control, post-construction stormwater management, enforcement, and illicit discharges and connections.

In March 2009 the city council adopted a stormwater user fee that will be the funding source for on-going maintenance to this separate infrastructure. Some of the capital projects already identified include outfall repairs at Crescent Beach, Plattsburgh Avenue, Manhattan Drive and Van Patten/Rockland area. Another improvement planned is the Colchester Avenue drainage project.

For information on Burlington's Stormwater Program
please visit www.ci.burlington.vt.us/stormwater



Stormwater Program

Green Infrastructure/Demonstration Projects 2009

The City of Burlington is practicing DEPAVING....



Porous concrete parking bays at City owned Pease Lot on Waterfront



Porous concrete parking bays at The Fletcher Free Library



... and stormwater friendly landscaping!



Bio-retention cul-de-sac. To be completed summer 2010, with interpretative stormwater signage

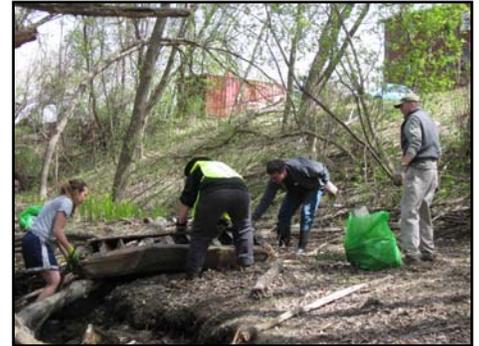


Stormwater Program

Green Up Day in Englesby Brook 2009



Like previous Green Up Day events, Englesby Brook was one of the targeted sites. DPW employee Steve Roy (seen at left) and volunteer Kenneth Nosek led the effort on the banks of and in Englesby Brook.



An Englesby Brook Green-up Haiku
Green-up a stream bank...
Make a bit of a difference...
Get a free mattress!



**Burlington
Totals**
469 peeps

6.9 tons

249 tires





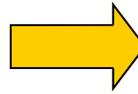
Stormwater Program

Public Workshops 2009

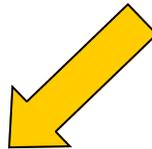
Make Your Own Rain Barrel Workshop (June 3, 2009)
Hosted by Burlington DPW



Barrels without a purpose...
(kindly donated from Switchback)



Emma Melvin of UVM Extension instructs the 20 workshop participants on how to "rain-barrelitize" the barrel



Workshop participants work on their own barrel



Stormwater runoff is reduced and water is available for re-use!





Burlington Department of Planning and Zoning

149 Church Street, City Hall
Burlington, VT 05401-8415

PH: 802-865-7188 FAX: 802-865-7195 TTY: 802-865-7142

Small Project Erosion & Sediment Control Plan

1. Project Location _____
2. Brief Project Description (i.e. house foundation, swimming pool)

3. Owner Name/Address/Phone _____
4. Contractor Name/Address/Phone _____
5. Estimated Project Start Date _____ Estimated End Date _____
6. Area of Soil Disturbance _____ Acres (1 acre = 43,560 square feet), or _____ ft long by _____ ft wide
7. Volume of Soil Disturbance _____ cubic yards (1 cubic yard = 27 cubic feet), or _____ ft long by _____ ft wide by _____ ft deep
8. Distance in feet to nearest:
 - a. Drainage Ditch _____
 - b. Catch Basin _____
 - c. Lake/River/Stream _____
 - d. City Sidewalk _____
 - e. City Street _____
9. Will the Project Require:
 - a. _____ Building Permit (Contact Public Works at 863-9094)
 - b. _____ Excavation Permit (Contact Public Works at 863-9094)
 - c. _____ Zoning Permit (Contact Planning and Zoning at 865-7188)
 - d. _____ Development Review Board Approval
 - e. _____ State of Vermont General Permit 3-9020 for Stormwater Runoff from Construction Sites (required for >1 acre land disturbance).
For guidance, go to: http://www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_cgp.htm

QUESTIONNAIRE (See last page for typical solutions to these questions)

- A) Nature of all site disturbances (check all that apply):
- Underground utility trench(es),
 - curb cut/driveway foundation cut/fill/regarding landscaping
 - other _____
- B) Will excavated soil be stockpiled on the site? Yes No
- If yes, how long will the stockpile be on site? (i.e. 1 day, 1 week) _____
How do you propose to control erosion of the stockpile? _____

- If no, where is the ultimate disposal of excess soil? _____

C) Will site conditions (i.e. slope, soil type, distance to property boundary) allow disturbed soils to leave the property during rainstorms or snowmelt? Yes No

- If yes, tell us how you agree to prevent this situation or control soils from entering nearby ditches, catch basins or lakes, rivers, streams and/or city sidewalks and streets?

- If no, tell us why runoff from storms or snowmelt events will not leave the site.

D) Do you plan to park construction vehicles on or disturb City owned property like the greenbelt area? Yes No

- If yes, tell us how you agree to repair all disturbances or damage to City owned property and provide a written approval from the City allowing construction vehicles to park on City owned property.
- If no, then please monitor all construction and visitor vehicles and advise all not to park on City owned property.

E) How do you propose to either prevent or clean sediment generated from construction vehicles and activities that becomes deposited on City streets, sidewalks, or bikepaths and how frequently this will be done.

F) Will stockpiles or disturbed soils be present and/or exposed after Nov. 1st of any construction year? Yes No

- If yes, tell us how you plan to stabilize any stockpile and/or disturbed soils.

AGREEMENT

By filling out and signing this plan, I agree to abide by the terms and conditions outlined above. Failure to follow this plan can result in a stop work order by the City of Burlington, fines, or both.

By: Owner Contractor Architect/Engineer

 Name Signature Date

REVIEW STATUS – OFFICE USE ONLY

Reviewed by: _____ Date: _____

Current Status: Approved Approved as Noted Revise and Resubmit.

Site visit required? Yes No

Comments or Conditions: _____

TYPICAL SOLUTIONS TO PREVENT OR CONTROL SEDIMENT AND EROSION

STOCKPILES

- Cover stockpiles with a tarp when not being used.
- Install silt fencing or other appropriate devices around the stockpiles to filter sediment.
- Cover stockpiles with straw or other approved mulching material.
- Plant grass and mulch stockpiles that will be on site for more than 14 days.
- Cover, vegetate or install erosion matting on stockpiles that will remain disturbed over the winter.

DISTURBED AREAS

- Maintain vegetated buffers around disturbed areas.
- Install silt fencing or other appropriate device to filter sediment washing off from disturbed areas.
- Cover disturbed areas with straw or other approved mulching material.
- Plant grass and mulch all disturbed areas that will remain exposed for more than 14 days.
- Cover, vegetate or install erosion matting on areas that will remain disturbed over the winter.
- Protect ditches, catch basins or water bodies off-site by using silt fencing, gravel check dams or other approved sediment control methods.

CONSTRUCTION VEHICLES

- Do not park construction vehicles on City owned green space. Vehicles disturb vegetation and compact the soil, thereby reducing its ability to infiltrate stormwater.
- Prevent sediment from leaving the project by cleaning the tires of vehicles, or use clean gravel at project access points to clean tires.
- Sweep city streets, sidewalks and bikepaths daily or as needed to remove sediment transported from the project.

RESOURCES

The Vermont Handbook for Erosion Prevention and Sediment Control at:

http://www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_erosionhandbk.htm

The Environmental Protection Agency's National Pollutant Discharge Elimination System web page at:

http://cfpub1.epa.gov/npdes/faqs.cfm?program_id=6#181

The City of Burlington Conservation Board Stormwater and Erosion Control Fact sheet at

<http://www.ci.burlington.vt.us/planning/cb/stormwater/management.html>



MEGAN MOIR, CPESC, CPSWQ
STORMWATER ADMINISTRATOR

DIRECT 802 540-1748
CELL 802 734-4595
MMOIR@CI.BURLINGTON.VT.US

EROSION PREVENTION & SEDIMENT CONTROL PLAN ACCEPTANCE

LOCATION: 15 SOUTH COVE ROAD

PROJECT DESCRIPTION: CONSTRUCTION OF NEW SINGLE FAMILY HOME AND ATTACHED GARAGE

PROJECT DURATION: 1/1/10 – 7/1/10
WINTER CONSTRUCTION IS ACCEPTABLE PER THE PLAN

PLAN SUBMITTED BY: GENE RICHARDS

ACCEPTANCE OF THE ATTACHED PLAN BY THE BURLINGTON DPW DOES NOT ABSOLVE THE OWNER, CONTRACTOR OR ENGINEER (IF APPLICABLE) FROM TAKING ADDITIONAL ACTIONS TO ENSURE COMPLIANCE WITH CHAPTER 26 OF THE BURLINGTON CODE OF ORDINANCES AND WITH THE CONDITIONS LISTED BELOW

SPECIFIC CONDITIONS:

- PERIMETER CONTROL MUST BE PROVIDED ALONG THE WESTERN EDGE OF THE PROPERTY BOUNDARY IN THE FORM OF SILT FENCE. IF CONCENTRATED FLOW OCCURS IN THE SWALE, THE SILT FENCE SHALL BE REPLACED WITH A ROCK CHECK DAM.
- AS A RESULT OF THE WINTER CONSTRUCTION PERIOD, THIS PROJECT WILL REQUIRE DPW INSPECTION WHEN 1) THE INITIAL SITE WORK IS FINISHED AND TEMPORARY STABILIZATION (“BUTTONING UP”) HAS OCCURRED FOR WINTER, 2) IN THE SPRING WHEN LANDSCAPING AND FINAL STABILIZATION EFFORTS HAVE BEEN DEPLOYED AND 3) WITHIN A 1 YEAR WARRANTY PERIOD TO ENSURE FINAL STABILIZATION. SEE BELOW.
- TEMPORARY STABILIZATION (MULCHING, EROSION CONTROL MATTING OR TARPS FOR STOCKPILES, OR OTHER APPROVED METHOD) OF EXPOSED AREAS AND STOCKPILES SHALL OCCUR AT THE END OF EACH WORK DAY UNLESS:
 - EARTHWORK IS TO CONTINUE IN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO LIQUID PRECIPITATION FORECAST FOR THE NEXT 24 HOURS; OR
 - IF WORK IS OCCURRING IN A SELF CONTAINED EXCAVATION (NO OUTLET) WITH A DEPTH OF 2 FEET OR GREATER (E.G. HOUSE FOUNDATION EXCAVATION OR UTILITY TRENCHES)
- THE PERIMETER OF THE SITE AND ALL BMPs SHALL BE INSPECTED AT THE END OF EACH WORKDAY TO ENSURE THAT SEDIMENT WILL NOT LEAVE THE SITE.
- IF SEDIMENT HAS TRAVELLED BEYOND THE SITE BOUNDARY, IT SHALL BE SWEEPED UP OR OTHERWISE REMOVED AND DEPOSITED ON-SITE IN AN UPGRADIENT AREA AT THE END OF EACH WORK DAY.
- WITHIN 48 HOURS OF REACHING FINAL GRADING, THE EXPOSED SOIL MUST BE SEEDED AND MULCHED OR COVERED WITH EROSION CONTROL MATTING (FOR SLOPES STEEPER THAN 3:1 OR HIGH WIND PRONE AREAS). EROSION CONTROL MATTING IS PREFERRED.

GENERAL CONDITIONS:

- CALL 540-1748 OR EMAIL MMOIR@CI.BURLINGTON.VT.US AT LEAST 24 HOURS PRIOR TO INITIATING EARTH DISTURBANCE.
- THE OWNER AND HIS/HER REPRESENTATIVES SHALL ABIDE BY THE BEST MANAGEMENT PRACTICES (BMPs) INDICATED IN THE ATTACHED PLAN AND WITHIN THIS APPROVAL NOTICE.
- IS THE RESPONSIBILITY OF THE OWNER AND HIS/HER REPRESENTATIVES TO ENSURE THAT:
 - SEDIMENT DOES NOT ENTER SURFACE WATER BODIES (STREAMS, DITCHES, PONDS, LAKES, WETLANDS ETC.)
 - SEDIMENT DOES NOT ENTER CITY CONVEYANCE INFRASTRUCTURE (CATCH BASINS, SEWERS ETC.) AND

- ALL SEDIMENT MUST BE REMOVED FROM THE CITY ROW (SIDEWALKS AND ROADWAYS) BY THE END OF EACH WORK DAY.

CALL 540-1748 TO SCHEDULE REQUIRED STABILIZATION INSPECTIONS BY DPW

TEMPORARY WINTER STABILIZATION VERIFIED BY: _____

FINAL STABILIZATION MEASURES INSTALLED VERIFIED BY: _____

FINAL STABILIZATION ACHIEVED VERIFIED BY: _____

AN EROSION PREVENTION AND SEDIMENT CONTROL PLAN

**FOR THE PROJECT AT:
15 SOUTH COVE ROAD**

**HAS BEEN FILED WITH THE CITY OF
BURLINGTON STORMWATER
MANAGEMENT PROGRAM IN
ACCORDANCE WITH CHAPTER 26 OF
THE BURLINGTON CODE OF
ORDINANCES**

**THIS REQUIRES THAT MEASURES BE
INSTALLED OR TAKEN TO PREVENT
SEDIMENT FROM LEAVING THE SITE
AND ENTERING WATERWAYS AND
IMPACTING CITY INFRASTRUCTURE
(RIGHT OF WAY AND STORMDRAINS)**

**FOR QUESTIONS OR TO REPORT
SEDIMENT LEAVING THE SITE
CALL 802-540-1748**

STORMWATER ADMINISTRATOR: Digitally signed by Megan Moir **DATE:** _____
Date: 2010.02.04 15:21:11 -05'00'

**THIS NOTICE TO BE POSTED IN FULL VIEW AT ALL TIMES DURING EARTH
DISTURBANCE. ADDITIONAL CONDITIONS ON ATTACHED.**

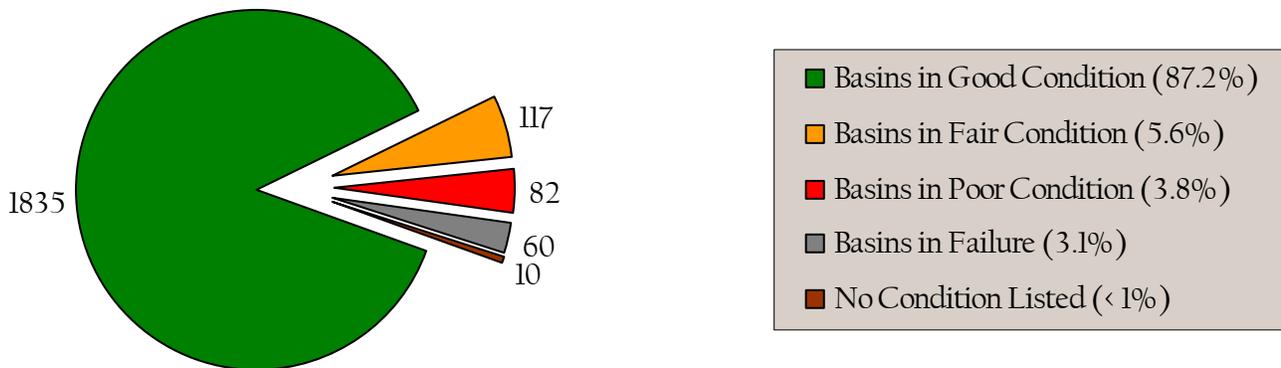


Stormwater Program

Catch Basin Cleaning and Street Sweeping 2009

In 2009, the City of Burlington hired Hartigan Company to clean the City's catch basins. Between July 28 and November 19, Hartigan cleaned and inspected 2104 catch basins in both the MS4 (separate storm sewer) and combined sewer system. Based on records in GIS, it is possible that the City may have up to an additional 400+ catch basins that were not located during the rounds. Moreover, approximately 600 of the catch basins that Hartigan located may be catch basins that we do not yet have in our GIS. The pie chart below shows the condition of the catch basins that were inspected as part of this process. Overall, the majority of our catch basins were in good to fair condition. The basins in poor to failed condition will be noted to our maintenance crews who will work to repair them in 2010.

Catch Basin Cleaning and Inspection 2009



Total Cost: ~\$75,150 (including CB cleaning, waste transport and disposal and CSWD surcharges)
 Approximate Cost/CB : ~ \$36 (This will go up in 2010 because Moretown has increased fees for CB grit to \$30/ton)

← 750 "No Dumping * Drains to Waterway" markers were installed on MS4 catchbasins

Street sweeping occurred according to schedule in 2009. All streets were swept at least once during "Clean Sweep" in the beginning of Spring and then were swept at least once more during the summer/fall. Many high traffic streets, such as those in the downtown area were swept on a much more frequent basis.

Total sediment /grit removed from City streets and catchbasins = 2493 tons!

APPENDIX E: Municipal Employee Workshop on Stream Stabilization Practices (9/15/2009)

<u>Name</u>	<u>Municipality</u>	<u>Dept</u>
David Antone	Town of Milton	Highway
George Lavoallee	city of winoski	waste water
Howard Benigno Sr	Town of Milton	highway
KRISTIN TROMBLY	"	"
William Sanders	"	"
Mark Mossy	"	"
Brian Line	Winoski	Wastewater
Lucas Ashley	Winoski	Street Dept.
Brian Latulippe	"	Public works
Steve Woodworth	Winoski	DPW
Dave Dowers	Winoski	ED
Rick Gaultin	Winoski	PW
Guy LaBelle	Winoski	WPW
Erik Bradley	Winoski	WPCD
Joe Shaw	Winoski	Grounds/Facilities
STEVE JACOBSON	"	PW
Megan Moir	Burlington	DPW
Norman Bolden	Burlington	DPW
Robert Miller	ESSEX	DPW
Allen Anthony	ESSEX	DPW
Jany [unclear]	ESSEX	DPW
[unclear]	ESSEX	DPW