

# Good Recipes for the Bay Pollution Diet

## U-15 CONSERVATION LANDSCAPING

### PRACTICE AT A GLANCE

Pervious lands comprise nearly 10% of the total watershed area of the Chesapeake Bay, of which about 80% is specifically devoted to home lawns.

Converting managed turf to perennial meadows planted with species native to the Chesapeake Bay region is a new stewardship practice that can reduce nutrient runoff, treat limited runoff from adjacent impervious surfaces, and enhance pollinator habitat.

Nitrogen and phosphorus reductions are available because conservation landscapes have no fertilizer inputs, and native root systems de-compact urban soils and enhance the microbial community.

No sediment reductions are available for conservation landscaping because the ground cover is the same as turfgrass.

Many communities offer financial incentives or technical assistance for homeowners looking to install residential stewardship practices to reduce runoff and pollutants from their property.

Because conservation landscapes can be small and spread out across many properties, the total acreage can be reported each year from multiple property owners. The verification process is streamlined, though the credit lasts 5 years and can be renewed based on a field inspection.

### DESCRIPTION

**Conservation Landscapes** are areas of managed turf that are converted into perennial meadows using species that are native to the Chesapeake Bay region. The landscaping areas are slightly depressed so they can hold rainfall and, in some cases, treat runoff from adjacent hard surfaces. Conservation landscaping is designed to provide habitat for birds and pollinators, and does not rely on mulch to suppress weeds.

The turf conversion needs to follow a plan to sustain the meadow landscape over the years. This will usually include:

- Initial site preparation (e.g., dethatching, tilling, soil amendments).
- Establishing the meadow plant community (seeding/container plants) using native plant species to improve biodiversity over current conditions.
- Maintaining the conservation area to arrest succession and remain in a meadow state (e.g., biannual mowing, and invasive species removal).



Conservation landscape on a residential property in Virginia, funded through the VCAP program.

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Conservation landscapes are **Homeowner Stewardship Practices**, which are generally small in size (<1 acre) and are installed on an existing residential property by the homeowner or hired contractor. More information on Homeowner Stewardship Practices can be found in Fact Sheet U-3.

Conservation landscapes reduce nutrient loads for in three ways. First, since they do not receive any fertilizer inputs, they are not a major source on nitrogen export like urban turfgrass. Second, the biomass of each conservation area is "recycled" back into the soil every year, unlike lawn clippings that can wash off. This helps conservation areas build up organic matter and improve soil quality over time, thereby retaining more nutrients. Third, the deeper root systems associated with meadow plants extend further into the soil profile, help de-compact urban soils and enhance the capability of the soil microbial community to reduce nutrients.

## OTHER BENEFITS OF CONSERVATION LANDSCAPES



Monarch Waystation



Educational Signage



Reduced Mowing

Planting conservation landscapes provide benefits beyond pollutant removal, including watershed education, wildlife habitat, and aesthetic improvements. These native perennial meadows:

- Reduce long-term maintenance burden compared to mowed and fertilized turfgrass
- Create migratory corridors for birds and butterflies
- Provide habitat and food for diverse native wildlife
- Adding seasonal color to the urban landscape
- Engage the public in local watershed protection

## WHERE TO FIND THE BEST OPPORTUNITIES IN YOUR COMMUNITY

In order to get the most water quality benefit from your conservation landscape practices, consider targeting your program towards neighborhoods with: high impervious cover, downspouts connected to the storm drain network, and large lawns with potentially high fertilizer use. You can leverage your existing education and outreach programs to promote the benefits of conservation landscapes and increase awareness of any incentive program you operate.

Once priority neighborhoods have been identified, most homeowners still may not know which residential stewardship practices will work best for them, or where they should be located on their property to have the most benefit. Conservation landscapes are a great fit for homeowners who may be new to Bay-friendly practices, or who but may be interested in the aesthetics of a native garden or the opportunity to attract pollinators to their property.

Once you have a willing homeowner, it is often a good idea to have a watershed group or extension agent assess the property and

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recommend a series of options. Targeting areas at higher risk for erosion is a good place to start when locating a conservation landscape. Some factors to consider:

- Steep slopes
- Areas with patchy turf cover or exposed soil
- Properties within 300 feet of a stream, river, or Bay
- Turf adjacent to small areas of impervious surface (e.g., sidewalks) that could capture runoff
- Areas next to roof downspouts that are not treatable by a raingarden

While most stewardship programs started in residential neighborhoods, many have expanded in recent years to include churches and houses of worship, as well as small businesses and commercial properties. These projects are good targets since they can treat more impervious area and are highly visible in the community.

## GENERAL COST INFORMATION

The cost to install a conservation landscape can range from roughly \$5-20 per square foot depending on the soil condition at the site, and the type of plants selected. Costs can be broken down into the following categories:



**Design**



**Materials**



**Installation**



**Maintenance**

Conservation landscapes should be maintained to remain in a meadow-state. Bi-annual mowing and invasive species removal should be part of regular care. In some cases, the reduced mowing effort can provide substantial landscape management cost savings in comparison to turfgrass

Oftentimes, state or local assistance programs provide funding to defray some of these costs for the homeowner, either through a utility fee or grants. Other programs may offer technical assistance, such as design or installation, at little or no cost through partnerships with local extension agencies. To qualify for assistance, the property owner must agree to maintain the practice(s) over a fixed time-frame and allow access for inspectors.

In addition to the installation costs covered by the municipality, the local government should also expect to devote some basic costs to administer the program, provide quality control, and do basic reporting to the state (see Reporting section).

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## COMPUTING THE POLLUTANT REMOVAL CREDIT

**Table 1. Summary of Pollutant Load Reductions from Conservation Landscapes.**

	TN	TP	TSS
Removal Rate	39%	25%	0%

There are two options available for calculating the pollutant removal for conservation landscapes.

### Option 1: Conservation Area

Apply the removal rates provided in Table 1 to the pollutant loading rate produced by urban turf grass, and adjust for the surface area of the conservation landscaping.

*Example:* For a 0.25 acre conservation landscape area, multiply the area of the conservation landscape (0.25 acres), by the pollutant loading rate (11.19 lb TN/acre/year). Then multiply that by the pollutant removal efficiency (39% TN removal):

$$0.25 \times 11.19 \times 0.39 = 1.09 \text{ lbs TN removed}$$

### Option 2: Conservation Area with Impervious Surface Run-on.

When an impervious surface drains to a conservation landscape, additional credit can be added to the reduction calculated using Option 1. To determine the additional credit, apply the removal rates from Table 1 to the pollutant loading rate produced by impervious cover. To prevent the run-on from overwhelming the conservation area, the contributing impervious surface area cannot exceed twice the conservation landscaping area.

*Example:* For a 0.25 acre conservation landscape that captures runoff from a 0.1 acre parking pad, multiply the area of the parking pad (0.1 acres) by the pollutant loading rate (18.08 lb TN/acre/year). Then multiply that by the pollutant removal efficiency (39% TN removal).

$$0.1 \times 18.08 \times 0.39 = 0.71 \text{ lbs TN removed}$$

For the total project, you have removed 1.80 lbs TN.

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## HOW TO REPORT THE PRACTICE TO THE STATE

To streamline reporting, communities that operate incentive programs to install conservation landscapes on public or private land may aggregate individual project data annually and report the total acreage as a single BMP for the county. Records should be kept on each individual project in order to assist future verification efforts.

The following data reporting requirements are recommended for Conservation Landscapes:

- Practice Name (Conservation Landscape)
- Location of the BMP (County)
- Year the practice was installed
- Acres of conservation landscape
- Acres of impervious cover run-on



Conservation landscape during planting.

## WHAT IS REQUIRED TO VERIFY THE PRACTICE OVER TIME

Since most conservation landscapes will be very small in area (usually much less than one acre in size), they can be difficult to inspect and verify.

Conservation landscaping should undergo the same verification procedures for homeowner BMPs and on-site retrofits (Fact Sheet U-3) namely:

- They should be inspected every five years to ensure that the conservation landscape still exists, functions as a meadow, and achieves a minimum ground cover. If it passes inspection, the credit can be renewed.
- Self-reporting of these indicators by homeowners using digital photos is acceptable.

Alternatively, a community can elect to inspect a subset (10%) of the conservation landscaping areas in their jurisdiction.

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## RESOURCES

Type of Resource	Title of Resource	Web link
<b>BMP Memo</b>	Nutrient Reduction Credit for Conservation Landscaping (2018)	<a href="https://chesapeakestormwater.net/download/8886/">https://chesapeakestormwater.net/download/8886/</a>
<b>CSN Report</b>	Homeowners Guide for a More Bay-Friendly Property (2013)	<a href="http://chesapeakestormwater.net/wp-content/uploads/downloads/2013/11/4.-Section-4.2-Conservation-Landscaping-w-Appendices.pdf">http://chesapeakestormwater.net/wp-content/uploads/downloads/2013/11/4.-Section-4.2-Conservation-Landscaping-w-Appendices.pdf</a>
<b>Archived Webcast</b>	Creating or Enhancing Your Local Residential BMP Program (2014)	<a href="https://chesapeakestormwater.net/events/webcast-ms4-implementers-and-the-bay-tmdl-local-residential-bmp-program/">https://chesapeakestormwater.net/events/webcast-ms4-implementers-and-the-bay-tmdl-local-residential-bmp-program/</a>
<b>Fact Sheet</b>	U-3 Residential Stewardship Practices (2015)	<a href="http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2015/06/U3.-Residential-Stewardship-Practices-Fact-Sheet-in-Chesapeake-Bay-Watershed.pdf">http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2015/06/U3.-Residential-Stewardship-Practices-Fact-Sheet-in-Chesapeake-Bay-Watershed.pdf</a>
<b>Plant Guide</b>	Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed	<a href="https://www.fws.gov/chesapeakebay/pdf/NativePlantsforWildlifeHabitatandConservationLandscaping.pdf">https://www.fws.gov/chesapeakebay/pdf/NativePlantsforWildlifeHabitatandConservationLandscaping.pdf</a>
<b>Assistance Program</b>	District Department of Energy and Environment: RiverSmart Homes Program	<a href="https://doee.dc.gov/service/riversmart-homes-bayscaping">https://doee.dc.gov/service/riversmart-homes-bayscaping</a>
<b>Assistance Program</b>	Virginia Conservation Assistance Program (VCAP)	<a href="https://vaswcd.org/vcap">https://vaswcd.org/vcap</a>