Stormwater Utility Fee Credit Manual for Residential

City of Harrisonburg, Virginia
Public Works Department
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Harrisonburg, VA 22801
540·434·5928
http://www.harrisonburgva.gov/stormwater-utility

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Table of Contents

1 INTRODUCTION 1

2 STORMWATER UTILITY FEE 1

3 STORMWATER UTILITY FEE CALCULATIONS 3

4 INSTRUCTIONS TO APPLY FOR A CREDIT 4

5 CREDIT CRITERIA 7

6 MAINTENANCE REQUIREMENTS 7

7 CREDIT EFFECTIVE DATE & RE-APPLICATION REQUIREMENTS 8

8 APPROVED STORMWATER BEST MANAGEMENT PRACTICES 9

A. ROOF DRAIN DISCONNECTION 10

B. RAIN GARDEN 11

C. VEGETATED FILTER STRIP 12

D. RAIN BARREL/CISTERN 13

E. REGIONAL BMPS 14

F. VSMP REQUIRED ON-SITE BMPS

G. URBAN TREE PLANTING 14

H. CONSERVATION LANDSCAPING 16

I. HOMEOWNER NUTRIENT MANAGEMENT & LAWN CARE AGREEMENT 19

J. IMPERVIOUS COVER REMOVAL, INCLUDING PERMEABLE HARDSCAPES AND VEGETATED ROOFS 19

9 CREDIT CALCULATION EXAMPLES 21

10 DEFINITIONS 25

11 RESOURCES 26

12 NATIVE PLANT REFERENCES 27

Appendices

APPENDIX A. STORMWATER UTILITY FEE CREDIT APPLICATION FOR RESIDENTIAL

APPENDIX B. TREE CANOPY CHART

APPENDIX C. STORMWATER UTILITY MAINTENANCE AGREEMENT

APPENDIX D. HOMEOWNER NUTRIENT MANAGEMENT AND LAWNCARE AGREEMENT

APPENDIX E. STORMWATER UTILITY FEE CREDIT RE-APPLICATION

APPENDIX F. STORMWATER UTILITY FEE PETITION FOR ADJUSTMENT FORM

APPENDIX G. STORMWATER UTILITY FEE BMP MAINTENANCE RECORD

APPENDIX H. REGIONAL STORMWATER BMP AGREEMENT FORM

This credit manual is applicable only to residential properties. Residential properties are defined as any property on which a single-family, duplex, or townhome dwelling exists and is used for noncommercial purposes. If the property is used for commercial purposes, the Stormwater Utility Fee Credit Manual for Non-Residential must be used to apply for a credit.

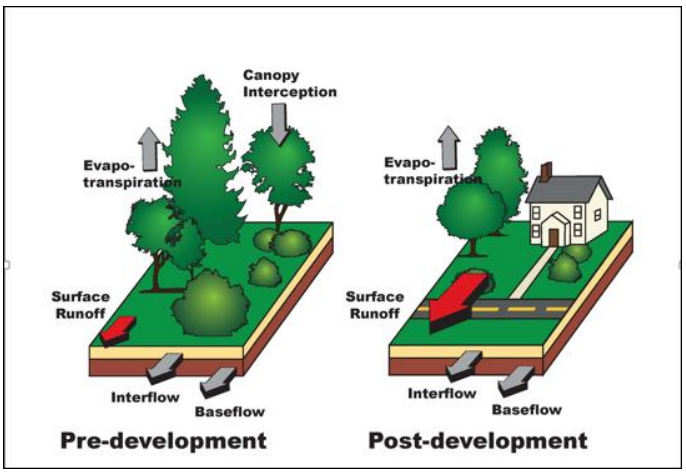
1 INTRODUCTION

Stormwater runoff is the rain and snowmelt that flows over the ground and into the city's storm sewer system or directly into Blacks Run and other waterways. In undeveloped areas such as grasslands and forests, the surface flow of water is slowed by vegetation allowing some of the water to seep into the ground. In urban areas, buildings, roads, parking lots, and other impervious surfaces do not allow for rain and snowmelt to soak into the ground. This results in faster flow of runoff. Stormwater runoff picks up pollutants such as oil, sediment, chemicals, and lawn fertilizers and carries them to Blacks Run and local waterways, where they harm water quality.

2 STORMWATER UTILITY FEE

WHAT IS A STORMWATER UTILITY FEE?

The City of Harrisonburg has adopted a stormwater utility fee to provide an adequate and stable source of funding for its stormwater program. A stormwater utility fee is a fee for service based on the amount of impervious surface area on a property. *Impervious* means surface area composed of material that significantly impedes or prevents natural infiltration of water into soil such as roofs, driveways, walkways, etc.



This program is similar in concept to how the City distributes the cost for sanitary sewer and drinking water services. This approach has several advantages. First, it fairly distributes the cost of the city's stormwater services across all eligible properties based on the amount of impervious surface. Second, under the Code of Virginia, revenue from the stormwater utility must be placed in a special fund that can only be used for stormwater management; therefore, revenue is established as a dedicated funding source to accomplish the goals of the City's stormwater program. Finally, the Code of Virginia requires the City to provide credits to property owners who have implemented stormwater management facilities to reduce their stormwater utility

fees. Per the City Stormwater Utility Ordinance, the stormwater utility fee shall be billed so that half the fee is billed two times per year to the property owner with the real estate tax bill.

HOW WILL THE STORMWATER UTILITY FUNDS BE USED?

The stormwater utility fee is a dedicated fund source that shall only be used for the City's stormwater program. The stormwater programs primary purpose is to provide pollution reductions by effectively managing polluted runoff. The funds collected will be used to support the following:

- Development of a city-wide Stormwater Improvement Plan to identify, select, and prioritize capital projects to manage stormwater, reduce pollution, and protect our drinking water sources

- Design and construction of stormwater capital projects, including retrofits and community greening projects to reduce pollution and improve water quality. This includes projects on city-owned properties and partnerships (such as grants or cost-share) with private property owners.

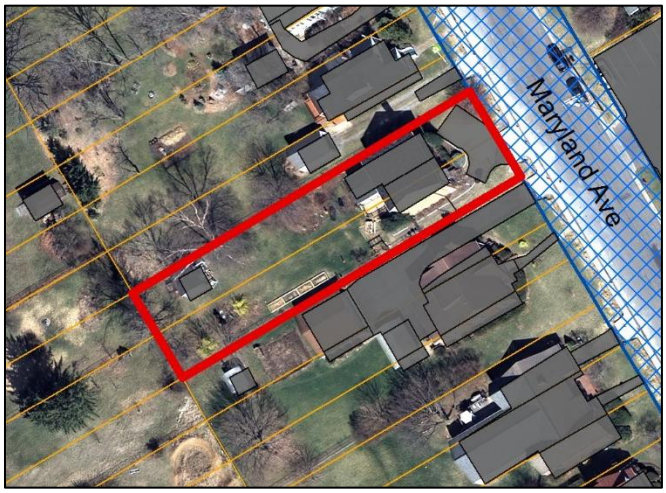
- Coordination of pollution reduction efforts including staff training on pollution prevention and good housekeeping practices for municipal operations, a pollution detection and elimination program, and a public education and outreach program.

1. Maintenance and operation of city-owned stormwater drainage and stormwater management facilities.

3 STORMWATER UTILITY FEE CALCULATIONS

Impervious areas such as parking lots, rooftops and driveways cannot absorb water so stormwater moves quickly over these surfaces into nearby storm sewers and streams resulting in a greater flow of water (i.e. a greater demand) on the urban drainage system. Therefore, the greater the impervious surface on your property, the greater the demand on the system.

For all properties in the city, the stormwater utility fee is based on square footage of impervious surface. For billing purposes, the fee is based on each 500 square feet of impervious area identified on each parcel and rounded to the nearest whole number.



All calculations will be performed by the City of Harrisonburg and will be available for review by the property owner.

Proposed ***Annual*** Utility Fee Calculation:

For this example, the impervious area on this parcel is 1,900 square feet (sf).

Step 1: Divide the parcel's impervious area in square feet by 500 sf to determine the number of billing units.

1,900 sf ÷ 500 sf = *3.8 billing units*

Step 2: Round the answer in step 1 to the nearest whole number.

1,900 sf ÷ 500 sf = 3.8 → **round to 4 billing units**

Step 3: Multiply the whole number of billing units found in step 2 with the billing unit rate.

4 * $10.50 = **$42.00 per year**

4 INSTRUCTIONS TO APPLY FOR A CREDIT

Homeowners are encouraged to install approved stormwater Best Management Practices (BMPs) to reduce stormwater runoff volume and/or pollutant levels from their property. Homeowners with eligible **existing and planned** stormwater BMPs as outlined in Section 8, are able to apply for a credit and must complete the Stormwater Utility Fee Credit Application for Residential (Appendix A) to receive credit. Refer to the instructions below.

- ✓ There is no fee for a credit application.
- ✓ Properties with one billing unit are not eligible to apply for a credit.
- ✓ The maximum credit a property owner can receive is 50%.
- ✓ Credits are valid for 5 years before re-application is necessary.
- ✓ Property owners must enter into a maintenance agreement with the City which includes periodic city inspections and a commitment from the property owner to maintain all components of the facility so it functions as designed.

Optional Pre-Installation Review

Property-owners installing **planned** eligible BMPs have the option to complete the Stormwater Utility Fee Credit Application for Residential prior to installation of the BMP for city review. They can check the "Pre-Installation" option at the top of the application. This is a courtesy review offered by the Public Works Department to assist homeowners. No stormwater utility fee credit will be given until the stormwater BMP is installed and a Stormwater Utility Fee Credit Application for Residential is submitted. For a courtesy review, homeowners may:

1. Submit the Stormwater Utility Fee Credit Application for Residential to the Public Works Department, checking the box "For Pre-Installation Review" in the upper left corner of the document. The Public Works Department will return comments within 45 days.

Applying for a Credit

To receive credit for **both planned and existing BMPs**, applicants must complete the following to apply for a credit. Applicants with existing BMPs will follow steps 2-4 below.

1. Install the selected stormwater BMP(s) according to the provided design standards.

2. Complete the Stormwater Utility Fee Credit Application for Residential and Residential Stormwater Utility Fee Residential Maintenance Agreement.

3. Include pictures of each stormwater BMP. Photos must be no more than 60 days from the date of application.

4. Submit application and the items listed above to the address below. Applications may be submitted by mail or email.

   Stormwater Utility Credit
   Harrisonburg Public Works Department
   320 East Mosby Road
   Harrisonburg, VA 22801
   Email: stormwater@harrisonburgva.gov

The Stormwater Utility Fee Credit Application for Residential and Stormwater Utility Fee Credit Manual for Residential can be found at the website below:
www.harrisonburgva.gov/stormwater-utility

Upon receipt of your application, the Public Works Department will review all documentation and the applicant will be notified in writing when an application is approved or denied. If additional information is needed for review, city staff will contact the applicant.

The City shall approve or deny credit applications and reapplications within 45 days of submittal. Any credit denial shall include comments from the city within 45 days of submittal.

Appeal Process

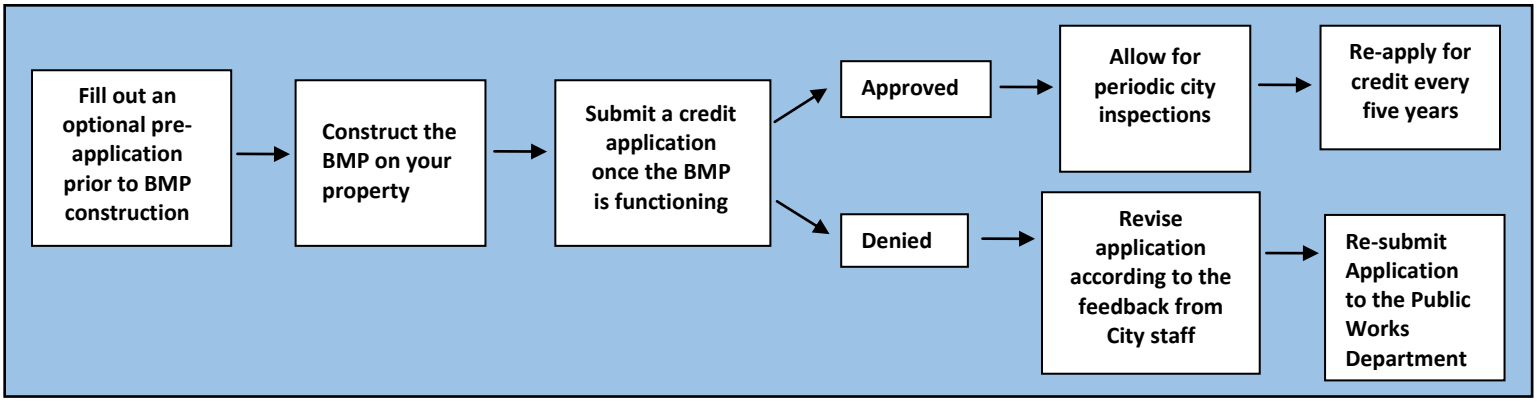
If the applicant is not satisfied with the response of the Public Works Department and/or an application is denied, an appeal may be made to the Stormwater Advisory Committee and the Director of Public Works. The Stormwater Advisory Committee (SWAC) is comprised of five (5) members and one City Council representative serving as an ex-officio member. This Committee provides guidance, oversight and recommendations to City Council and staff in the implementation of a Stormwater Management Program. The SWAC meetings take place at the Department of Public Works Office, 320 East Mosby Road, Harrisonburg, VA 22801. The Committee meets once per quarter on the first Wednesday of February, May, August, and November unless otherwise noted.

The Applicant requesting appeal must submit a written request to city staff 30 days prior to the next scheduled SWAC meeting. The appeal can be sent to stormwater@harrisonburgva.gov or Harrisonburg Public Works, ATTN: Stormwater Utility Program, 320 East Mosby Road, Harrisonburg, VA 22801. The SWAC meeting schedule and Rules of Procedure can be found at https://www.harrisonburgva.gov/swac.

At the meeting the SWAC will make a recommendation to the Director of Public Works. The Director shall make a determination within forty-five (45) days of receipt of a formal motion from the SWAC. The Director of Public Works' decision on a stormwater utility fee adjustment

petition is a final decision from which the aggrieved party may appeal to the Rockingham County Circuit Court within 30 days of such decision.

Stormwater Utility Fee Credit – Property Owner Action Plan:



5 CREDIT CRITERIA

Refer to Section 8 of this manual for approved stormwater BMPs and credit reductions and Section 9 for credit calculation examples.

6 MAINTENANCE REQUIREMENTS

In order for an applicant to continue to receive a stormwater credit, each stormwater BMP installed must be maintained to ensure its continued function. The applicant is responsible for having all ongoing maintenance work completed in accordance with the appropriate Virginia DEQ Stormwater Design Specifications and/or Chesapeake Bay Program's Protocol (refer to Section 8) to keep the facilities functional and to maintain compliance with the Stormwater Utility Fee Maintenance Agreement(s). Maintenance work should be documented regularly in the attached Stormwater Utility Fee BMP Maintenance Record (Appendix F).

As described in the Stormwater Utility Fee Maintenance Agreement, city staff may periodically inspect the stormwater BMP at reasonable times and upon presentation of proper identification, whenever the City deems necessary.

If the stormwater BMP is not functioning as approved or has not been maintained, the City will notify the owner in writing outlining the deficiencies and recommended actions. If the deficiencies are not corrected by the owner within 90 days after notification is received, credit revocation will take effect immediately.

Instructions on how to reinstate credits are found in Section 7.

7 CREDIT EFFECTIVE DATE & RE-APPLICATION REQUIREMENTS

Once the stormwater BMP is installed and a credit application is approved by the Public Works Department, the credit will be applied to the stormwater utility fee for the next fiscal year following approval of the credit. For example, if a homeowner submits an application for a rain barrel on October 1, 2015 and is approved on October 30, 2015, then the credit will be applied to the fee on July 1, 2016. Be advised that application review may take up to 45 days.

Credits will be valid for five (5) years from date of application approval or until transfer of ownership (i.e. sale of your home to another party), whichever is first. The owner will need to re-apply for the credit every five (5) years. Proper installation and maintenance is required to continue receiving credit. To re-apply, the applicant shall submit a completed application form with Stormwater Utility Fee BMP Maintenance Records from the past five (5) years and current photographs (no more than 60 days old) of the BMP(s).

The stormwater credit applies only to the applicant. Credits do not transfer with ownership changes. A new Stormwater Utility Fee Credit Application for Residential and maintenance agreement must be submitted by the new owner in order to receive the credit. Upon transfer of ownership, the City encourages the current owners to share a copy of the application, maintenance records, and photographs with the new owner. In the event this information is not provided to the new owner, the new owner may contact the Public Works Department to obtain previous records for the BMP, if available, and apply for the credit.

To reinstate a revoked credit, if within five (5) years of the latest approved application, the applicant shall provide the Public Works Department with a copy of the Stormwater Utility Fee BMP Maintenance Records and current photos (no more than 60 days old) of the BMP(s) showing that BMP deficiencies have been corrected as recommended by city staff.

If credit has been revoked or the credit has expired (5) years after the latest approved application), the property owner must submit a new Stormwater Utility Fee Credit Application for Residential to reinstate the credit.

8 APPROVED STORMWATER BEST MANAGEMENT PRACTICES

Residential property owners may receive credit for approved practices contained in this section of the manual.

To obtain credit, property owners are required to follow the guidelines for the installation and maintenance of approved BMPs provided in this manual and as found in the Chesapeake Bay Program's: Homeowner Guide for a More Bay-Friendly Property. http://chesapeakestormwater.net/2013/04/homeowner-bmp-guide/

Additional information and guidance for the installation and maintenance of certain approved BMPs can be found in the following documents

Chesapeake Bay Program's Urban Stormwater Protocol for Urban Stormwater Retrofits: Final CBP Approved Expert Panel Report on Stormwater Retrofits http://chesapeakestormwater.net/bay-stormwater/baywide-stormwater-policy/urban-stormwater-workgroup/retrofits/

DEQ Stormwater Design Specifications: http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/Publications.aspx

- ✓ Selecting more than one stormwater BMP is encouraged.
- ✓ The maximum credit allowed per parcel is fifty percent (50%).
- ✓ Other stormwater management practices may be approved on a case-by-case basis.

A. Roof Drain Disconnection — Credit available with this practice: 10%-20%

Downspout disconnection is the process of separating roof downspouts (gutters) from being directed to the storm sewer system and redirecting roof runoff onto pervious surfaces, most commonly a lawn. This reduces the amount of directly connected impervious area to the storm sewer system.

Two kinds of roof gutter (downspout) disconnections are allowable:

1 - Simple disconnection, whereby gutters from rooftops are directed to pervious (grass, meadow, forest) areas, and
2 - Gutter disconnection leading to an alternative runoff reduction practice(s) adjacent to the roof. Alternative practices can use less space than simple disconnection and can enhance runoff reduction rates. Alternative practices: discharge into a rain garden, discharge into a drywell or French drain, and discharge into an amended filter path.

Before After

This credit is determined by the roof area that drains to each downspout. To receive a 10% credit for this practice, **at least 50% of the property's roof area must be disconnected** .If 100% of the property's roof area is disconnected, the property is eligible for two (2) 10% credits totaling 20%.

Design Requirements and Installation Standards for *Roof Drain Disconnections*

To obtain credit for this practice, property owners need to adhere to the following:

1. Disconnections shall empty into pervious areas, and should not empty where flow will travel onto sidewalks, driveways, or other impervious areas.
2. Disconnections shall not impact neighboring properties, flow onto steep slopes or flow near retaining walls.

It is also advisable that:

1. Property owners consider information found in DEQ Stormwater Design Specifications http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/Publications.aspx (Click on 2013 BMP Standards & Specifications, Specification No. 1, Rooftop Disconnection, see Simple Rooftop Disconnection)
2. To protect your home's foundation, it is highly recommended that disconnections be at least 10 feet from your building.

B. Rain Garden — Credit available with this practice: 25%-50%

A rain garden is a depressed landscaped area designed to capture and filter stormwater runoff. The plants and soil in a rain garden provide an easy, natural way of reducing the amount of stormwater runoff through infiltration and uptake.

To receive a 25% credit, at least 25% of the property's total on-site impervious surface area must drain to the rain garden. In order to receive a 50% credit, at least 50% of the on-site impervious surface area, including rooftops, must drain to the rain garden.

Design Requirements and Installation Standards for *Rain Gardens*

To obtain credit for this practice, property owners need to adhere to the following:

1. The guidelines for the installation and maintenance of approved BMPs provided in this manual and as found in the Chesapeake Bay Program's: Homeowner Guide for a More Bay-Friendly Property. http://chesapeakestormwater.net/2013/04/homeowner-bmp-guide/

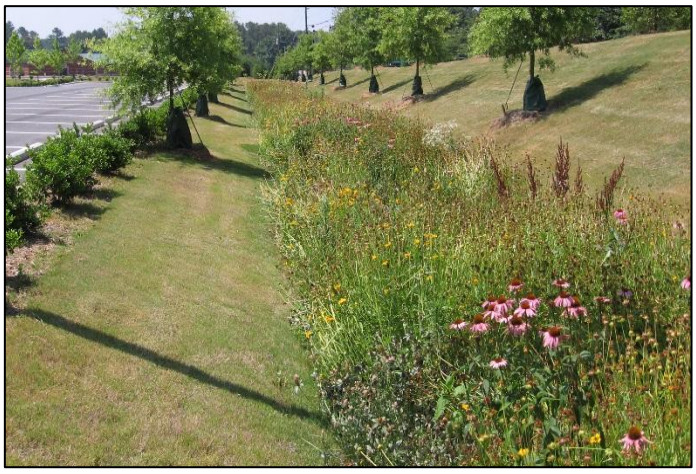
e

2. Overflows be at least 10 feet from any building foundation and away from neighboring properties, sidewalks, steep slopes, and retaining walls.

It is also advisable that:

3. Property owners consider planting native vegetation in the rain garden. Recommended native vegetation can be found in the Chesapeake Bay Program's: Homeowner Guide for a More Bay-Friendly Property.

C. Vegetated Filter Strip — Credit available with this practice: 10%



Vegetated filter strips are runoff flow paths of dense turf, meadow grasses, trees, or other vegetation with a minimum slope to treat runoff from roof downspouts.

Design Requirements and Installation Standards for *Vegetated Filter Strips*

To obtain credit for a vegetated filter strip, property owners should adhere to the following:

1. The guidelines set forth in the DEQ Stormwater Design Specifications. http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/Publications.aspx

2. The filter strip area should be fully vegetated with no bare soil or mulch on embankments or within the immediate drainage area.

3. Fertilizers and pesticides should not be used on the filter strip or immediate drainage area.

Note: The property owner should clearly delineate in a sketch the filter strip area on the application. The sketch shall include dimensions of the filter strip and distances from landmarks on the property. This information will be shared with the City's Department of Planning and Community Development and will allow the area to be exempt from the Tall Grass and Weeds Ordinance.

D. Rain Barrel/Cistern — Credit available with this practice: 20%

Rain barrels and cisterns provide temporary storage of rain water, which reduces peak runoff volumes, reduces soil saturation, and allows for greater infiltration and evaporation of stormwater runoff.

Design Requirements and Installation Standards for *Rain Barrels/Cisterns*

To obtain credit for a rain barrel or cistern, property owners should adhere to the following:

1. The guidelines for the installation and maintenance of approved BMPs provided in this manual and as found in the Chesapeake Bay Program's: Homeowner Guide for a More Bay-Friendly Property. http://chesapeakestormwater.net/2013/04/homeowner-bmp-guide/

2. The rain barrel or cistern must be installed with:
    a. A diverter or connection from a downspout;
    b. A spigot or a hose to drain the barrel;
        i. The rain barrel or cistern must drain in no less than 24 hours and should be emptied prior to the next storm event. (Collected rainwater can be used for irrigation, although the homeowner should note that the primary purpose for the credit is to reduce the volume of stormwater runoff from draining offsite).
    c. Overflow mechanism
        i. All rain barrel or cistern devices should have an overflow area to route extreme flows out into the lawn or into the next treatment practice of the stormwater conveyance system (ex: overflow pipe, overflow filter path, or overflow into a rain garden).
        ii. Overflows shall empty into pervious areas, and should not empty where flow will travel onto sidewalks, driveways, or other impervious areas.
        iii. Overflows shall not impact neighboring properties, flow onto steep slopes or flow near retaining walls.
    d. Mosquito prevention and overflow controls must be included.

It is also advisable that:

1. During winter months, the spigot should be left open during warmer daytime hours to allow any ice to melt.
    1. To protect your home's foundation, it is highly recommended that overflows be at least 10 feet from your building.

E. **Regional BMPs & VSMP Required BMPs Credit available with this practice: See below**

Credits may be provided to individual properties served by a regional stormwater BMP that was built according to Virginia Stormwater Management Program (VSMP) requirements. In circumstances where an applicant is attempting to claim credit for a BMP that is owned by a separate entity, proof that the applicant shares in the maintenance obligations and costs must be submitted with the Stormwater Utility Fee Credit Application for Residential in order for credit to be applied. To receive credit for a regional BMP, the owner of the BMP and all property owners of the properties contributing to the stormwater BMP must complete and sign a Regional Stormwater BMP Agreement Form, which can be found in Appendix G.

CREDIT EARNED for Regional BMP for Individual Properties =

[(YY% BMP Credit) x (ZZ% of impervious area on the individual parcel treated)] x (Original Individual Parcel Stormwater Fee)

A **50%** credit will be granted for a regional stormwater BMP (as applied to the impervious surface area that is treated by the stormwater BMP). With the unique nature of regional BMPs on residential properties, it is advised that applicants contact the Public Works department to discuss further. Additional information is available in the Stormwater Utility Fee Credit Manual for Non-Residential.

F.

Tree Planting Credit available with this practice: 10%

Tree planting is the practice of planting deciduous or evergreen trees in grassy areas that will grow and create a leaf canopy that intercepts rainfall and reduces runoff. Native tree species are preferred. Trees can be planted by the owner or a contractor, but species should be selected that will grow best given a variety of conditions, including the soil conditions and sun exposure at the planting site.

Tree planting credit can be attained through the planting of new trees or through existing tree canopy based on the percentage of coverage shown in Table 3. A 10% credit is the maximum credit a homeowner is able to receive, even if their canopy coverage is greater than 20%.

Table 3. Criteria for Residential Tree Canopy Cover

Lot Size (acres)	% Tree Canopy Cover Requirement
2.5 or less	20%
>2.5-5.0	10%
Greater than 5.0	5%

Requirements and Standards for *Urban Tree Planting*

To qualify for a stormwater utility fee credit, you may add or preserve existing trees on your property. Tree canopy cover is allowable for all tree canopies contributing within property boundaries. The homeowner must consider the following:

1. Tree canopy coverage for planted or existing trees will be calculated on actual cover area, as determined by review of aerial photography, or projected 10-year tree cover area.

2. If adding new trees:
    a. Plant trees recommended in Appendix B of this manual. If trees in Appendix B are not selected, the homeowner will be responsible for providing documentation of projected 10-year tree cover area.
    b. The minimum caliper and or planting size (in height) requirements for each tree provided in Appendix B must be met or documentation must be provided.
    c. Trees should be placed a minimum of 10 feet from any aboveground and underground utilities and structures. Call Miss Utility by dialing 811 a minimum of 3 days before starting your project to request utilities be marked. Care should also be taken in close proximity to septic drain fields.

3. Trees located within the city rights-of-way do not qualify for a utility fee credit. Tree canopy that contributes to the property owner's coverage does qualify for a utility fee credit.

4. Trees must be planted and preserved properly and in good, healthy condition to continue to receive credit. Canopy coverage and the health of the trees will be re-evaluated every 5 years.

G. Conservation Landscaping Credit available with this practice: 10%

Conservation landscaping is the creation of mulched beds that are planted with perennial plants, shrubs and/or small trees that retain rainfall and absorb runoff from impervious areas. Native plants and organic mulch are highly recommended. Conservation landscaping benefits the environment by improving water quality, preserving native species, and providing wildlife habitat. Conservation landscaping replaces some of the turf grass of a traditional lawn with plants that have adapted to local rainfall and soil conditions and require less water and maintenance than lawn grasses. To receive a 10% credit, a minimum conservation landscaping coverage of 20% within the parcel is required. A 10% credit is the maximum credit a homeowner is able to receive, even if their conservation landscaping coverage is greater than 20%.

Design Requirements and Installation Standards for *Conservation Landscaping*

To obtain a residential credit for conservation landscaping, the following standards and requirements must be met:

1. The guidelines for the installation and maintenance of approved BMPs provided in this manual and as found in the Chesapeake Bay Program's: Homeowner Guide for a More Bay-Friendly Property. http://chesapeakestormwater.net/2013/04/homeowner-bmp-guide/

2. Plants must be planted and maintained properly and in good, healthy condition to continue to receive credit. Conservation landscaping coverage and the health of the plants will be re-evaluated every 5 years.

Other considerations:

3. It is highly recommended that native vegetation be planted in the conservation landscaping area. Recommended native vegetation can be found in Section 12 of this manual.

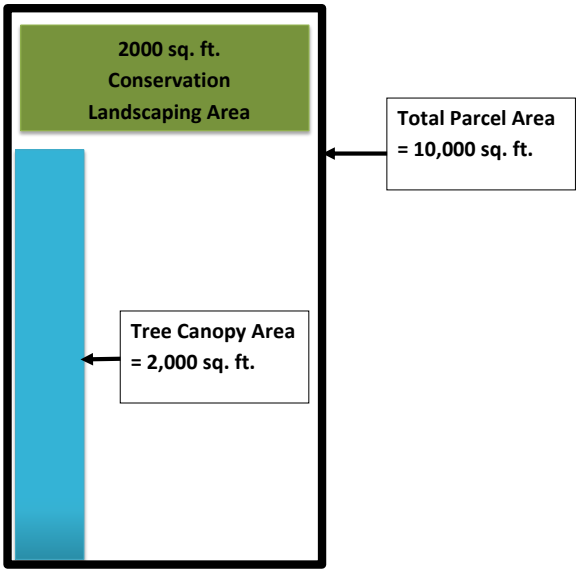
4. It is recommended to place conservation landscaping beds in a location that is lower than other parts of your lawn or your neighbor's lawn. Use any extra soil to form a small berm on the opposite side to retain water during a storm.

5. If trees are planted, they should be placed a minimum of 10 feet from any aboveground and underground utilities and structures. Call Miss Utility by dialing 811 a minimum of 3 days before starting your project to request utilities be marked. Care should also be taken in close proximity to septic drain fields.

6. In some cases, tree canopy and conservation landscaping areas may overlap. Credits will be calculated for each separately as illustrated in Examples A, B and C shown below.

Example A:

The 10,000 square foot (sf) parcel has 2,000 sf in conservation landscaping and 2,000 sf of tree canopy. The areas do not overlap.



Credit Percentage Allowable:

Total Tree Canopy Area = 2,000 sf or 20% of total parcel area

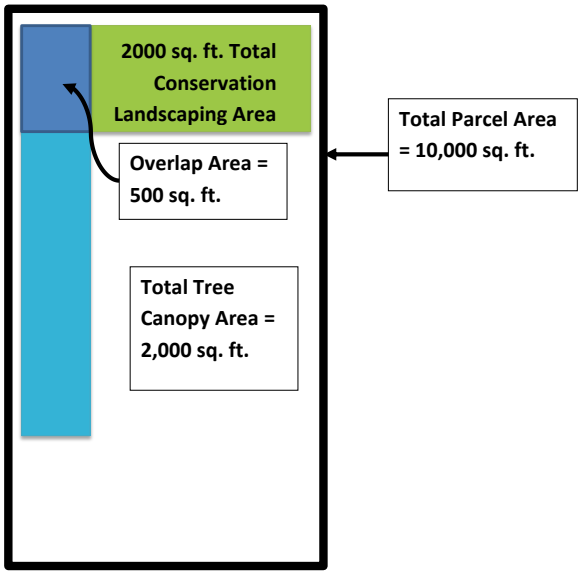
Total Conservation Landscaping area = 2,000 sf or 20% of total parcel area

Total Credit Percentage Allowable = 10% (tree canopy) + 10% (conservation landscaping)

Total Credit Percentage Allowable = 20%

Example B:

The 10,000 square foot parcel has 2,000 square feet in conservation landscaping and 2,000 square feet of tree canopy. The areas overlap with 500 square feet of overlap area.



Credit Percentage Allowable:

Total Tree Canopy Area = 2,000 sf or 20% of total parcel area

Total Conservation Landscaping Area = 2,000 sf – 500 sf = 1,500 sf

> *1,500 sf is less than 20% of total parcel area, therefore no credit is allowed for conservation landscaping.*

Total Credit Percentage Allowable = 10% (tree canopy) + 0% (conservation landscaping)

Total Credit Percentage Allowable = 10%

Example C:

The 10,000 square foot parcel has 3,000 square feet in conservation landscaping and 2,000 square feet of tree canopy. The areas overlap with 500 square feet of overlap area.

<u>Credit Percentage Allowable:</u>

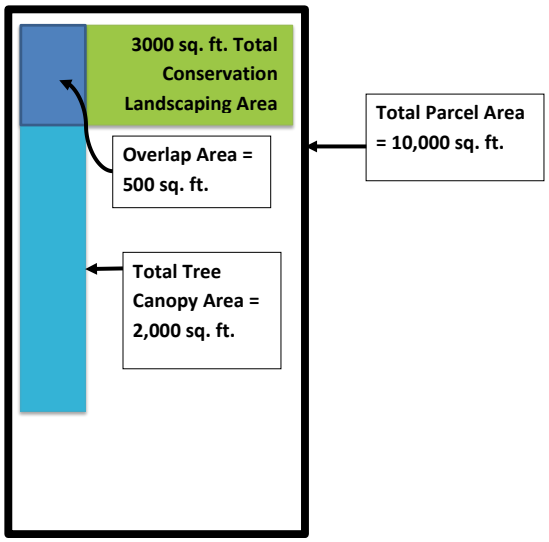
Total Tree Canopy Area = 2,000 sf or 20% of total parcel area

Total Conservation Landscaping Area = 3,000 sf – 500 sf = 2,500 sf

> *2,500 sf is greater than 20% of total parcel area, therefore credit is allowed for conservation landscaping.*

Total Credit Percentage Allowable = 10% (tree canopy) + 10% (conservation landscaping)

Total Credit Percentage Allowable = 20%



H. Homeowner Nutrient Management & Lawn Care Agreement

***Credit available with this practice*: 10%**

Applying pesticides and fertilizers is a common practice for many gardeners. Unfortunately, those lawn care chemicals often wind up washing right into local waterways. The excess nutrients from fertilizers can cause drinking water contamination, algal blooms, and fish kills. The contaminants from pesticides can result in waters that are not fishable or drinkable. A few small changes in your homeowner lawn care practices can mean a healthier lawn and less polluted runoff into local waterways.

To receive a Homeowner Nutrient Management and Lawn Care Agreement credit, the homeowner must complete and sign a Homeowner Nutrient Management Agreement, which can be found in the Appendix D of this manual.

I. Impervious Cover Removal, including Permeable Hardscapes and Vegetated Roofs

***Credit available with this practice*: See below**

When impervious cover is removed, the impervious area will be recalculated for the stormwater utility fee; refer to the calculation shown in Example A in Section 9 of this manual.

Impervious cover removal consists of breaking up existing hard surfaces, removing asphalt or concrete from the site, roto-tilling of the underlying soils to relieve compaction, and planting the area with grass or other vegetation. It could also mean the installation of a permeable material to replace hard surfaces, such as asphalt driveways or concrete walks, as well as the installation of a vegetated roof to replace standard roof material. This process requires the proper disposal or recycling of the asphalt or concrete.

Permeable hardscapes are designed to allow infiltration of stormwater through the surface into the soil below where water is naturally filtered and pollutants are removed. Permeable hardscapes may include paving blocks, grid pavers, permeable concrete, or permeable asphalt. Gravel is not considered permeable and is not eligible for a credit.

It is recommended that a qualified installer with knowledge of hydrology and hydraulics be consulted for applications using permeable hardscapes for driveways to ensure desired results and to support the weight of vehicles.

Vegetated roofs (also known as green roofs) are alternative roof surfaces that typically consist of waterproofing and drainage materials with an engineered growing media that is designed to support plant growth. Vegetated roofs capture and temporarily store stormwater runoff in the growing media before it is conveyed into the storm drain system. A portion of the captured stormwater evaporates or is taken up by plants, helping reduce runoff volumes, peak runoff rates, and pollutant loads from sites.

It is recommended that a qualified installer with knowledge of hydrology and hydraulics and roofing systems be consulted for applications using vegetated roofs to ensure desired results and to confirm the structural system is adequate to support the weight of the vegetated roof.

Design Requirements and Installation Standards for *Permeable Hardscapes*

To obtain a credit for permeable hardscapes the following standards and requirements must be met:

1. Installed for the purpose of runoff filtration.

2. For driveway installation: Stone reservoir underneath the permeable material is at least 10 inches deep at all points.

3. Underdrain system is constructed.

4. For walkway/patio installation: Stone reservoir underneath the permeable material is at least 6 inches deep at all points.

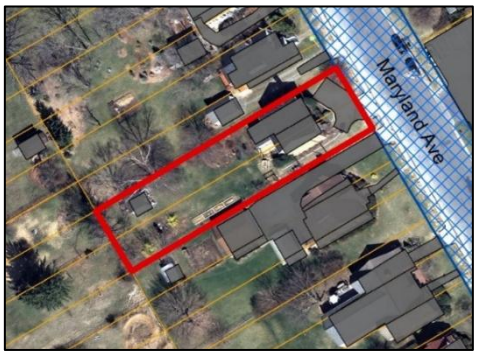
5. Guidance for installation of the permeable hardscapes can be found at the DEQ Stormwater Design Specification for Permeable Pavements found here: http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/Publications.aspx

Design Requirements and Installation Standards for *Vegetated Roofs*

To obtain a credit for vegetated roofs, it must be installed as per the DEQ Stormwater Design Specification for Vegetated Roof found here: http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/Publications.aspx.

9 CREDIT CALCULATION EXAMPLES

All credit calculations will be provided by the homeowner as shown below. The calculations will be reviewed and approved by the City of Harrisonburg prior to receiving the credit. The following examples illustrate the calculation of the annual credit for a residential property.



A. Proposed ***Annual*** Utility Fee ***with Credit*** Calculation:

For this example, the impervious area on this parcel is 1,900 square feet (sf); the owner installed a rain garden and removed 800 square feet of impervious cover and replaces it with grass and other vegetation.

Step A1: Recalculate the square footage of impervious surface and divide the parcel's impervious area in square feet by 500 sf.

1,900 sf – 800 sf = 1,100 sf of impervious surface

Step A2: Divide the individual parcel's new impervious area in square feet by 500 sf to determine the number of billing units for the parcel

1,100 sf ÷ 500 sf = *2.2 billing units*

Step A3: Round the answer in step A2 to the nearest whole number of billing units.

1,100 sf ÷ 500 sf = 2.2→ **round to 2 billing units**

Step A4: Determine the base annual utility fee by multiplying the whole number of billing units found in step A3 with the billing unit rate.

2 X $10.50 = **$21.00 per year**

Step A5: Calculate the credit based on the approved BMPs installed by multiplying the base annual utility fee by the credit percentage.

Rain garden credit = $21.00 X 25% **= $5.25**

Total Annual Credit = $5.25

Step A6: Calculate the new annual fee by subtracting the credit (step A5) from the base annual utility fee (step A4).

New Annual Fee = $21.00 - $5.25 = $15.75

B. Proposed ***Annual*** Utility Fee ***with Credit*** Calculation:

For this example, the impervious area on this parcel is 2,400 square feet (sf); the owner disconnected 2 downspouts (representing 50% of the 1,000 sf roof surface) and installed a rain garden capturing runoff from at least 1,200 square feet of the site's impervious surface.

Step B1: Divide the parcel's impervious area in square feet by 500 sf to determine the number of billing units.

2,400 sf ÷ 500 sf = *4.8 billing units*

Step B2: Round the answer in step B1 to the nearest whole number of billing units.

2,500 sf ÷ 500 sf = 4.8→ **round to 5 billing units**

Step B3: Determine the base annual utility fee by multiplying the whole number of billing units found in step B2 with the billing unit rate.

5 X $10.50 = **$52.50 per year**

Step B4: Calculate the credit based on the approved BMPs installed by multiplying the base annual utility fee (step B3) by the credit percentage.

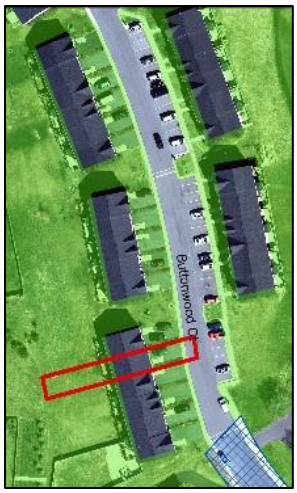
The roof drain disconnection provides a 10% credit and the rain garden provides a 50% credit. Since the maximum credit is 50%, multiply the annual utility fee (step B3) by 50%.

Total Annual Credit = $52.50 x 50% = $26.25

Step B5: Calculate your new annual fee by subtracting the credit (step B4) from the base annual utility fee (step B3).

New Annual Fee = $52.50 - $26.25 = $26.25

C. Proposed ***Annual*** Utility Fee ***with Credit*** Calculation for a ***townhome with homeowner association common areas:*** (Note common areas will include private drives, if outside of individual parcel boundaries.)



For this example, the impervious area on this individual parcel is 1,100 square feet (sf); the total impervious area within the common areas is 25,000 sf; and there are 100 individual parcels within the subdivision/association. The owner of an individual parcel installed a rain barrel.

Step C1: Divide the individual parcel's impervious area in square feet by 500 sf to determine the number of billing units for the parcel.

1,100 sf ÷ 500 sf = *2.2 billing units*

Step C2: Determine the individual parcel's 'share' of the common area impervious area by dividing the total common area impervious area by the number of individual parcels within the subdivision/association.

25,000 sf ÷ 100 parcels = **250 sf per parcel**

Step C3: Calculate the 'shared' billing unit per individual parcel by dividing the answer in C2 by 500 sf.

250 sf ÷ 500 sf = *0.5 billing units per individual parcel*

Step C4: Calculate the total billing units for the subject parcel by adding the answers in step C1 and C3 and rounding the answer to the nearest whole number of billing units.

2.2 + 0.5 = 2.7→ **round to 3 billing units**

Step C5: Determine the base annual utility fee by multiplying the whole number of billing units found in step C4 with the billing unit rate.

3 X $10.50 = **$31.50 per year**

Step C6: Calculate the credit based on the approved BMPs installed by multiplying the base annual utility fee (step C5) by the credit percentage.

Rain barrel credit = $31.50 X 20% **=** $6.30
Total Annual Credit = $6.30

Step C7: Calculate the new annual fee by subtracting the credit (step C6) from the base annual utility fee (step C5).

New Annual Fee = $31.50 - $6.30 = $25.20

10 DEFINITIONS

Billing unit means five hundred (500) square feet of impervious area.

Developed property means real property that has been altered from its "natural" state by the addition of any improvements such as buildings, structures and other impervious area.

Impervious means surface area composed of material that significantly impedes or prevents natural infiltration of water into soil.

BMP or "Best Management Practice" is defined as schedules of activities, prohibitions of practices, including both structural and nonstructural practices, maintenance procedures, and other management practices used to prevent or reduce the pollution of surface waters and groundwater systems.

Residential Properties are defined as any property on which a single-family, duplex, or townhome dwelling exists and is used for noncommercial purposes.

Pervious Surface means a surface composed of material that allows water to be absorbed into the ground, reducing runoff and filtering pollutants.

Regional BMP means a BMP that accepts and treats runoff from multiple separate properties. Regional BMPs are often owned by a Property Association or other entity responsible for regular maintenance and inspections.

Stormwater Quality refers to the chemical, physical, and/or biological characteristics of surface water.

Stormwater Quantity refers to the flow rate or volume of surface runoff from a property.

Utility fee means any permit or local program fees allowed by the Code of Virginia.

11 RESOURCES

City of Harrisonburg Stormwater Management Program
Public Works Department
540-434-5928
http://www.harrisonburgva.gov/stormwater-management-program

City of Harrisonburg Ordinance, Title 6, Chapter 5, Stormwater Utility
<Insert link>

Cleanstream.org
Local water quality information
http://www.cleanstream.org

Department of Forestry
Information on water quality and rain gardens
Rain garden Technical Guide
http://www.dof.virginia.gov
434-977-6555

Shenandoah Valley Soil & Water Conservation District
Watershed education, low impact development information, backyard conservation, lawn and tree care tips, rain garden and rain barrel information
http://svswcd.org/
540-433-5853 x 3

Virginia Department of Environmental Quality
Watershed education, lawn care, pet waste, and land conservation information
http://www.dcr.virginia.gov
804-786-1712

Chesapeake Bay Foundation
Water Quality, lawn care tips, Bay education, rain garden, and rain barrel information
http://www.cbf.org
804-648-4011

Alliance for the Chesapeake Bay
Bay education, Clean Stream projects, rain barrel and native landscaping information
http://www.allianceforthebay.org
804-775-0951

12 NATIVE PLANT REFERENCES

The information below is provided as a resource to assist property owners with selection of trees and plants on their properties.

Fairfax County, Rain Garden Design & Construction: A Northern Virginia Homeowner's Guide, http://www.fairfaxcounty.gov/nvswcd/raingarden.htm

Northern Virginia Soil & Water Conservation District, 10 Common Rain Garden Plants, http://www.novaregion.org/index.aspx?NID=977

Northern Virginia Soil & Water Conservation District, et al., Residential Low Impact Landscaping Handbook, http://www.fairfaxcounty.gov/nvswcd/raingarden.htm

Virginia Cooperative Extension, Urban Water-Quality Management: Rain Garden Plants, http://pubs.ext.vt.edu/426/426-043/426-043.html

Virginia Department of Conservation & Recreation, Native Plants for Conservation, Restoration, and Landscaping, http://www.dcr.virginia.gov/natural_heritage/nativeplants.shtml.

Virginia Department of Forestry, Rain Gardens Technical Guide, http://www.raingardensforthebays.org/wp-content/uploads/2013/04/pub-Rain-Garden-Tech-Guide_2008-05.pdf

Virginia Department of Forestry, Common Native Trees, Tree Identification Guide, http://www.dof.virginia.gov/print/edu/Common-Native-Trees.pdf

US Fish & Wildlife Service, Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed, http://www.nps.gov/plants/pubs/Chesapeake/toc.htm

Plant Invaders of the Mid-Atlantic Natural Areas, http://www.nps.gov/plants/ALIEn/pubs/midatlantic/index.htm (Non-native/invasive plants are not recommended)

APPENDICES

APPENDIX A. STORMWATER UTILITY FEE CREDIT APPLICATION FOR RESIDENTIAL

APPENDIX B. TREE CANOPY CHART

APPENDIX C. STORMWATER UTILITY MAINTENANCE AGREEMENT

APPENDIX D. HOMEOWNER NUTRIENT MANAGEMENT AND LAWNCARE AGREEMENT

APPENDIX E. STORMWATER UTILITY FEE CREDIT RE-APPLICATION

APPENDIX F. STORMWATER UTILITY FEE PETITION FOR ADJUSTMENT FORM

APPENDIX G. STORMWATER UTILITY FEE BMP MAINTENANCE RECORD

APPENDIX H. REGIONAL STORMWATER BMP AGREEMENT FORM

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