



City of South Burlington Stormwater Management Plan

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Plan Prepared by:



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Introduction

The following is the City of South Burlington's Stormwater Management Plan (SWMP) and Notice of Intent (NOI) for coverage under the State of Vermont's Municipal Separate Storm Sewer Systems (MS4) General Permit (3-9014). The MS4 permit is a Federally mandated stormwater permit under the National Pollutant Discharge Elimination System (NPDES) program. In Vermont, the Agency of Natural Resources administers the permit.

The MS4 permit has a five year life span and the City of South Burlington's coverage under the State's first MS4 permit is set to expire in March of 2008. The City of South Burlington is applying to extend coverage under this permit for the next 5 year permit cycle.

Under the MS4 permit, designated municipalities are required to describe how they will achieve compliance with the six minimum measures for stormwater management outlined in the General Permit. These measures are:

- (1) Public Education and Outreach
- (2) Public Participation/Involvement
- (3) Illicit Discharge Detection and Elimination
- (4) Construction Site Runoff Control
- (5) Post-Construction Runoff Control
- (6) Pollution Prevention/Good Housekeeping.

South Burlington's SWMP is organized so that it corresponds to section headings found in General Permit 3-9014. Organizing the SWMP in this manner makes review of the document easier for State and City staff, however, it does not necessarily facilitate readability for people not already familiar with the MS4 permit. Copies of the General Permit can be found on the Agency of Natural Resources web site at:

http://www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_ms4.htm

The chief mechanism through which the City maintains compliance with the MS4 permit is through the actions performed by the South Burlington Stormwater Utility. Questions regarding the City's SWMP should be directed to the Stormwater Utility, which is a division of the Department of Public Works. Both can be reached at (802) 658-7961. Additional information on the Stormwater Utility can be found on-line at:

<http://www.sburl.com/stormwater/>

1.3.5 Rare, Threatened & Endangered Species

During the first MS4 permit cycle, the City and DEC identified Torrey’s Rush, a threatened plant species is located in a developed area of the City adjacent to Farrell Street. It was determined that this plant species is not threatened by any stormwater discharge within South Burlington.

3. SPECIAL CONDITIONS

3.1 DISCHARGES TO WATER QUALITY IMPAIRED WATERS

3.1.1 Applicability

3.1.1.1 Discharges to 303(d) listed (Impaired) Water bodies

Storm water discharges from various parts of the City discharge into the following 303(d) listed water bodies:

- (1) Bartlett Brook
- (2) Centennial Brook
- (3) Lake Champlain
- (4) Monroe Brook
- (5) Muddy Brook
- (6) Potash Brook
- (7) Winooski River
- (8) Englesby Brook

Of these water bodies, Bartlett, Centennial, Monroe, and Potash Brook are listed as primarily impaired due to stormwater runoff.

3.1.1.2 Applicable TMDLs

A TMDL for phosphorus has been developed and approved for Lake Champlain. Stormwater TMDLs have been developed for Potash, Bartlett, Centennial, and Englesby brooks. At this time implementation plans for these TMDLs have not been released.

3.1.2 Water Quality Controls for Discharges to Impaired Water bodies

3.1.2.1 Pollutants of concern

Reduction measures in the City’s SWMP for pollutants of concern in the above-listed impaired water bodies are discussed under each Minimum Control Measure in Section 4 below.

3.1.2.2 Compliance with Watershed Improvement Permits (WIPs)

No longer applicable

3.1.3 Consistency with TMDL Requirements

There are numerous recommendations in the Lake Champlain TMDL that apply to the City of South Burlington. Incorporation of TMDL recommendations are discussed under each Minimum Control Measure in Section 4 below.

The City's SWMP and Land Development Regulations address the applicable, recommended measures for control of phosphorous from developed land sources listed in the Lake Champlain Phosphorus TMDL:

- (1) Riparian Buffers - these are established and protected in Article 12 of the Land Development Regulations (Surface Water Protection Standards). Wetland buffers and their relationship to stormwater systems are also addressed through Article 12 of the Land Development Regulations and the Bartlett Brook Watershed Overlay District.
- (2) Impervious Surface Minimization and Site Design - South Burlington addresses site design for water quality protection through Article 12 of the Land Development Regulations, limits on overall site coverage by zoning district, the Bartlett Brook Watershed Overlay District (Article 10), and Site Plan Review requirements related to snow storage and landscaping (Article 14).
- (3) Erosion Control - This is addressed in the Minimum Control Measures below, and is principally dealt with through Article 16 of the Land Development Regulations (Construction and Erosion Control Standards).
- (4) Gravel back roads - Due to the limited number of dirt roads remaining in South Burlington, the impacts of gravel back roads are not thought to be a major concern. The City has only two dirt roads at this time (portions of Market Street and Natural Guard Avenue).
- (5) Stream Stability - The City is working on stream stability projects through various grant programs and the Potash Brook Watershed Restoration Plan, all of which are incorporated into the SWMP.

4. STORMWATER MANAGEMENT PROGRAM

4.1 Requirements

4.1.1 Development, Implementation & Enforcement of SWMP and

4.1.2 Implementation by Expiration Date of General Permit

Operation of a Stormwater Utility: The chief vehicle that the City of South Burlington uses to meet the requirements for coverage under this General Permit is the South Burlington Stormwater Utility. The Stormwater Utility was developed during the last MS4 permit cycle and is responsible for implementing the Best Management Practices (BMPs) described in the SWMP.

Watershed Evaluations: During the previous permit cycle, the City completed the Potash Brook Watershed Remediation Plan. The City has recently completed a similar assessment for the Bartlett Brook watershed. In addition, the City is currently conducting a stormwater treatment study for developed areas in the Centennial Brook watershed. These watershed studies are referred to in Section 4, and were used to refine the BMPs selected to meet the six minimum control measures required for coverage under this General Permit.

Land Development Regulations: During the last permit cycle, South Burlington's City Council adopted standards and provisions for surface water protection and stream buffering (Article 12, Surface Water Standards), for construction and erosion control (Article 15, Construction and Erosion Control Standards), and for site design, snow storage, landscaping, and trash containment (Article 14, Site Plan Review). These sections of the Land Development Regulations are key elements of the City's compliance with the terms of this General Permit and will be continued during this permit cycle.

In addition, prior to the end of this permit cycle the City will replace the currently outdated Bartlett Brook overlay district with a Stormwater Impaired Waters overlay district. This overlay will contain additional post-stormwater management requirements. The City is currently working with a consultant to update the Bartlett Brook watershed model. The results of this effort will inform the specific requirements to be contained in the overlay district.

4.1.4 Coordination with Champlain Water District

The City will meet with the Champlain Water District in order to coordinate its SWMP with the district's source water protection plan.

The selected **measurable outcomes** are:

- Replace the Bartlett Brook overlay district with a Stormwater Impaired Waters overlay district.
- Coordinate with the Champlain Water District to improve the City's SWMP and ensure that there are no conflicting practices between it and

the districts Source Water Protection Plan. This will be completed prior to the end of the permit cycle.

4.2 DESCRIPTION OF RESPONSIBLE ENTITIES, BMPs, MEASUREABLE GOALS and RATIONALE for SELECTION for the MINIMUM CONTROL MEASURES

4.2.1 Public Education and Outreach on Stormwater Impacts

4.2.1.1 Permit Requirement

In order to meet General Permit requirements for public education and outreach, the City will take the following measures:

Stormwater Utility Website: During the last MS4 permit cycle, the City created a web site dedicated to the development of the Stormwater Utility. Now that the Stormwater Utility is in place, the web site has been updated to show what the Utility has accomplished. In addition to project updates, the web site has information on stormwater best management practices, stormwater stories in the news, stormwater tips, and other relevant information. The web site will be updated periodically during this permit cycle and can be found at: www.sburl.com/stormwater .

Participation in Regional Stormwater Education and Outreach Strategy: The City is a signatory to the regional Memorandum of Understanding (MOU) between the MS4s, CCRPC, VANR, VTrans, and the University of Vermont. The City will participate in the steering committee, make payments in accordance with the terms of the MOU, and provide any required staff support and assistance required to carry out the terms of the agreement (included as appendix A).

Supplemental Education and Outreach: The Stormwater Utility has regular meetings with homeowners associations in South Burlington to discuss stormwater issues. The Utility will continue to organize and attend these meetings as appropriate. In addition, the Stormwater Utility will send out a mailing to everyone in South Burlington that discusses the appropriate use of lawn fertilizers. Additional information relating to stormwater education will be available on the Stormwater Utility web site.

4.2.1.2 Decision Process

This has been addressed through participation in the Regional MOU, and will be further addressed by the Stormwater Utility.

The selected measurable outcomes are:

- Continued maintenance of the Stormwater Utility web page. Annually update project information.
- Continue to participate in the Regional Stormwater Education Program (RSEP).
- Continue to meet with homeowners associations in South Burlington that have questions about stormwater or would like to discuss opportunities for improved stormwater treatment within their development.
- Send out a mailing to raise awareness about the proper application of lawn fertilizer.

4.2.2 Public Involvement/Participation

4.2.2.1 Permit Requirement

The City of South Burlington will build on its existing public involvement mechanisms as well as the contacts made by the Stormwater Utility to meet the goals and measurable outcomes under this minimum control measure. The required activities that the City has already initiated, and will continue through the life of the permit, are:

(a) *Continue a water quality monitoring program involving citizen volunteers:* The City utilized volunteers from its advisory Natural Resources Committee and from the Voice for the Potash Brook Watershed to conduct stream reconnaissance and water quality monitoring for the Potash Brook Watershed Restoration Plan. The Utility now conducts sampling at stormwater outfalls throughout the City on a regular basis. The use of citizen volunteers will be continued both for utility-based monitoring, and on an as-needed basis for the watershed studies that are currently underway or planned. In addition, the City is attempting to partner with students at the University of Vermont to conduct research on impervious asphalt installed at the Farrell Street site.

(b) *Institute a continuing storm drain stenciling project.* The City began a storm drain stenciling project during the last permit cycle and will continue this program during the next permit cycle. The Stormwater Utility will purchase stencils for this effort.

(c) *Sponsor a periodic community stream corridor clean-up day.* As part of Green-Up Day 2002, which is coordinated by South Burlington's Department of Planning and Zoning, the City sponsored a clean-up of Tributary 3 of Potash Brook in the City Center area. The City will continue to include a stream tributary clean-up as part of its annual Green-Up Day program and will expand the program as deemed appropriate through the watershed remediation plans for Potash, Bartlett and/or Centennial Brook.

4.2.2.2 Decision Process

4.2.2.2.1 Public involvement in NOI and SWMP.

Over the last permit cycle, the City has conducted public outreach on stormwater management issues through the following methods:

- (a) Public presentations on the Potash Brook watershed remediation plan
- (b) Citizen involvement in monitoring and stream reconnaissance on the Potash Brook watershed remediation plan
- (c) Public presentations and hearings on the proposed Land Development Regulations, including the Surface Water Protection Standards and Construction and Erosion Control Standards.
- (d) Presentations to the Greater Burlington Industrial Corporation, Vermont Home Builders Association, Vermont General Assembly, and other stakeholders on the City's proposed stormwater management utility.
- (e) Public meetings for homeowners associations concerned about State of Vermont stormwater permits that cover their neighborhoods.

Through these different forums, the City has received extensive feedback on the type of stormwater management measures that constituents and stakeholders feel are appropriate for the City. This NOI and SWMP reflect that input.

Continued public involvement will occur through the following:

- (a) Outreach by the Stormwater Utility including, but not limited to, meetings with homeowner associations to discuss local stormwater issues.
- (b) Stormwater Utility staff will give tours of the various stormwater treatment practices in place throughout the City to school groups, representatives from other municipalities, and any other groups that are interested.
- (c) Advertising of opportunities for citizen involvement through the Natural Resources Committee, stormwater website, and Planning & Zoning e-mail event mailing list.
- (d) Continued City support, both financial and staff, for the outreach activities of the Natural Resources Committee and Voice for the Potash Brook Watershed.
- (e) Opportunities for involvement in watershed activities as part of the Potash, Bartlett and Centennial Brook watershed plans, and any ongoing monitoring related to these plans.
- (f) Participate in South Burlington High School career day to highlight careers in the water quality and educate students on stormwater topics.

4.2.2.2.2 Audiences and Stakeholders

South Burlington's voters and property owners are the critical audience for public involvement and outreach activities. Because residential and commercial property owners pay for the Stormwater Utility that carries out much of the City's SWMP, they are the target audience.

4.2.2.2.3 Types of Public Involvement Activities

Detailed above.

4.2.2.2.4 Responsibility for Overall Implementation

The Stormwater Utility is responsible for implementation of the public involvement portion of the SWMP. The Utility will be assisted by the Department of Planning and Zoning, who works closely with the Natural Resources Committee and other citizen groups.

4.2.2.2.5 Measurable Outcomes and Evaluation

The measurable goals for this minimum control measure have been developed by evaluating the effectiveness of related measures over the past permit cycle.

The selected **measurable outcomes** are:

- Number of citizen volunteers involved in water quality monitoring.
- Number of stream or tributary clean-ups conducted as part of annual Green-Up day (May)
- Number of storm drain stencils in place.

In addition to those listed above, the City will conduct other voluntary activities to engage the public in discussions about stormwater. These voluntary outcomes will be measured in the following way:

- Number of stormwater treatment facility tours given to interested groups.
- Number of meetings held with residential homeowners associations to discuss State stormwater permit issues.
- Annual participation in South Burlington High School career day.

4.2.3 Illicit Discharge Detection & Elimination

4.2.3.1 Permit Requirement

The City proposes to build on its past record of identifying and remediating illicit discharges into the waters of the City. The City understands the working

definition for the purposes of this section to be that an illicit discharge is “any discharge to an MS4 that is not composed entirely of storm water”.

The City believes the following sources potentially contribute to stormwater quality problems in the City and will develop a plan to manage:

- (1) Effluent from septic tanks (minimal impact)
- (2) Laundry wastewaters (minimal impact)
- (3) Spills from roadway accidents
- (4) Improper disposal of auto and household toxics
- (5) Water line flushing
- (6) Individual residential car washing

Other sources are not believed to contribute in any significant manner, though the City recognizes that more general sampling of basic water quality over time will be necessary to confirm this belief. Overall, the City believes that illicit discharges do not represent a significant contribution to the water quality challenges it faces. Thus, they would not expect significant improvement to its waters based on the program described herein.

4.2.3.1.1 Develop Program to Detect and Eliminate Illicit Discharges

The Stormwater Utility is responsible for the detection and elimination of illicit discharges within the City boundaries. During the previous permit cycle the Stormwater Utility was quite successful in this effort and will continue this program under the current General Permit.

4.2.3.1.2 Develop storm sewer geographic information systems map

During the last permit cycle, the City developed a GIS map that shows all of South Burlington’s storm sewers. During this new permit cycle, the City will work to expand upon and improve the data currently in the GIS layers. Small problems with data quality will be corrected. For example, the current layer contains more locations classified as “outfalls” than EPA guidance recommends. Prior to spring 2011 the Utility will correct these issues.

In addition, prior to the start of the next permit cycle the City plans to purchase a robot pipe camera. This new piece of equipment will replace the zoom lens camera currently used by Stormwater Utility staff. The new camera will allow staff to conduct a more thorough analysis of stormwater pipe condition. This camera will allow Utility staff to inspect all connections to the City’s MS4 and will be extremely helpful in the City’s IDDE efforts. Prior to the summer of 2010, the City will have trained employees on the use of this camera. The City will also develop a plan to systematically evaluate the condition of stormwater pipe in the City and look for illicit connections to the MS4.

The selected **measurable outcomes** are:

- On an annual basis, the City will publish a map showing the location of all outfalls, stormwater piping, and storm drains in South Burlington. The maps will include the name and location of all waters of the United States that receive discharges from this infrastructure. The map will also show, to the extent practicable, the location of all private stormwater systems within the MS4 boundaries.
- The City will train Stormwater Utility staff on the use of the new robot pipe camera. The Stormwater Utility will develop a plan to systematically evaluate the condition of stormwater piping throughout the City and search for illicit connections to the MS4 (summer 2010).

4.2.3.1.3 Prohibition Mechanism for illicit discharge

South Burlington's "Ordinance Regulating the Use of Public and Private Sanitary Sewerage and Stormwater Systems" regulates illicit discharges under Article V - Stormwater System.

The selected **measurable outcome** is:

- The City will continue to enforce its ordinance regulating illicit discharges.

4.2.3.1.4 Develop and Implement Plan

In developing its plan, the City built upon the existing information regarding water quality in the City, including past scientific information gathered by consultants and the Department of Environmental Conservation and the "on the ground" knowledge of the stormwater system obtained by Stormwater Utility staff during the last permit cycle. Further, the plan is consistent with the Lake Champlain Total Maximum Daily Load Plan, TMDL.

Using this information, the City has determined what non-storm water sources require the implementation of BMPs to control illicit discharges. For each of the categories below, the impact on water quality and the extent to which it is a likely contributor to water quality problems is discussed:

Sanitary Wastewater - The City does not believe that there are likely to be many illicit connections of this type. Monitoring of water quality and implementing appropriate ordinances will be adequate in this area. However, the development of a plan to camera stormwater lines (as discussed in section 4.2.3.1.2) will provide additional assurances that illicit connections of this type are not found in the City.

Effluent from septic tanks - The City believes that failed septic systems contribute to water quality problems to a very small extent. The City has a

practice of identifying these problems and remedying them. In the past, the City extended sewers down Spear Street to address such problems. Additionally, the City is currently considering major upgrades to the wastewater treatment plant located on Airport Parkway. It is due to these past proactive actions that the City believes the problem to be small. Monitoring of water quality at outfalls, followed by analysis is the appropriate action for this source of potential pollutants. Should the City determine that there are significant water quality problems attributed to this source it would take proactive approaches to solving the problem. These potential actions would include, but not be limited to additional sewer connections, requiring replacement of or repairs to onsite systems, use of innovative systems or community systems, and / or creating a system to manage the maintenance of the systems.

Commercial Car Wash Wastewaters - The City believes that monitoring of water quality and implementing appropriate ordinances will be adequate in this area, as it believes there to be few to no illicit connections of this type.

Improper Oil Disposal - The City believes that monitoring of water quality and implementing appropriate ordinances will be adequate in this area, as it believes there to be few to no illicit connections of this type.

Radiator Flushing - The City believes that monitoring of water quality and implementing appropriate ordinances will be adequate in this area, as it believes there to be few to no illicit connections of this type.

Commercial Laundry Wastewaters - The City believes that monitoring of water quality and implementing appropriate ordinances will be adequate in this area, as it believes there to be few to no illicit connections of this type.

Spills from roadway accidents - Isolated events such as spills can certainly contribute to water quality problems. The City's Department of Public Works and Fire Departments are trained in the handling of such spills and keep Spill Kits prepared for use should the need occur. Beyond these measures the City believes that monitoring of water quality and implementing appropriate ordinances are adequate in this area.

Improper disposal of auto and household toxics - The City believes that there are occasional illicit discharges of this type, though it expects they have been reduced dramatically over time. The Chittenden County Solid Waste District, CCSWD, has run a Household Hazardous Waste Program for many years for the City of South Burlington. In addition to this program, there has been much public information and education relating to this area, both as a part of Stormwater Utility and Regional Stormwater Education Program outreach efforts and as part of general public dialogue over the past decade or two. With the existing information and education programs in place and the

opportunity to properly dispose of the materials available, the City believes that monitoring of water quality and implementing appropriate ordinances will be adequate in this area.

4.2.3.1.5 Inform Public Employees, Businesses, and the General Public

The City will meet its obligation under this section through its program as described in section 4.2.1 of this document.

4.2.3.1.6 Additional non-storm water discharges or flows

Water line flushing - The Champlain Water District (CWD) operates the potable water system within the MS4 area for the City. As a part of their normal preventative maintenance procedures, the district must occasionally flush the lines in the system. This flushing is necessary to keep the pipes clean and prevent accumulation of silt in the pipes that would be stirred up during a hard use, such as fire fighting, of the system. Without regular flushing, customers would receive clouded water at their tap.

The CWD has in place SOP's for fire hydrant maintenance, which includes water hydrant flushing, and fire hydrant flow tests. These SOP's include the following:

- Prior to flushing the fire hydrant, adequate safety precautions must be used to protect the employee, public, and surrounding property from injury or damage.
- Install a hydrant diffuser or dechlorinator as applicable.
- Place appropriate protection to prevent erosion from flushing the fire hydrant where appropriate.... Adjust diffuser direction or dechlorinator position as needed.

For more information regarding flushing conditions and the use of dechlorination equipment, you can refer to the CWD RD Water Dechlorination Policy.

The selected **measurable outcome** is:

- During the course of its normal maintenance activities, the Champlain Water District will continue to use established SOP's that protect the employee, public, and environment from harm.

Individual residential car washing - Citizens within the MS4 occasionally wash their cars either on the streets or in their driveways. This act has the potential to contribute pollutants to the waters of the City. Washing cars is necessary in Vermont to appropriately maintain them and ensure appropriate life cycles for them. Thus, banning the ability to do so, through an ordinance, is not an

appropriate response. In this case, the City will influence the car washing behavior of the public through the public education and outreach program as described in Section 4.2.1 of this document.

4.2.3.1.7 Reporting

The City shall provide the Secretary with a summary of monitoring activities conducted and of all corrective actions taken during the life of this permit.

4.2.3.2 Decision Process

The City has attempted to imbed the required elements of the decision process into its program as described in the sections of 4.2.3.1 above. In this section, the City submits only those items not previously addressed.

4.2.3.2.4 Plan to detect and address illicit discharges - monitoring plan

In section 4.2.3.1 above, the City has described its plan to detect and address illicit discharges within the MS4. The City views a well functioning monitoring plan as an essential element of this budget. The plan includes outfall monitoring and sampling as well as dry weather field screening for non-storm water flows and field tests of selected chemical parameters as indicators of discharge sources.

4.2.3.2.5 Public Information on Hazards of Illegal Discharges

Given the level of detail and attention that the Stormwater Utility devotes to prevention of illegal discharges that can damage stormwater treatment facilities as well as surface waters, information on the hazards of illegal dumping will be integrated into the City's public education, public involvement, and pollution prevention/good housekeeping measures. The importance of this issue to the success of a municipal Stormwater Utility necessitates a high level of focus and information on this topic in all outreach, maintenance, and involvement activities.

4.2.3.2.6 Chain of Command

The City Manager is responsible for the overall management and implementation of the stormwater illicit discharge detection and elimination program. The City Manager is also the Health Officer for the City, with the authority to issue Health Officer violations for any actions detrimental to the public health and safety, such as illegal dumping of hazardous materials. The Stormwater Superintendent, Public Works Director, Planning and Zoning Director, Recreation Director, and City Engineer are accountable to the City

Manager for various subcomponents of this plan, but through the City Manager's overall authority.

4.2.3.2.7 Summary of measurable goals & milestones

- Number of Stormwater Utility outreach efforts.
- Implement BMP related to flushing of hydrants. Continue training staff on detecting illicit discharges.
- Number of new illicit connections eliminated.
- Report to Secretary - summary of monitoring activities and corrective actions taken.

4.2.4 Construction Site Stormwater Runoff Control

4.2.4.1 Permit Requirement

The City recognizes construction site runoff control as a key means of protecting and improving surface water quality in South Burlington. In general, the City will assist the Secretary in implementing the requirements of 40 CFR 122.34(b)(4) through the measures outlined below. However, the City has its own supplemental standards dealing with erosion from all construction sites, irrespective of acreage disturbed. These requirements are codified in Article 165 (Construction and Erosion Control Standards) of the Land Development Regulations. Through this provision in the Land Development Regulations, the City has the authority to issue zoning violations and to pursue enforcement of construction and erosion control non-compliance on sites of all sizes in Vermont Environmental Court.

4.2.4.1.1 Procedures to Identify and Report Construction Activity Meeting One- and Five-Acre Thresholds

For projects that are proposed to have greater than one acre of disturbed area or otherwise meet the thresholds for coverage under the construction general permit (3-9020), the City will note in its Findings of Fact on site plan, subdivision, and/or planned unit development reviews that the project appears to meet these thresholds and that referral to VANR is needed.

The selected **measurable outcomes** are:

- The City's Findings of Fact detail whether the project approved is believed to require coverage under a construction general permit, thereby advising applicants of the need to ensure compliance with this measure.
- On an annual basis, the City will notify the secretary regarding any projects that trigger the threshold for coverage under general permit 3-9020.

4.2.4.1.2 Procedures to Assist in Inspections

The City has always, and will continue to, report to VANR any potential violations of state water quality regulations, and will continue to assist in site inspections as it has done in the past. The Stormwater Utility will be the point of contact with VANR for inspections and reports of potential violations.

4.2.4.1.3 Procedures to Ensure City Compliance with Construction General Permits

The City conducts a full review of all required permits in conjunction with any construction project undertaken. Compliance with the Construction General Permit will be dealt with in the same manner as all other required permits.

4.2.4.1.4 Review of Applicable Policies and

4.2.4.1.5 Adoption of Erosion Control Ordinance

In the course of developing a unified development bylaw in 2002, the City carefully evaluated and brought together all standards, regulations and conditions within the zoning and subdivision that relate to construction and erosion control. These standards and regulations were integrated into Article 16 of the Land Development Regulations, Construction and Erosion Control Standards. These standards apply to all construction sites and to site management in general, including projects disturbing less than one acre in area.

The City also has strict standards for the management and containment of trash and refuse from construction sites. The City's Department of Public Works and Department of Wastewater Treatment maintain standards and procedures for the control of sanitary waste on construction sites.

The selected **measurable outcome** is:

- Continue to enforce the existing Land Development Regulations pertaining to Construction and Erosion Control Standards (Article 16).

4.2.4.2 Decision Process

4.2.4.2.1 Mechanism for Construction Erosion Control

As detailed in 4.2.4.1.5 above, the City has clearly organized and codified provisions in its Land Development Regulations that provide a baseline ordinance for construction erosion control. The Department of Public Works

and Department of Wastewater Treatment also have standards and procedures in effect for management of sanitary waste at construction sites.

4.2.4.2.2. Procedures for Site Inspection and Enforcement

The City's Department of Planning and Zoning has standard procedures for site inspection, as inspection is required for issuance of Certificates of Occupancy. Inspections are also conducted by the Administrative Officer when suspected violations are reported, and when highly sensitive sites are being developed. These procedures, which are consistent with Vermont law, will continue to be in effect through the life of the general permit.

In addition, the Stormwater Utility regularly inspects construction sites within the City boundary. On a monthly basis, Utility staff obtains a list of issued permits from the office of planning and zoning. Utility staff then takes this list and inspects the projects that are likely to cause any amount of earth disturbance. Any violations of State permits will be referred to ANR. Any issues relating to the use or maintenance of construction site stormwater BMPs as required by the City's regulations will immediately be addressed with the contractor.

The selected **measurable outcome** is:

- On a monthly basis, Stormwater Utility staff will obtain a list of construction projects from the office of planning and zoning and conduct construction site inspections. Stormwater Utility staff will keep a log of these inspections.

4.2.4.2.3 Responsibility for Enforcement

The Administrative Officer and Assistant Administrative Officer of the City have the authority to inspect sites for compliance with zoning requirements, including Article 16 of the Land Development Regulations, and will continue to do so. The Development Review Board may also impose additional conditions related to erosion control and construction site management on individual applicants in the course of its reviews. Enforcement is then the responsibility of the Administrative Officer and Assistant Administrative Officer. The Wastewater Superintendent, Stormwater Superintendent, and Director of Public Works also have authority over some aspects of construction site management.

4.2.4.2.4 Evaluation

The City's measurable goals and timeframes have been described with specific BMPs above. In general, the City will evaluate the effectiveness of its

construction erosion control program on an iterative basis, with adjustments to its applicable standards as needed.

4.2.5 Post-Construction Stormwater Management in New Development and Redevelopment

4.2.5.1 Permit Requirement

4.2.5.1.1 Develop Standards for Reduction of Runoff from New Construction and Redevelopment

In order to achieve this minimum measure, South Burlington has created a Stormwater Utility. One of the Utility's primary functions is to maintain stormwater treatment systems that were installed for post-construction stormwater management. This is reflected in the surface water protection standards, site plan standards, and construction and erosion control standards that are part of the Land Development Regulations; all projects, irrespective of size, are subject to these stormwater management measures.

The relationship of the specific tasks to the MS4 permit requirements are detailed below.

- 4.2.5.1.1 Disturbance > 1 acre, with <1 acre impervious surface and**
- 4.2.5.1.4 Disturbance > 1 acre, with >1 acre impervious surface**

The City's Land Development Regulations include requirements for stormwater controls to minimize water quality impacts from runoff on projects of *any* impervious acreage, irrespective of the area disturbed. Because this policy decision has been made by the City Council and Planning Commission, the City comprehensively addresses the construction-related requirements and referral needs under 4.2.5.1.1.1, as well as the control and BMP maintenance measures under 4.2.5.1.4.1, 4.2.5.1.4.2, and 4.2.5.1.4.3. This is achieved through the Land Development Regulations, and the Stormwater Utility program. Each of these is discussed below:

Land Development Regulations - The key provisions of the Land Development Regulations that address this requirement are in Article 14 (site plan review; includes trash management, snow storage areas, and landscaping standards), Article 12 (surface water protection, including stream buffers), and Article 16 (construction and erosion control standards). As discussed under minimum measure 4, these Regulations apply City-wide to all new development, redevelopment and construction. These provisions are enforceable in Vermont Environmental Court.

Stormwater Utility - The Stormwater Utility is responsible for the long term maintenance of stormwater BMPs needed to implement this measure. Over time, the Utility intends to take-over maintenance of additional stormwater treatment practices installed on private property, however, the details of these maintenance agreements still need to be worked out.

The selected **measurable outcomes** for this measure are:

- Continue to enforce the standards for stormwater management in the Land Development Regulations
- The Stormwater Utility will continue to maintain stormwater treatment practices. Records of maintenance will be kept and sent to the VANR as required by State permits.
- The Stormwater Utility will continue to pursue an acceptable method to become responsible for maintenance of privately owned stormwater treatment systems.
- On an annual basis, the City will notify the secretary regarding any projects that create more than 1 acre of impervious and require coverage under general permit 3-9015.

4.2.5.1.2 Review of Policies

A thorough review of all applicable policies, regulations, studies and plans related to the City's stormwater management program was undertaken during the last permit cycle as part of Stormwater Utility development. As a result, much of this information and work has become the responsibility of the Utility as is demonstrated throughout this plan.

4.2.5.1.3 Identify and Report Projects Subject to VANR Permits and 4.2.5.1.5 Assistance with Inspection and Ensuring Municipal Compliance

The City has incorporated into its Findings of Fact on site plan, subdivision and PUD applications a statement of whether the project appears to create more than one acre of impervious surface and/or will disturb more than one acre during construction, and will recommend referral to VANR for permitting.

The City already has inspection procedures in place through the Department of Planning and Zoning and Stormwater Utility, which coordinate enforcement with VANR staff. This will continue through the life of the general permit. This is consistent with the provisions in 4.2.4.2.2 above as well.

The City's procedures for good housekeeping and construction site control address permit compliance for City projects.

The **measurable outcomes** will be:

- Incorporation of statement on potential VANR permit requirements into City Findings of Fact
- Number of construction site inspections

4.2.5.2 Decision Process

The Stormwater Utility will be responsible for the management of post-construction stormwater runoff from municipally owned properties. This includes site maintenance, inspection and other permit compliance related issues.

4.2.5.2.1 Mechanisms for post-construction runoff control

The City's Land Development Regulations require the maintenance of all post-construction stormwater treatment practices. The Stormwater Utility is responsible for ensuring that this minimum measure is met.

4.2.5.2.2 Long-Term Operation and Maintenance

A key purpose of a Stormwater Utility is to ensure proper long-term operation and maintenance of BMPs, whether private or publicly owned, and whether connected to an MS4 or distributed.

4.2.5.2.3 Procedures for Enforcement and Control

This is discussed under 4.2.4.2.2 and 4.2.5.1.5 above.

4.2.5.2.4 Responsibility for Management and Implementation

Responsibility for management of this minimum control measure chiefly will fall under the Stormwater Utility. However, because the Land Development Regulations are the main control mechanism for compliance with this minimum measure, the Utility will be assisted by the Department of Planning and Zoning. The stormwater superintendent coordinates and conducts site inspections and maintains communications with the VANR regarding permit enforcement issues.

4.2.5.2.5 Measurable Goals

The measurable outcomes will be:

- The Stormwater Utility will be responsible for the maintenance of post-construction stormwater treatment practices. This includes site maintenance, inspection, and any other issues that might arise.

4.2.6 Pollution Prevention / Good Housekeeping for Municipal Operations

The City will continue to implement pollution prevention and good housekeeping BMPs at its various operations. City owned wastewater treatment plants have their own pollution prevention plans. Vehicle maintenance services will continue to be provided by the Department of Public Works. In general, materials with the potential to pollute are kept indoors and waste materials are properly disposed of. The maintenance facility is considered a conditionally exempt generator and follow the procedures in the guidelines for such a generator.

4.2.6.1 Permit Requirement

The City of South Burlington participated in the Agency of Natural Resources Municipal Compliance Assistance Program in July of 2002. The following is provided to further demonstrate the City's plans for the coming years.

4.2.6.1.1 Operation & Maintenance Program

The City currently delivers operation and maintenance (O & M) services to the MS4 that control pollutants discharging from roads, parking lots, maintenance yards, salt storage, and snow storage. Waste Transfer stations are not controlled within the MS4 by the City, but rather by the CCSWD.

The City provides programming and or other regulatory control to control the release of pollutants from the following sources: pesticide use, disposal of animal waste, disposal of waste from storm sewers, sweepers, dredge spoil, and accumulated sediments, floatables, assessment of flood management, sweeping of roads and parking lots, illegal dumping, landscaping and lawn care, septic system controls, storm drain cleaning, snow & ice control and materials management.

The City incorporates employee training programming, internal reporting relationships, record keeping practices, and inspection and preventive maintenance programming into its normal course of business.

The following is a description of the existing level of services the City provides in these areas.

Minimize Pesticide Use - The City does not have an ordinance regulating the use of pesticides or fertilizers. However, the City does have a policy on Integrated Pest Management (IPM) (included as Appendix B), which is followed by all City employees. During the last permit cycle, the Natural Resources Committee undertook a pesticide and lawn control reduction education program. The Stormwater Utility is currently developing a program to educate residents on the proper application of lawn fertilizers.

Proper Disposal of Animal Waste - The City is responsible for cleaning up animal wastes left on City property, when not appropriately taken care of by residents. The City practice is to double bag materials and dispose in a dumpster. The same practice is utilized for the disposal of dead animals. The City further maintains signs on City properties requesting citizens to be responsible for their pets' waste. The City recommends residents dispose of wastes in the same manner as the City. The City believes this level of services is adequate to address this area at this time.

Disposal of Materials from Storm Sewers, Sweepers, Dredge Spoil & Accumulated Sediment - The City maintains a "sweeper pile" where it accumulates waste materials from the cleaning of storm sewers, sweepers, dredge spoil and other accumulated sediments. Materials swept from roads are kept separate from materials cleaned out of catch basins. Current practice is to test these materials for pollutants prior to making them available as common fill.

Floatables - The City does not have an identifiable program to collect floatables on storm grates or from road sides. However, staff collect obvious collections of floatables as needed and disposes of them in their dumpster. The City believes this level of services is adequate to address this area at this time.

Assessment of Flood Management Projects for Impacts on Water Quality - The City currently evaluates the potential impact of all projects in and around flood management zones through its Land Development Regulations, and the review of projects by the City Engineer and Development Review Board. Article 10 and 12 of the Land Development Regulations include detailed standards for development within the City's floodplains, and for the protection of surface water quality, including provisions for detailed review by technical consultants for any flood management impacts of new development. The City believes this level of services is adequate to address this area at this time.

Sweeping of Roads and Parking Lots - The Department of Public Works and Stormwater Utility are responsible for the maintenance of the streets, bike paths and roads within the City and for the municipal parking lots. As a normal course of business, the programs include sweeping of these facilities. The current practice is to sweep all curbed roads and streets within the MS4 twice per year. The first sweeping occurs as soon as practicable following snow melt in the spring. The latter occurs as late in the fall as possible to allow for the collection of leaves. Main roads are swept more often. The City follows the same practice for the sweeping of municipal parking lots. All City bike paths are swept according to this same schedule. For all streets, roads, bike paths and lots, the DPW provides additional sweeping services as necessary to supplement the base program.

The City currently owns two street sweepers. These units are utilized to sweep the curbed roads and parking lots of the City as described above. Further the City owns a front broom attachment that is used to sweep the bike paths. This unit is also utilized as necessary to sweep occasional materials from non-curbed roads and streets within the City.

The City utilizes very little sand in delivering its winter operations to control ice and snow buildup on its streets, roads, sidewalks and bike paths. Thus, it experiences lower than normal spring clean up requirements than most communities.

The City does not currently regulate parking to allow for easier sweeping maintenance activities.

The City believes this level of service is adequate to address this area at this time.

Illegal Dumping - The city does not have an ordinance prohibiting illegal dumping activity within the MS4. However, the City's Health Officer has the authority to issue public health violation notices to property owners who permit illegal dumping activities. In addition, the CCSWD has adopted an illegal dumping ordinance applicable to all member communities, including South Burlington.

The DPW has no defined program for collecting materials that have been dumped illegally, though it believes through its collective experience that it is a problem of very little consequence in the MS4. When the DPW sees evidence of illegal dumping, it collects the materials and places it in a dumpster for disposal. The City believes this level of services is adequate to address this area at this time.

Landscaping and Lawn Care - The DPW provides maintenance activities for the City properties. Its practice is to apply very small quantities of pesticides and fertilizers. It utilizes Roundup™ to control certain vegetation on its properties. Its staff is trained in the proper use of the materials it utilizes and applies them in appropriate fashion. A program providing information and education to residents on lawn care practices and alternatives is in place.

The City's Natural Resource Committee has completed the first phase of a City-wide lawn care and pesticide reduction program. The first mailing of brochures encouraging the use of alternatives to chemical lawn controls, and outlining other water-smart lawn practices, was sent with Water Department bills in October 2002. An additional mailing describing the proper application of lawn fertilizers will be coordinated by the Stormwater Utility and is scheduled for the spring of 2008. The City believes this level of services is adequate to address this area at this time.

Septic System Controls - The City inspects the installation of new septic systems within the City, through its Department of Public Works. The City's plan to address the potential for illicit discharges from this source is discussed in 4.2.3.1.4 previous.

Storm Drain Cleaning - The Stormwater Utility is responsible for the maintenance of the storm drain system in the MS4. The municipality owns over 2,700 storm drains and approximately 120 miles of drainage pipe. With current staff levels, the Stormwater Utility is able to clean 200 storm drains (and associated piping) each year.

Snow & Ice Control - The DPW's current practice is to manage snow and ice buildup almost exclusively with the application of salt, along with normal plowing practices. It does not apply salt to all roads and streets. Rather the city salts main routes, hills, stop bars, intersections, and dangerous curves. All of its salt trucks have calibrated systems on board to regulate the flow of salt from the trucks. In the winter of 2008, the City purchased a liquid chloride system that will reduce the amount of road salt applied. By treating the salt with this chloride mixture prior to spreading on the road less salt is lost to scatter and the operating temperature is reduced, thus reducing the total amount of salt needed to achieve similar results. Assuming the liquid chloride system performs as expected, its use will be expanded in future winters. Calibration systems are checked at the beginning of each snow season to ensure proper distribution of salt.

The **measurable outcomes** will be:

- Assuming the use of liquid chloride reduces the amount of road salt necessary to maintain safe travel on roadways, the DPW will expand use of this product.
- The DPW will calibrate the salt systems on its plow trucks twice a year.

The DPW provides public awareness of their program by writing articles to local papers about their approach and strategies to fight snow and ice. They do not have a formal snow & ice plan, though they do have maps of plow and salt routes. The DPW uses a weather system to help them determine appropriate strategies for managing storms and to minimize the use of salt. The City believes this level of service is adequate to address this area at this time.

Materials Management - The DPW does not stockpile great quantities of roadway materials, certainly less than most communities. This is due to their proximity to sources of gravel, sand, salt and other commonly used materials. However, for materials they do stockpile the city actively manages their quantity and method of cover. Salt is covered in a three sided building with a roof. All vehicle maintenance occurs in a fully enclosed building. Hazardous materials are appropriately stored, labeled, and contained in a fully covered

area in compliance with VOSHA standards. Used oil is collected and disposed of by Barrett Tree Service. The oils is removed from DPW property and utilized in their waste oil burner.

The City operates a fueling center at the DPW facility on Patchen Road. It is a fully permitted facility - providing double lined tanks with leak detection. The fueling station was covered as part of the last MS4 permit cycle.

The City believes this level of services is adequate to address this area at this time.

Other - The City is not responsible for other typical program sources that some communities may be required to report on. All waste transfer stations in the MS4 are operated by the CCSWD. Thus, it follows, that programming such as recycling education is provided by the CCSWD. The City does not currently own or maintain any bridges. Thus, it does not have a maintenance program to cover bridges. While there is an airport within the MS4 borders, it is operated by the City of Burlington.

Pollution prevention programming for the public is an important element of reducing pollutants entering the storm water system. Much of this programming is in place. For instance public information and education for all waste related activities, such as recycling, household hazardous waste, and oil and antifreeze handling and recycling are provided by the CCSWD. The City will be participating with other Chittenden County Communities on a public education program related to MS4 permitting requirements. That planning effort will build on the additional needs for pollution prevention and is described in the public education section of this document.

Training - The City provides the staff necessary training to stay current on the means and practices to maintain its infrastructure, including its storm water facilities. DPW employees have been trained in erosion control practices, spill prevention practices, hazardous materials handling with VOSHA, general safety practices, and snow and ice practices. In addition, as noted previously the City participated in the VANR's municipal compliance assistance program which provided valuable training to its employees. The City also participates in the RSEP training for municipal employees.

The City believes this level of services is adequate to address this area at this time.

4.2.6.1.3 Industrial Facilities Owned by City

The City owns facilities that are subject to the Agency's General Permit 3-9003 Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity. The list of these facilities includes:

- (1) Wastewater Treatment Plant, Bartlett Bay Road (4889-9003)
- (2) Wastewater Treatment Plant, Airport Parkway (4888-9003)

These facilities have prepared applications, including storm water pollution prevention plans for their sites, and have sought coverage under the Multi-Sector General Permit. Management of these facilities is the responsibility of the City's water pollution control division. Stormwater Utility staff provides assistance as appropriate.

The Public Work's facility participates in the MCAP or equivalent audit program. This will occur at least once during the permit cycle.

4.2.6.2 Decision Process

This document has attempted to imbed the requirements of this section within the dialogue found in Section 4.2.6.1 Permit Requirement. The information that follows is to clarify or expand on this information. Thus, one does not find every section of the permit guideline, only those where there is additional information to add.

4.2.6.3 Overall Management and Implementation Responsibility

The City Manager is responsible for the overall management and implementation of the storm water pollution prevention / good housekeeping programs in the MS4. The Public Works Director, Planning and Zoning Director, Parks Director, City Engineer, Wastewater Superintendent, and Stormwater Superintendent are accountable to the City Manager for various subcomponents of this plan, but through the City Manager's overall authority.

4.2.6.2.4 Minimum Measures & Goals for BMPs

The following are **measurable outcomes** for this section:

- The City will continue the street sweeping program established and operated by the Utility. All curbed streets in South Burlington will be swept at least 2 times each year.
- At a minimum, the City will clean 200 storm drains and the associated drainage pipe each year.
- The City will continue to test materials collected from street sweeping and catch basin cleaning prior to making it available as common fill.
- The DPW will continue to calibrate its salt systems at least every 60 days
- Assuming the use of liquid chloride reduces the amount of road salt necessary to maintain safe travel on roadways, the DPW will expand use of this product. Salt reductions of up to 50% are possible.
- City achieving 100% compliance rate with all pollution prevention / good housekeeping maintenance BMPs.

4.3 Sharing Responsibility

As discussed above, the City is relying on participation in the regional MOU for public education and outreach. This has been reviewed and authorized by the VANR as part of the Phase II process.

4.4 Reviewing and Updating Stormwater Management Program

4.4.1 Annual Review

The City anticipates annual reviews will occur beginning roughly in November of each year, starting in 2008, with reports issued in April. The November-April timeframe will allow the City to incorporate any required changes into its budget for the next fiscal year.

4.4.2 Amendments to Stormwater Management Program

The City will comply with the terms of the general permit for amendments.

Appendix A - Regional Stormwater Education Program (RSEP) Memorandum of Understanding (MOU)

Appendix B - South Burlington Integrated Pest Management Policy