City of Allentown Stormwater Utility

Credit Program

Your guide to reducing your stormwater fee and protecting Allentown's water resources.

City of Allentown, Pennsylvania
Department of Public Works
641 South 10th Street
Allentown, Pennsylvania 18103
www.allentownpa.gov/public-works/stormwater
(610) 437-7587

June 28, 2018

City of Allentown Stormwater Utility

Credit Program

Table of Contents

Forms

Stormwater Facility Credit Application Form
Stormwater Facility Certification Form
Industrial Permit Credit Application Form

Why manage stormwater?

Stormwater affects everyone in Allentown! Hard surfaces (also known as impervious surfaces) such as streets, parking lots, driveways, and rooftops prevent rain from naturally soaking into the ground. As a result, it flows into the City's storm drains – carrying with it oil, grease, metals, pesticides, fertilizers, sediment, trash, debris, and pet waste. All of this stormwater, and everything mixed with it, then flows untreated directly into our local streams and the Lehigh River.

Allentown is legally responsible for the quality of water that flows from its storm pipes. The City is subject to a permit under the Pennsylvania Clean Streams Law and the federal Clean Water Act that regulates Allentown's storm drainage system. This permit, known as a Municipal Separate Storm Sewer System (MS4) permit, imposes specific mandates on the City for preventing new pollution and reducing pollution from existing sources.

Excess stormwater also causes flooding if not properly managed. Flooding can threaten public safety, damage property, and further degrade our streams and aquatic habitats. Today, the City manages over 200 miles of stormwater pipe, 8,700 inlets, and 300 storm drain outfalls designed to protect the residents of Allentown. However, much of this infrastructure is older and in need of maintenance, rehabilitation, or reconstruction. **When it comes to stormwater, being proactive is smart business.** It is nearly three times more expensive to conduct an emergency repair after a storm drain pipe has failed than to prevent failure through pipe rehabilitation.

Stormwater Utility Fee Program

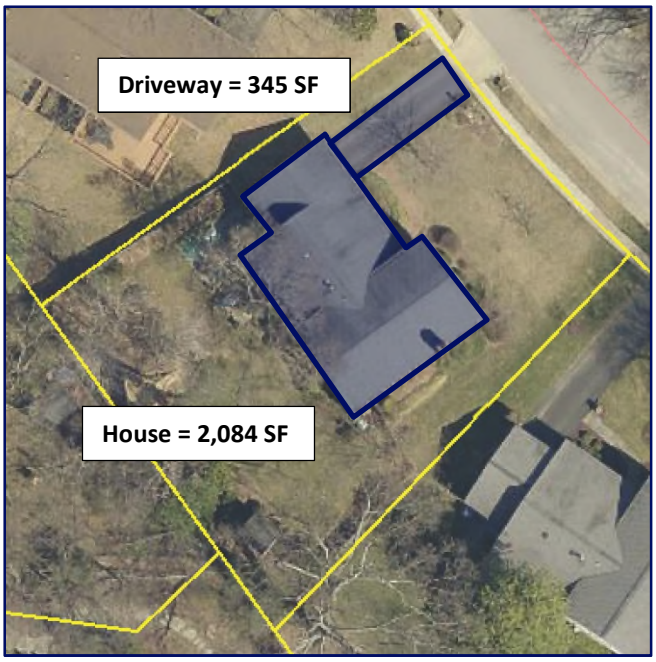
The City of Allentown has been working diligently to develop solutions to our water quality and flood control challenges. A key question for the City is "How do we fund a program that meets regulatory requirements and the City's long-term needs in a way that is fair, sustainable, and transparent?" After considering different options, the City has implemented a stormwater utility fee. A stormwater utility fee is a charge based on the amount of impervious area on a property.

This approach has several advantages. First, it fairly distributes the cost of the City's stormwater services since the amount of impervious area is directly related to the amount of stormwater that must be managed. This concept is similar to measuring usage and calculating fees for drinking water and sanitary sewer services. Second, the amount of the fee must be linked to demonstrated need and deposited into a special fund that can only be used for stormwater management. Finally, the approach allows the City to provide "credits" to property owners who have implemented practices that reduce the impact of stormwater on the publicly-managed system.

How is the fee calculated?

Since a stormwater utility is a fee for service, all properties are charged regardless of their tax status. Properties are charged in increments of 500 square feet (SF) of impervious area. These are called "billing units." Fractions are rounded to the nearest whole number. For example, the property to the right has 2,439 SF of impervious area. This means the property has five billing units (2,439SF/500SF = 4.85, rounded to 5). The number of billing units is then multiplied by the rate adopted by the City Council. This rate is adopted each year based on the needs of the stormwater program.

A property with less than 250 SF of impervious area is considered undeveloped and is not assessed a fee.



Example Fee Calculation

- **Total impervious area = 2,439 square feet (SF)**
- **Divide by 500 SF = 4.85**
- **Round to the nearest whole number = 5 billing units**
- **Multiply the number of billing units (5) by the rate adopted by City Council for your fee**

How can I reduce my bill?

Allentown property owners can reduce their fee in three ways.

[1] Reduce your impervious area.

Property owners can remove un-needed impervious areas. This will result in a direct fee reduction if the removal of impervious area results in fewer billing units. The City's Department

of Public Works is happy to work with any property owner to see if a planned reduction will result in a lower fee.

[2] Take credit for a stormwater management facility on your property.

The City provides credit to property owners who operate and maintain certain types of stormwater management facilities that ultimately reduce the cost of managing the public system. Typical facilities include dry ponds and extended detention dry ponds, wet ponds and wetlands, bioretention, bioswales and filter strips, filtering practices (such as tree box filters and sand filters), permeable pavers, and green roofs. This guidebook provides a step-by-step process for determining whether your stormwater facility qualifies for a credit.

[3] Take credit for an NPDES industrial stormwater permit issued by Pennsylvania.

The City provides credit to property owners who actively implement and are in full compliance with a Pennsylvania NPDES General Permit for Discharges of Stormwater Associated with Industrial Activities or Individual NPDES Permit for Industrial Stormwater. This manual provides a step-by-step process for determining whether your property qualifies for a credit.

What if I want to make my property more environmentally friendly?

There are lots of ways you can make your property part of the solution to cleaner water! To assist willing residents and businesses, the City has implemented a Community Engagement Program to offset a portion (and sometimes all) of the cost for a property owner to install practices that reduce pollution and flooding. Information about how to apply for this program is provided at the end of this manual.

In addition to being able to feel good about helping to improve our local water resources, some of these practices are also eligible for credits if designed and maintained to meet certain standards.

Stormwater Facility Credit

The City will provide a stormwater fee credit for any stormwater management facility, whether built voluntarily or as a condition-of-development, installed on or after April 19, 2007 (the adoption date of "The City of Allentown's (Act 167) Stormwater Management Ordinance," Article 1387 of the City Code). To be eligible for credit, the facility must meet the requirements in the following table.

Credit Eligibility Table

Component	Requirements
Technical Standards	✓ Condition-of-Development Facility – The facility is designed, installed, and accepted by the City in accordance with the technical standards required by the City at the time of construction. ✓ Voluntary Facility – The facility is designed, installed, and accepted by the City using a technical standard that allows the City to take pollutant reduction credit in accordance with its MS4 permit. Applicants must coordinate with City staff on acceptable design standards prior to initiating work on a facility.
Maintenance Agreement	✓ The facility must have a properly executed maintenance agreement with the City. Such agreement will allow for regular inspections of the functionality of the facility by City staff. ✓ For a voluntary facility, the maintenance agreement must be in force for at least 20 years from the date the facility becomes operational unless a different amount of time is agreed to by City staff. Once the maintenance agreement expires, the owner may renew the maintenance agreement or allow it to lapse, after which credit will be discontinued. ✓ As a condition for a new or renewed credit, the City may require an existing maintenance agreement to be updated to meet current standards for maintenance and inspection.
Function Verification	✓ The facility must currently function as designed. ✓ This requirement is satisfied if the facility has previously been accepted by the City in accordance with the Technical Standards, has passed its most recent inspection by the City, and is compliant with any reporting requirements contained in the maintenance agreement.

Component	Requirements
	✓ If the above conditions have not been met, this requirement is satisfied if a professional engineer, landscape architect, or other professional recognized by the City certifies that the facility is operating as designed. ✓ If the facility fails a City inspection, or the owner fails to submit documents as required in the maintenance agreement, the City will revoke the credit if corrective actions are not taken within the time specified by the City.

How much credit can I get?

The City's credit system accounts for the fact that different facilities provide different levels of public benefit. For example, some facilities provide only quality or flood control, while others provide both. In addition, some facilities provide higher levels of pollutant reduction than others. The City has chosen sediment as the basis for comparing pollutant reduction efficiencies since the City is legally obligated to reduce sediment pollution in its MS4 permit. If a facility has reduced the sediment load from pre-facility conditions by 10% or more, it receives a base credit of 20% to 30% depending on the percent of the reduction. All other facilities built in accordance with Article 1387 of the City Code receive a base credit of 10%. Finally, one of the City's goals is to encourage residents, businesses, and institutions to voluntarily manage the quality and quantity of stormwater from their properties. As a result, an additional credit of 20% is provided for facilities that are installed on a voluntarily basis.

Credit Amount Table

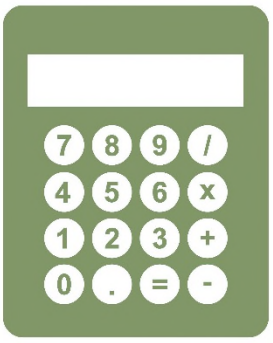
Facility Type and Sediment Reduction	Base Credit Amount	Voluntary Facility Bonus	Total Possible Credit
Facilities Achieving 10% or More Sediment Reduction from Pre-Facility Conditions (Assumes That These Facilities Also Control Quantity)			
10% to <25%	20%	20%	40%
25% to <75%	25%		45%
75%+	30%		50%
All Other Facilities Built in Accordance with Article 1387 of the City Code, Regardless of Whether it is for Quality, Quantity, or Both			
All	10%	Not Applicable	10%

The amount of credit will be reduced for facilities built using City cost-share funds from the Community Engagement Program. The credit will be reduced by the percent of the facility built using City funds for the expected life-time of the facility (generally 20 years unless otherwise provided by the City).

Credit may be taken for off-site impervious area managed by a facility provided that the area is not subsequently managed by a facility on the contributing property. In no case will the total credit taken by a property owner exceed 50% of the stormwater utility fee for the property.

Credit Calculator

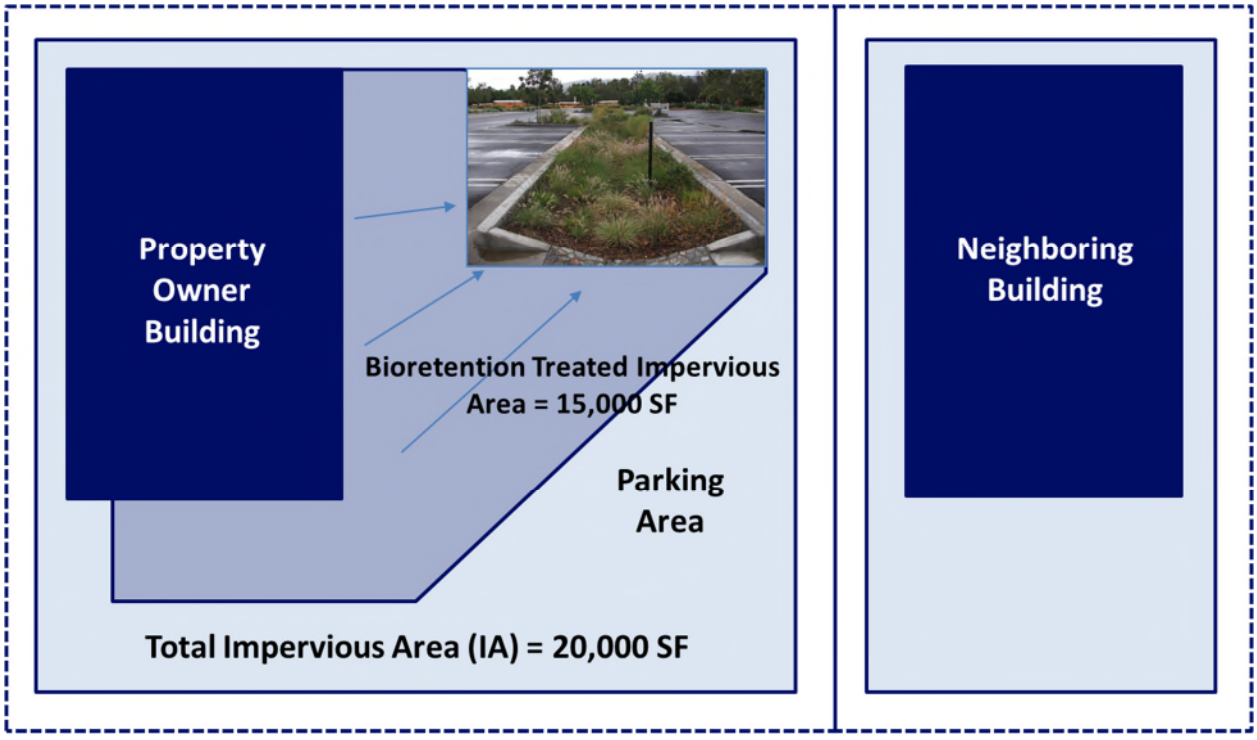
The following calculator can be used to determine your credit:



(A)	Total Impervious Area on the Property (SF)	
(B)	Impervious Area Managed by the Facility (SF)	
(C)	Proportion of Impervious Area Eligible for Credit Reduction = (B)/(A) *If Proportion is >100% Due to Offsite Treatment, (C) Reduces to 100%*	
(D)	Base Credit	
(E)	Voluntary Facility Bonus	
(F)	Total Credit = (D)+(E)	
(G)	Percent Reduction on Total Fee = (C)*(F)	
(H)	**Original Fee**	**$ -**
(I)	**New Reduced Fee = (H)*(1-G)**	**$ -**
(J)	Percent Funding Provided by the City for Facility Installation (Cost-Share)	
(K)	**Adjusted New Reduced Fee = H-((H-I)*(1-J))**	**$ -**

Credit Examples

The following are examples of how different credit scenarios may be applied to a hypothetical property in Allentown. For illustrative purposes, the property consists of a building and a parking area, with a total impervious area (IA) of 20,000 SF. A bioretention facility is located on the property and has a 55% sediment removal efficiency. A neighboring property has a building and surrounding impervious surface area.



[Example 1] Facility serving new development.

In this example, the property is considered new development and the bioretention facility was installed as a requirement of the City's Stormwater Management Ordinance (Article 1387 of the City Code). Because the facility was installed to mitigate the impacts of new development and its associated impervious area, no sediment reduction from pre-facility conditions is achieved. The owner is eligible for the base credit of 10%.

Credit Parameters	Credit Calculation

- 20,000 SF total IA.
- 15,000 SF managed IA.
- No off-site IA managed.
- Bioretention facility with 55% sediment removal efficiency; however, no reduction in sediment from pre-facility conditions is achieved.
- Base credit for <u>any</u> facility = 10%.
- No Community Engagement Program cost-share funding.

(A)	Total Impervious Area on the Property (SF)	20000
(B)	Impervious Area Managed by the Facility (SF)	15000
(C)	Proportion of Impervious Area Eligible for Credit Reduction = (B)/(A) *If Proportion is >100% Due to Offsite Treatment, (C) Reduces to 100%*	75%
(D)	Base Credit	10%
(E)	Voluntary Facility Bonus	0%
(F)	Total Credit = (D)+(E)	10%
(G)	Percent Reduction on Total Fee = (C)*(F)	7.5%
(H)	**Original Fee**	**$ 800.00**
(I)	**New Reduced Fee = (H)*(1-G)**	**$ 740.00**
(J)	Percent Funding Provided by the City for Facility Installation (Cost-Share)	0%
(K)	**Adjusted New Reduced Fee = H-((H-I)*(1-J))**	**$ 740.00**

[Example 2] Facility serving redevelopment.

In this example, the property is considered redevelopment. The bioretention facility was installed as a result of the City's Stormwater Management Ordinance, which requires a reduction in sediment pollution from existing conditions.

Credit Parameters	Credit Calculation

- 20,000 SF total IA.
- 15,000 SF managed IA.
- No off-site IA managed.
- Bioretention facility with 55% sediment removal efficiency.
- Base credit for reduction efficiency of 25-75% = 25%
- No additional voluntary effort.
- No Community Engagement Program cost-share funding.

(A)	Total Impervious Area on the Property (SF)	20000
(B)	Impervious Area Managed by the Facility (SF)	15000
(C)	Proportion of Impervious Area Eligible for Credit Reduction = (B)/(A) *If Proportion is >100% Due to Offsite Treatment, (C) Reduces to 100%*	75%
(D)	Base Credit	25%
(E)	Voluntary Facility Bonus	0%
(F)	Total Credit = (D)+(E)	25%
(G)	Percent Reduction on Total Fee = (C)*(F)	18.75%
(H)	**Original Fee**	**$ 800.00**
(I)	**New Reduced Fee = (H)*(1-G)**	**$ 650.00**
(J)	Percent Funding Provided by the City for Facility Installation (Cost-Share)	0%
(K)	**Adjusted New Reduced Fee = H-((H-I)*(1-J))**	**$ 650.00**

[Example 3] Voluntary facility with City cost-share funds.

In this example, the property owner installed the bioretention facility voluntarily. The City paid for 50% of the facility through the Community Engagement Program. As a result, the property owner gets to take the voluntary facility bonus, but only 50% of the credit.

Credit Parameters	Credit Calculation

- 20,000 SF total IA.
- 15,000 SF managed IA.
- No off-site IA managed.
- Bioretention facility with 55% sediment removal efficiency.
- Base credit for reduction efficiency of 25-75% = 25%
- Voluntary practice bonus = 20%.
- 50% cost-share by City = 50% reduction in credit.

(A)	Total Impervious Area on the Property (SF)	20000
(B)	Impervious Area Managed by the Facility (SF)	15000
(C)	Proportion of Impervious Area Eligible for Credit Reduction = (B)/(A) *If Proportion is >100% Due to Offsite Treatment, (C) Reduces to 100%*	75%
(D)	Base Credit	25%
(E)	Voluntary Facility Bonus	20%
(F)	Total Credit = (D)+(E)	45%
(G)	Percent Reduction on Total Fee = (C)*(F)	33.75%
(H)	**Original Fee**	**$ 800.00**
(I)	**New Reduced Fee = (H)*(1-G)**	**$ 530.00**
(J)	Percent Funding Provided by the City for Facility Installation (Cost-Share)	50%
(K)	**Adjusted New Reduced Fee = H-((H-I)*(1-J))**	**$ 665.00**

[Example 4] Voluntary facility with off-site management.

In this example, the property owner installed the bioretention facility voluntarily without any assistance from the City. In addition, the facility was expanded to manage 7,000 SF of impervious area from the neighboring property.

Credit Parameters	Credit Calculation

- 20,000 SF total IA.
- 15,000 SF managed IA on-site.
- 7,000 SF managed IA off-site.
- Bioretention facility with 55% sediment removal efficiency.
- Base credit for reduction efficiency of 25-75% = 25%
- Voluntary practice bonus = 20%.
- No Community Engagement Program cost-share funding.

(A)	Total Impervious Area on the Property (SF)	20000
(B)	Impervious Area Managed by the Facility (SF)	22000
(C)	Proportion of Impervious Area Eligible for Credit Reduction = (B)/(A) *If Proportion is >100% Due to Offsite Treatment, (C) Reduces to 100%*	100%
(D)	Base Credit	25%
(E)	Voluntary Facility Bonus	20%
(F)	Total Credit = (D)+(E)	45%
(G)	Percent Reduction on Total Fee = (C)*(F)	45.00%
(H)	**Original Fee**	**$ 800.00**
(I)	**New Reduced Fee = (H)*(1-G)**	**$ 440.00**
(J)	Percent Funding Provided by the City for Facility Installation (Cost-Share)	0%
(K)	**Adjusted New Reduced Fee = H-((H-I)*(1-J))**	**$ 440.00**

Stormwater Facilities Serving Condominiums or Homeowner Associations

Sometimes a stormwater facility will be installed to provide water quality or flood control for a condominium or homeowner association. Specific properties may or may not drain to the facility. However, the facility is operated and maintained jointly by all of the members of the association. In such cases, the applicant should use the total impervious area of the association and the total impervious area managed by the facility. Associations are encouraged to contact the City for additional details prior to applying for credit.

How and when do I apply?

To receive credit, a Credit Application Form must be submitted to the City by the owner of the stormwater management facility, or his/her legal agent, and approved by the City. This form is located under Forms at the end of this manual.

An application may be submitted at any time during the year. **Credit applications received on or before October 1 of each calendar year and approved by the City will be applied to the bill issued on or before February 1 of the following calendar year.** Credit applications received after October 1 and then approved by the City will be applied to the subsequent billing cycle.

The following is an overview of required documentation.

Credit Application Table

Documentation	Description
Documents Submitted With the Credit Application Form	
Credit Application Form	This form is located under Forms at the end of this manual.
Annual Sediment Load Reduction Calculation	This calculation is required for the applicant to receive the Voluntary Facility Bonus credit. It is used to determine the amount of sediment removed in pounds per year. Instructions and an example are located at the end of this manual.
Narrative of Maintenance and Repairs	Provide a history of facility maintenance and repair activities.
Photos	Provide at least two images showing the facility from different angles. Photos should be no more than six months old at the time of the application.
Facility Certification Form	This form is located under Forms at the end of this manual. Certification is required for facilities that have not already been approved by the City and accepted into the City's inspection program. The certification is to be completed under the authority of a professional engineer, landscape architect, or other qualified professional as determined by the City. The certification must include a statement that the facility is functioning as originally designed.
Documents Submitted at the Request of the City if Not On-File with the City	
Drainage Area Map	Provide a to-scale map showing property lines, impervious areas, stormwater drainage area boundaries, and the total impervious cover draining to the facility.
Facility Design Plan/As-Built Drawing	Provide the design plan and as-built drawing for the facility.
Maintenance Agreement	Provide a copy of the agreement that allows the City access to the site and establishes enforceable maintenance and reporting requirements. An updated maintenance agreement may be required as a condition of receiving credit.

Do I need to re-apply for credits?

At the discretion of the City, the credit will continue to renew on an annual basis provided that the owner complies with all requirements of the maintenance agreement. The City reserves the right to change the criteria for receiving a credit or require additional information for the owner of the stormwater management facility to continue receiving a credit.

Industrial Permit Credit

A property that is subject to and compliant with a current PAG-03 NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity or Individual NPDES Permit for Industrial Stormwater will receive a 10% credit on the stormwater utility fee associated with impervious area covered by the permit. To receive the credit, the property owner must submit an application form (located under Forms in this manual). Credit will be renewed on an annual basis upon receipt from the property owner of the annual report to Pennsylvania Department of Environmental Protection (PaDEP) that is required to be copied to the City by the NPDES permit. Further, if a facility is determined to be a source of an illicit discharge or elevated levels of pollutants by the City, the City will revoke the credit if corrective actions are not taken within the time specified by the City. No credit is provided for a facility that has received a "No Exposure" certification.

This credit is in addition to all other credits. However, the maximum cumulative credit will not exceed 50% of the stormwater utility fee.

Community Engagement Program

The Community Engagement Program was created as an incentive for property owners to voluntarily implement approved stormwater stewardship practices that will help the City meet long-term water quality targets. The City will pay for a portion (and in some cases all) of the cost to install approved practices. Some of the practices installed through the Community Engagement Program may be eligible for credit if they are designed in accordance with standards required for receiving credit (see Credit Eligibility Table).

The types of eligible activities will change depending on available funding and the practices needed for the City to meet water quality targets. **Visit www.allentownpa.gov/public-works/stormwater for the Community Engagement Program manual, a current list of eligible practices, and application forms and deadlines.**

Resources to Protect Our Water

Thank you for being a part of the effort to protect Allentown's water resources! See below for where to find forms online and how to connect with other stormwater management resources.

Online Forms

All forms can be found electronically at www.allentownpa.gov/public-works/stormwater.

Publications

The following publications provide information about stormwater management facility design or things you can do around your home or business to reduce pollution and flooding.

- Pennsylvania Stormwater Best Management Practices Manual
  http://stormwaterpa.org/from-the-foreword.html
- Pennsylvania BMP Effectiveness Values
  http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=11069&DocName=3800-PM-BCW0100m%20BMP%20Effectiveness%20(Final).pdf
- Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects
  https://www.chesapeakebay.net/documents/Final_CBP_Approved_Expert_Panel_Report_on_Stormwater_Retrofits--_short.pdf
- The Homeowners Guide to Stormwater – How to Develop and Implement a Stormwater Plan for Your Property
  www.allentownpa.gov/Portals/0/files/PublicWorks/Compliance/Homeowner's%20Guide%20to%20Stormwater.pdf
- Stormwater Management in Lehigh County
  www.allentownpa.gov/Portals/0/files/PublicWorks/Compliance/Stormwater%20Management%20in%20Lehigh%20County.pdf

Partner Organizations

- Pennsylvania Department of Environmental Protection (Stormwater Web Page)
  www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Pages/default.aspx
- Lehigh County Conservation District
  http://www.lehighconservation.org/

Stormwater Facility Credit Application Form

FILL OUT THIS FORM FOR EACH STORMWATER FACILITY IF THERE ARE MULTIPLE FACILITIES ON A PROPERTY

Applicant Name: _____ **Date:** _____

Property Information:

Owner _____

Street _____

City, State, ZIP Code _____

Property Type Residential

Mailing Address: (if different from property address)

Street _____

City, State, ZIP Code _____

Email Address: _____

Phone Number: _____

Facility Information:

See the Publications section for resources on facility types and design standards. Use the Pennsylvania BMP Effectiveness Values for pollutant removal effectiveness. Leave design standard and/or pollutant removal effectiveness blank if unknown. City staff will assist with the appropriate determination.

Facility Type _____

Design Standard _____

Date of Installation _____

NPDES Permit Number _____

Pollutant Removal Effectiveness TN _____ % TP _____ % Sediment _____ %

Total Drainage Area _____ SF

Total Impervious Drainage Area _____ SF

On-Site Impervious Area[2] _____ SF

Off-Site Impervious Area _____ SF ☐ Check if area is eligible for credit.[3]

[2] *If the applicant is an association or owns multiple parcels served by the same facility, impervious area from those parcels should be included as on-site.*

[3] *Off-site areas may be taken for credit only if not served by another stormwater management facility. In no case will total credit taken by a property owner exceed 50% of the stormwater fee for a property.*

Facility Information (continued):

Impervious Cover Reduction	If the facility was built in the past two years, was impervious area permanently removed from the site during the construction of the facility? Yes ☐ No ☐ If yes, provide information about the location and amount of impervious area removed under Additional Information or as a separate attachment.

Additional Information:

Please include additional information if necessary either in the box below or as a separate attachment:

The following supporting documentation must accompany this application, if applicable. Contact City staff at (610) 437-7587 for any questions.

Attached	*Not Applicable*	
☐	☐	**Annual Sediment Load Reduction Calculation** – This calculation is only required when applying for the Voluntary Facility Bonus credit. Instructions are located at www.allentownpa.gov/public-works/stormwater.
☐		**Narrative of Maintenance and Repair History** – Summarize facility maintenance and repair over the past 10 years. Exclude routine maintenance such as mowing and litter removal.
☐		**Photos –** Provide two photos of the facility from different angles. Photos should be no more than six months old.
☐	☐	**Facility Certification** – Certification is only required if the facility has not already been accepted by the City and is not part of the City's inspection program. If required, certification must be made by a professional engineer, landscape architect, or other professional accepted by the City and state that the facility is currently functioning as originally designed. Refer to the Stormwater Facility Certification Form.

The following supporting documentation <u>may be required</u> if it is not already on-file with the City. City staff will contact the applicant if the additional information is needed.

- **Drainage Area Map**
- **Facility Design Plan/As-Built Drawing**
- **Stormwater Facility Maintenance Agreement with the City**

Owner Certification and Inspection Agreement

☐ I am the property owner or I am duly authorized to act on behalf of the property owner, I have reviewed the information contained in this application and the supporting documentation, and to the best of my knowledge believe that it is true and accurate.

☐ I commit to maintaining the stormwater management facility in good working condition.

☐ I authorize the City or its representative to enter on my property for the sole purpose of visually inspecting the stormwater management facility.

☐ I understand that if an inspection by the City indicates that the facility is not properly maintained, that the facility will no longer be eligible for credit if deficiencies are not corrected within the timeframe provided by City staff.

Signature _____ **Date** _____

Name/Title _____

Return this form and all supporting documentation to:

City of Allentown
Stormwater Utility Fee Credit Application
Department of Public Works
641 South 10th Street
Allentown, Pennsylvania 18103

Stormwater Facility Certification Form

Applicant Name: _____ **Date:** _____

Property Information:

Owner _____

Street _____

City, State, ZIP Code _____

Property Type Residential

Structure/Management Type: _____

Year Built: _____ **Impervious Area Draining to the Facility:** _____ **SF**

General Condition:	Yes	No	N/A
Is the primary outfall pipe/ ditch clear and functioning?	☐	☐	☐
Are the inflow pipes/ ditches clear and functioning?	☐	☐	☐
Is the water quality pool at the correct height (if present)?	☐	☐	☐
Are water quality pool control weirs, pipes, etc. working properly?	☐	☐	☐
Are emergency overflow devices clear and functional (if present)?	☐	☐	☐
Is the structure clear of sediment?	☐	☐	☐
Is the structure clear of trash?	☐	☐	☐
Is vegetation being managed in a manner appropriate to the facility?	☐	☐	☐

Certification

This certification must be made by or under the guidance of a licensed professional engineer, landscape architect, or other professional recognized by the City to make this certification.

☐ Based on a visual survey of the above facility conducted on Click here to enter a date., I certify that the facility is currently functioning as designed.

☐ I certify that the total impervious area served by the facility and the accompanying Drainage Area Map are true and accurate.

_____ _____

Printed Name Date

_____ _____

Signature Qualification

_____ _____

Address Phone

_____

Email

Industrial Permit Credit Application Form

Applicant Name: **Date:**

Property Information:

Owner

Street

City, State, ZIP Code

Permit Type: ☐ General ☐ Individual

DEP Client ID#:

Effective Permit Date: **Expiration Date:**

Primary SIC Code: **Secondary SIC Code(s):**

Site Area from Notice of Intent: SF

Percent Impervious from Notice of Intent: %

Facility Description

Provide a general description of the facility and the nature of the industrial activity. Include the appropriate PAG-03 Appendix reference if applicable.

Compliance Issues

Provide a description of any compliance issues experience at the facility, including but not limited to corrective action agreements with PaDEP.

Certification

This certification must be made by an individual authorized to sign the NPDES industrial stormwater Notice of Intent.

- ☐ My property is subject to and compliant with a current PAG-03 NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity or Individual NPDES Permit for Industrial Activity.
- ☐ My property has not received a "No Exposure" certification.
- ☐ I understand that if my facility is determined to be a source of an illicit discharge or elevated levels of pollutants by the City, the City will revoke the credit if corrective actions are not taken within the time specified by the City.
- ☐ I understand that this credit will be automatically revoked if the City does not receive a copy of the annual report to PaDEP as required by the NPDES permit.

_____ Printed Name	_____ Date
_____ Signature	_____ Position
_____ Address	_____ Phone
_____ Email	

Annual Sediment Load Reduction Calculation

The following instructions explain how to determine BMP effectiveness for new retrofit/ voluntary facility projects based upon Chesapeake Bay Expert Panel Recommendations.

1. Preliminary Data

a. Determine the Drainage Area and Cover, Impervious and Pervious, to the New Retrofit Facility

b. Determine storage volume of the New Retrofit Facility

i. As-Builts

ii. Estimated storage volume of project to be built

c. Identify if the Project is RR or ST

d. Select Correct Retrofit Removal Adjustor Curves

i. Total Phosphorus Removal for RR and ST Stormwater Retrofit Practices

ii. Total Nitrogen Removal for RR and ST Stormwater Retrofit Practices

iii. Sediment Removal for RR and ST Stormwater Retrofit Practices

e. Select Annual Loading Rates for TP, TN, and TSS

i. Developed Impervious (lb/ac/yr)
ii. Developed Pervious (lb/ac/yr)

2. Calculate the Runoff Depth Captured per Impervious Acre

a. Determine Runoff Storage Volume (RS) in Acre-Feet from Preliminary Data

b. Determine Impervious Acres (IA) in drainage area to the New Retrofit Facility from Preliminary Data

c. Solve the equation for X:

$$X = \frac{(RS) * (12)}{IA}$$

Where:

X = Runoff Depth Captured per Impervious Acre (inches)

RS = Runoff Storage Volume (acre-feet)

IA = Impervious Area (acres)

3. Determine Pollutant Removal Rate of each Pollutant for the New Retrofit Project

a. Use the Runoff Depth Captured per Impervious Acre (inches) to find starting point on X-axis of the Retrofit Removal Adjustor Curves. If depth is greater than 2.5 inches, use 2.5 inches. Do not extrapolate.

b. Determine Intersection on RR or ST Curve

c. Follow Intersection to Y-Axis to determine Removal Rate for each Pollutant

4. Determine Total Annual Load Removed

a. Multiply Annual Loading Rate for each pollutant with the Impervious and Pervious Acres of the New Retrofit Facility's drainage area

b. Sum the loads from the Pervious and Impervious Acres to determine Total Annual Load for each Pollutant

c. Multiply the Total Annual load for each pollutant by the determined Removal Rate for that Pollutant to get the Total annual load removed

Example:
Annual Sediment Load Reduction Calculation

The following example demonstrates how to determine BMP effectiveness for new retrofit/ voluntary facility projects based upon Chesapeake Bay Expert Panel Recommendations.

Albright St. Stormwater Planter

1. Preliminary Data

a. Determine the Drainage Area and Cover, Impervious and Pervious, to the New Retrofit Facility

i. Total DA = 0.5647 Acres

ii. Impervious Acres = 0.5638 Acres

iii. Pervious Acres = 0.0009 Acres

b. Determine storage volume of the New Retrofit Facility

i. As-Builts

1. Storage Volume = 220 CF = 0.0051 Acre-Feet

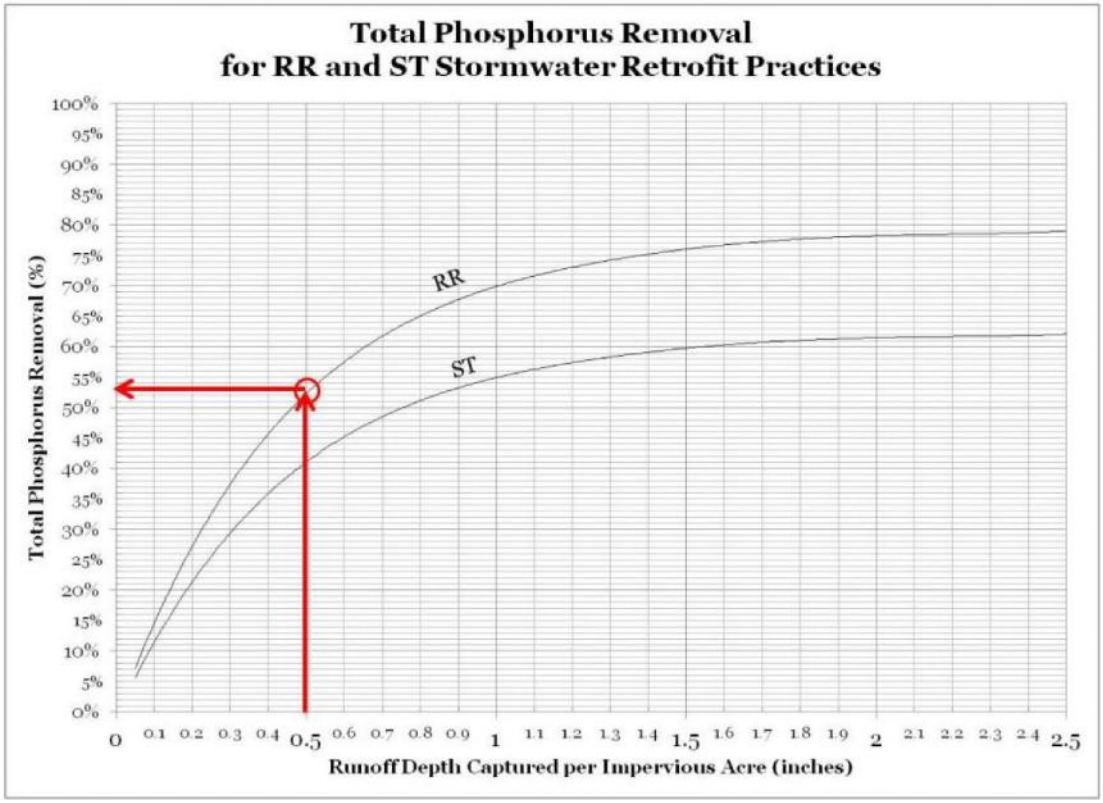
c. Identify if the Project is RR or ST

i.

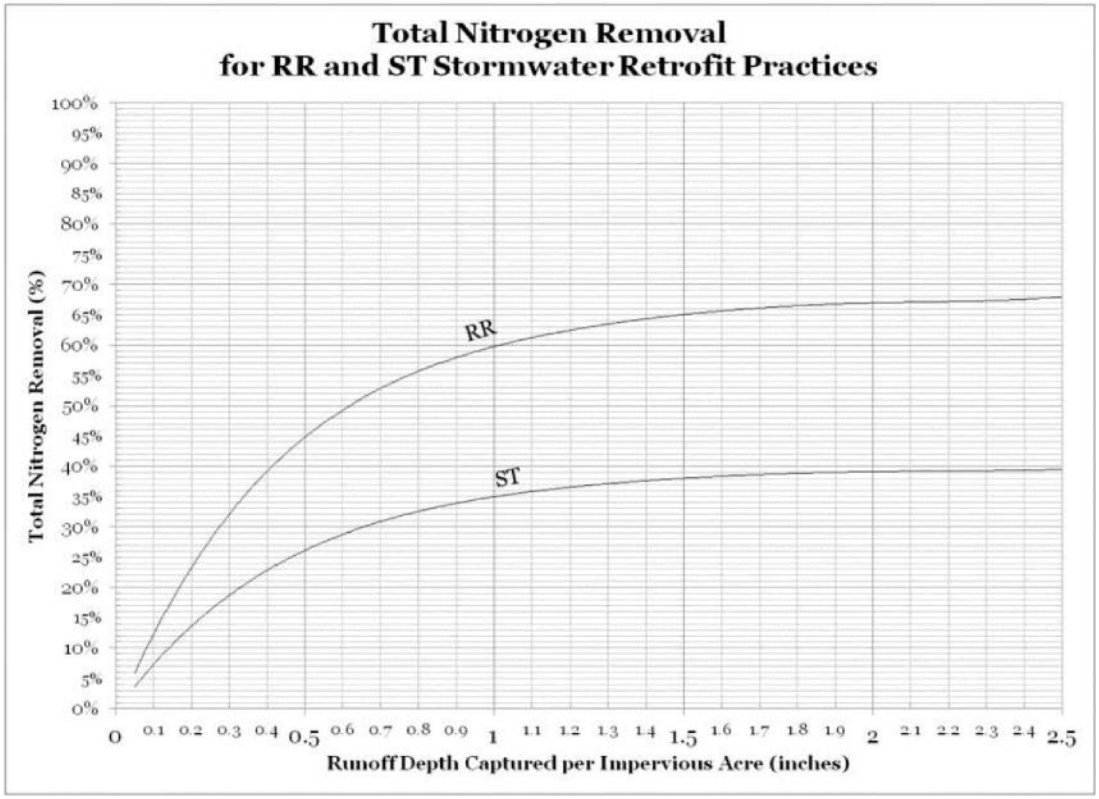
Table 2 Classification of BMPs based on Runoff reduction capability[1]	
Runoff R… ractices (RR)	*Stormwater Treatment Practices (ST) [2]*
Site Design/N… ral Practices	
Landscape Restoration/Reforestation	
Riparian Buffer Restoration	Constructed Wetlands
Rooftop Disconnection (aka Simple Disconnection to Amended Soils, to a Conservation Area, to a Pervious Area, Non-Rooftop Disconnection)	Filtering Practices (aka Constructed Filters, Sand Filters, Stormwater Filtering Systems)
Sheetflow to Filter/Open Space* (aka Sheetflow to Conservation Area, Vegetated Filter Strip)	Proprietary Practices (aka Manufactured BMPs)
All Non-structural BMPS – Chapter 5 of the 2006 Pennsylvania Stormwater BMP Manual	Wet Ponds (aka Retention Basin)
Practices	Wet Swale
Bioretention or Rain Garden (Standard or Enhanced)	
(aka Step Pool Storm Conveyance)	
Dry Swale	
Expanded Tree Pits	
Grass Channels (w/ Soil Amendments, aka Bioswale, Vegetated Swale)	
Green Roof (aka Vegetated Roof)	
Green Streets	
Infiltration (aka Infiltration Basin, Infiltration Bed, Infiltration Trench, Dry Well/Seepage Pit, Landscape Infiltration)	
Permeable Pavement (aka Porous Pavement)	
Rainwater Harvesting (aka Capture and Re-use)	
*May include a berm or a level spreader [1]Refer to DC, MD, PA, VA or WV State Stormwater Manuals for more information [2] Dry ED ponds have limited removal capability , their efficiency is calculated using rates in Table A-4, Appendix A	

d. Select Correct Retrofit Removal Adjustor Curves

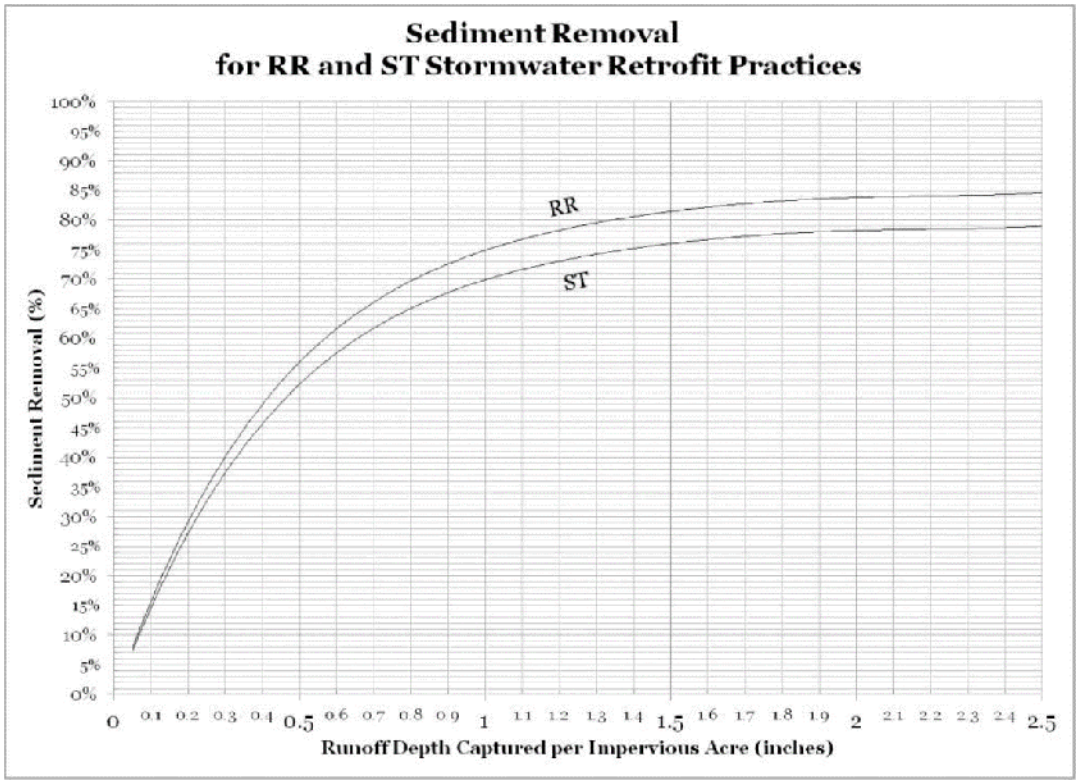
i. Total Phosphorus Removal for RR and ST Stormwater Retrofit Practices



ii. Total Nitrogen Removal for RR and ST Stormwater Retrofit Practices



iii. Sediment Removal for RR and ST Stormwater Retrofit Practices



e. Select Annual Loading Rates for TP, TN, and TSS

i. Developed Impervious (lb/ac/yr)

1. TP = 2.28 lb/ac/yr
2. TN = 23.06 lb/ac/yr
3. TSS = 1839 lb/ac/yr

ii. Developed Pervious (lb/ac/yr)

1. TP = 0.84 lb/ac/yr
2. TN = 20.72 lb/ac/yr
3. TSS = 264.96 lb/ac/yr

`

County	Category	Acres	TN lbs/acre/yr	TP lbs/acre/yr	TSS (Sediment) lbs/acre/yr
McKean	impervious developed	38.7	20.93	3.21	1,843.27
	pervious developed	5.3	22.58	1.45	249.26
Mifflin	impervious developed	5,560.2	21.83	1.79	1,979.13
	pervious developed	16,405.5	21.13	0.71	296.07
Montour	impervious developed	5,560.2	21.83	1.79	1,979.13
	pervious developed	16,405.5	21.13	0.71	296.07
Northumberland	impervious developed	8,687.3	25.73	1.54	2,197.08
	pervious developed	25,168.3	24.63	0.54	367.84
Perry	impervious developed	5,041.1	26.77	1.32	2,314.7
	pervious developed	9,977	23.94	0.51	343.16
Potter	impervious developed	2,936.3	16.95	2.75	1,728.34
	pervious developed	2,699.3	17.11	1.09	265.2
Schuylkill	impervious developed	5,638.7	30.49	1.56	1,921.08
	pervious developed	14,797.2	29.41	0.57	264.04
Snyder	impervious developed	4,934.2	28.6	1.11	2,068.16
	pervious developed	14,718.1	24.35	0.4	301.5
Somerset	impervious developed	1,013.6	25.13	2.79	1,845.7
	pervious developed	851.2	25.71	1.14	293.42
Sullivan	impervious developed	3,031.7	19.08	2.85	2,013.9
	pervious developed	3,943.4	21.55	1.31	301.58
Susquehanna	impervious developed	7,042.1	19.29	2.86	1,405.73
	pervious developed	14,749.7	20.77	1.21	203.85
Tioga	impervious developed	7,966.9	12.37	2.09	1,767.75
	pervious developed	18,090.3	12.22	0.76	261.94
Union	impervious developed	4,382.6	22.98	2.04	2,393.55
	pervious developed	14,065.3	20.88	0.69	343.81
Wayne	impervious developed	320.5	18.69	2.89	1,002.58
	pervious developed	509	21.14	1.31	158.48
Wyoming	impervious developed	3,634.4	16.03	2.53	2,022.32
	pervious developed	10,792.9	13.75	0.7	238.26
York	impervious developed	10,330.7	29.69	1.18	1,614.15
	pervious developed	40,374.8	18.73	0.29	220.4
All Other Counties	impervious developed	-	23.06	2.28	1,839
	pervious developed	-	20.72	0.84	264.96

Notes:

1 These land loading rate values may be used to derive existing pollutant loading estimates under DEP's simplified method for PRP development. MS4s may choose to develop estimates using other scientifically sound methods.

2 Acres and land loading rate values for named counties in the Chesapeake Bay watershed are derived from CAST. (The column for Acres represents acres within the Chesapeake Bay watershed). For MS4s located outside of the Chesapeake Bay watershed, the land loading rates for "All Other Counties" may be used to develop PRPs under Appendix E; these values are average values across the Chesapeake Bay watershed.

3 For land area outside of the urbanized area, undeveloped land loading rates may be used where appropriate. When using the simplified method, DEP recommends the following loading rates (for any county) for undeveloped land:

- TN – 10 lbs/acre/yr
- TP – 0.33 lbs/acre/yr
- TSS (Sediment) – 234.6 lbs/acre/yr

These values were derived by using the existing loads for each pollutant, according to the 2014 Chesapeake Bay Progress Run, and dividing by the number of acres for the unregulated stormwater subsector.

2. Calculate the Runoff Depth Captured per Impervious Acre

a. Determine Runoff Storage Volume (RS) in Acre-Feet from Preliminary Data

   i. RS = 0.0051 Ac-Ft

b. Determine Impervious Acres (IA) in drainage area to the New Retrofit Facility from Preliminary Data

   i. IA = 0.5638 Ac

c. Solve the equation for X:

$$X = \frac{(RS) * (12)}{IA}$$

Where:

X = Runoff Depth Captured per Impervious Acre (inches)

RS = Runoff Storage Volume (acre-feet)

IA = Impervious Area (acres)

$$X = \frac{(0.0051 \text{ Ac} * \text{ft}) * (12 \text{ in/ft})}{0.5638 \text{ Ac}}$$

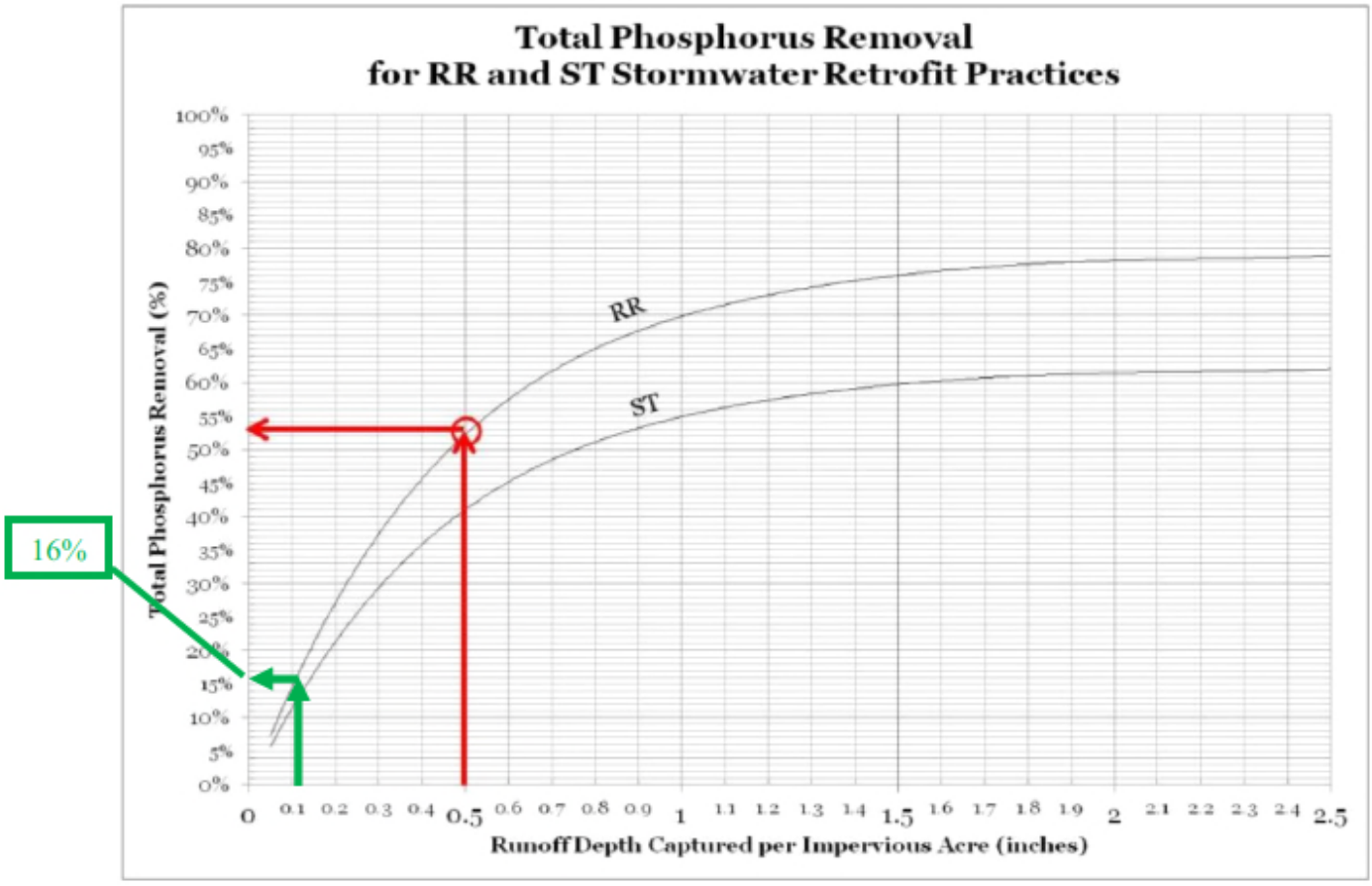
$$X = 0.11 \text{ in}$$

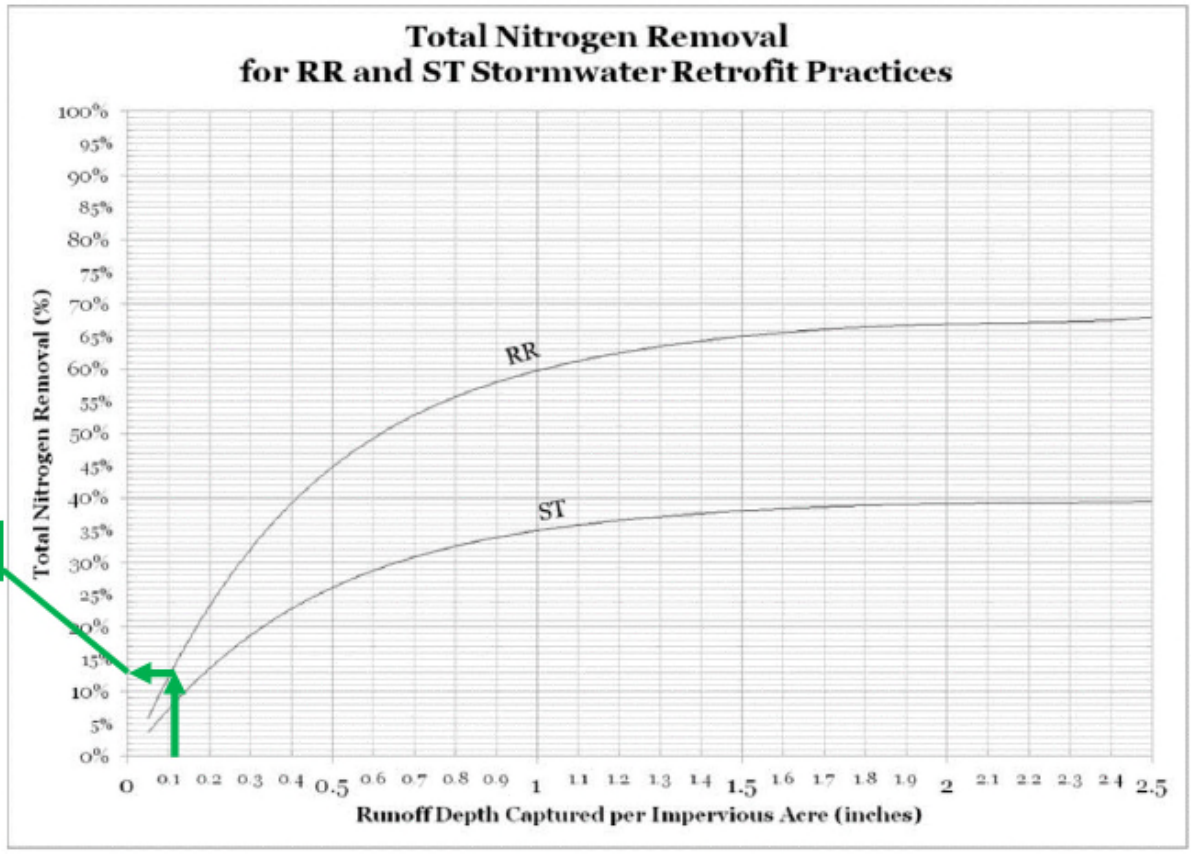
3. Determine Pollutant Removal Rate of each Pollutant for the New Retrofit Project

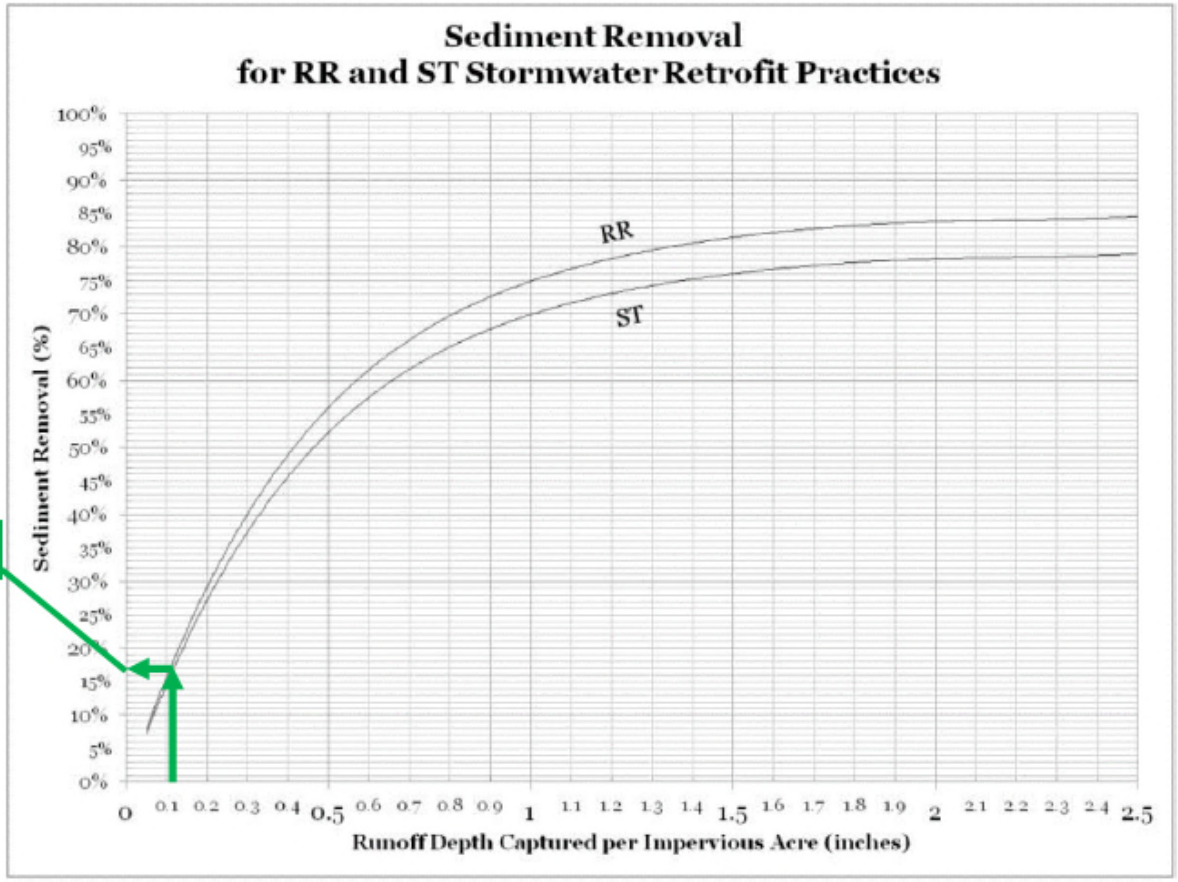
a. Use the Runoff Depth Captured per Impervious Acre (inches) to find starting point on X-axis of the Retrofit Removal Adjustor Curves. If depth is greater than 2.5 inches, use 2.5 inches. Do not extrapolate.

b. Determine Intersection on RR or ST Curve

c. Follow Intersection to Y-Axis to determine Removal Rate for each Pollutant




Total Nitrogen Removal
for RR and ST Stormwater Retrofit Practices
Total Nitrogen Removal (%)
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
RR
ST
13%
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2
2.1
2.2
2.3
2.4
2.5
Runoff Depth Captured per Impervious Acre (inches)


Sediment Removal
for RR and ST Stormwater Retrofit Practices
Sediment Removal (%)
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
RR
ST
17%
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2
2.1
2.2
2.3
2.4
2.5
Runoff Depth Captured per Impervious Acre (inches)

4. Determine Total Annual Load Removed

a. Multiply Annual Loading Rate for each pollutant with the Impervious and Pervious Acres of the New Retrofit Facility's drainage area

i. Developed Impervious (lb/ac/yr)

1. TP = (2.28 lb/ac/yr) * (0.5638 ac) = 1.285 lb/yr
2. TN = (23.06 lb/ac/yr) * (0.5638 ac) = 13.001 lb/yr
3. TSS = (1839 lb/ac/yr) * (0.5638 ac) = 1,036.805 lb/yr

ii. Developed Pervious (lb/ac/yr)

1. TP = (0.84 lb/ac/yr) * (0.0009 ac) = 0.001 lb/yr
2. TN = (20.72 lb/ac/yr) * (0.0009 ac) = 0.018 lb/yr
3. TSS = (264.96 lb/ac/yr) * (0.0009 ac) = 0.231 lb/yr

b. Sum the loads from the Pervious and Impervious Acres to determine Total Annual Load for each Pollutant

i. Total TP Load = 1.285 lb/yr + 0.001 lb/yr = 1.286 lb/yr

ii. Total TN Load = 13.001 lb/yr + 0.018 lb/yr = 13.019 lb/yr

iii. Total TSS Load = 1,036.805 lb/yr + 0.231 lb/yr = 1,037.036 lb/yr

c. Multiply the Total Annual load for each pollutant by the determined Removal Rate for that Pollutant to get the Total annual load removed

i. TP Load Removed = 1.286 lb/yr* 0.16 = 0.206 lb/yr

ii. TN Load Removed = 13.019 lb/yr * 0.13 = 1.693 lb/yr

iii. TSS Load Removed = 1,037.036 lb/yr * 0.17 = 176.296 lb/yr

References:

"Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects" Revised January 20, 2015.

http://chesapeakestormwater.net/wp-content/uploads/dlm uploads/2012/10/Final-CBP-Approved-Expert-Panel-Report-on-Stormwater-Retrofits-long 012015.pdf

"NPDES Stormwater Discharges from Small MS4s PRP Instructions" Revised 5/2016

http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-112617/3800-PM-BCW0100k%20PRP%20Instructions%20(Final).pdf