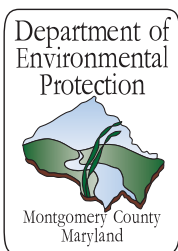


Green Streets

Environmentally
Friendly Landscapes
for Healthy Watersheds

GREEN STREETS IN YOUR NEIGHBORHOOD



Watershed Management Division
Department of Environmental Protection
255 Rockville Pike, Suite 120
Rockville, MD 20850

www.montgomerycountymd.gov/watershedrestoration

Introduction



What are Green Streets?

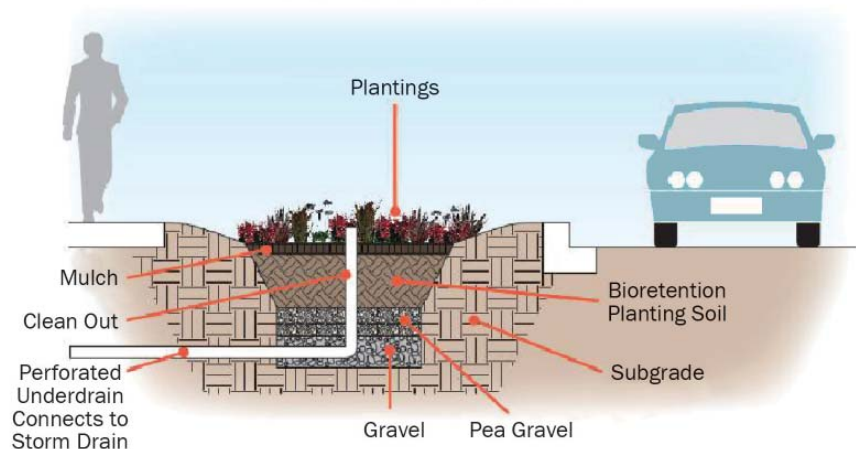
Green Streets help slow down and clean polluted water that enters our streams and rivers when it rains. Initiated by the County, Green Streets capture stormwater runoff in small landscaped areas that let water soak into the ground while plants and soils filter pollutants. This not only prevents polluted water from going directly into our streams through storm drains, but it also replenishes groundwater and helps ensure that local streams have the baseflows they need to stay healthy. Green Streets also add natural habitat and create attractive connections to neighborhoods, schools, parks, and business districts.

Green Street practices are placed within the street “right-of-way,” an area where there is often a lot going on (utilities, walkways, cars, people, etc.). Each Green Street practice is designed to fit in its unique setting, and work in concert with the site’s other functions.

Stormwater 101

As our neighborhoods were developed, the watersheds that support local streams were greatly altered. Buildings, roads, driveways and lawns have replaced much of the natural vegetation, forests, and soils that used to slowly absorb and filter rainwater. Development provides us with places to live, work, and play, but its hard surfaces prevent rainwater from soaking back into the ground and allow pollutants to enter local streams more easily. Rainwater falling on hard surfaces flows directly into a storm drain where underground pipes transport it, along with pollutants it picks up along the way, to local streams. In suburban areas, even lawns can act like a hard surface if they are highly compacted or do not drain well.

Bioretention Garden



The Big Picture...

The County plans to improve stormwater treatment on 4,292 acres of hard surfaces by February 2015. That is a lot of ground to cover, and a variety of approaches are needed to meet this goal, given the extent of development in our county.

Just how big is 4,292 acres?

6.7 square miles. That’s about three times the size of Takoma Park.

Green Street Techniques to Manage Stormwater

The following are some of the community based practices used to collect, treat, and allow rainwater from hard surfaces to absorb into the ground.

Rain Garden

- A shallow depression planted with native vegetation
- Typically has three-inch mulch layer, two feet of planting media, and one to two feet of gravel
- Adds beauty to your street, with simple and routine maintenance by the County
- Requires adequate space and well-drained soils



rain garden

Bioretention Garden

- Very similar to a Rain Garden—a shallow depression planted with native vegetation
- Typically has three-inch mulch layer, two feet of planting media, and one to two feet of gravel
- Gravel layer has an underdrain pipe that connects to a nearby storm drain to help drain the garden after storms
- Adds beauty to your street, with simple and routine maintenance by the County
- Requires adequate space, but does not require well-draining soils because it has an underdrain



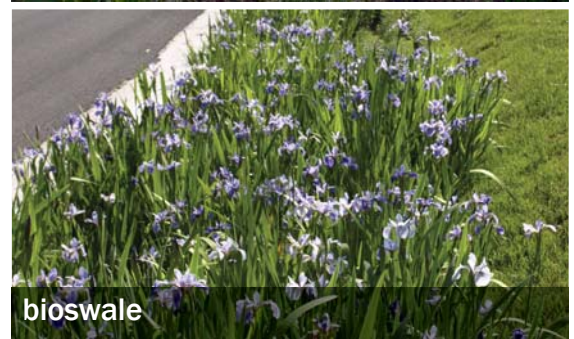
bioretention garden

Bioswale and Grass Swale

- Stone or vegetated check dams can be used within a swale to slow the rate of water flow, promote absorption into the soil, and create small, temporary areas of pooled water
- Grasses and other vegetation planted along the slopes and bottom of the swale help slow down and filter pollutants from rushing stormwater
- Existing grass swales can be modified to improve stormwater treatment



bioretention garden

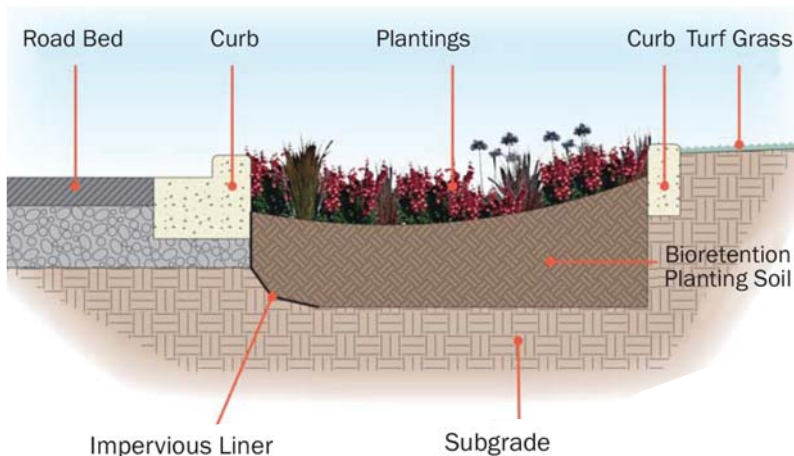


bioswale



grass swale

Curb Extension



Green Street Techniques to Manage Stormwater



curb extension



curb extension



tree box filters



permeable pavers



pervious sidewalk cross section

Curb Extension

- Extends into parking lanes or paved shoulders in cases where there is no space behind the curb
- Requires adequate space and minimal impact to parking
- Provides traffic calming

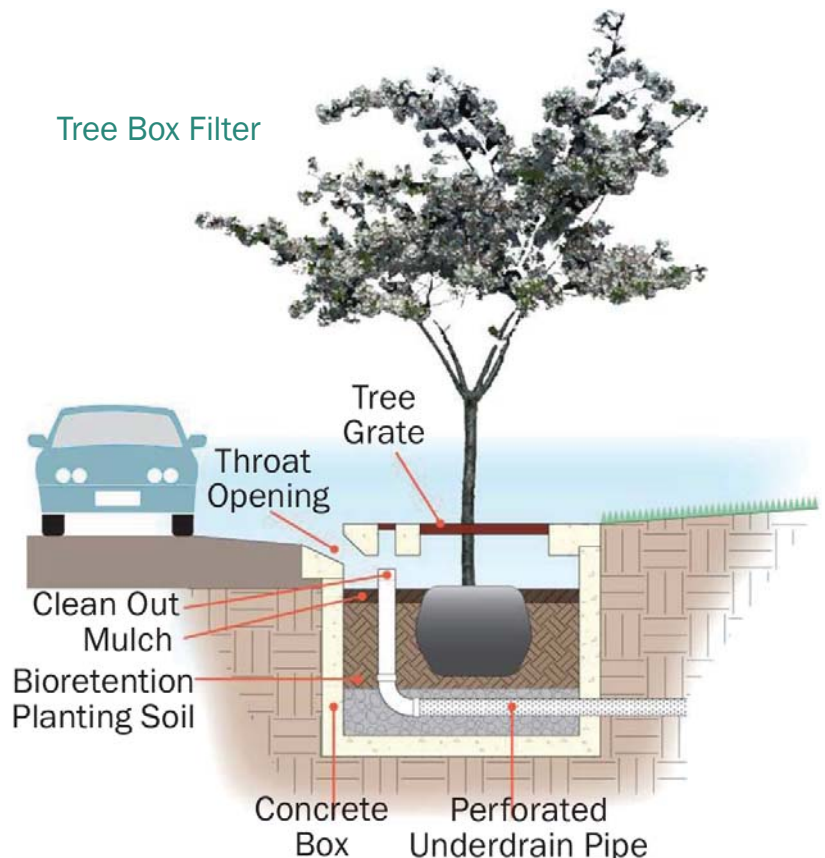
Tree Box Filter

- Mini bioretention box filled with a soil mixture, a mulch layer, an underdrain system and a shrub or tree
- Requires proximity to a storm drain system
- Used when space is limited

Pervious Sidewalk, Permeable Pavers and Pavement Removal

- Pervious sidewalk allows water to infiltrate into ground below
- Permeable pavers can be used to create parking pads along the roadway, also allowing water to infiltrate
- Pavement removal may be used in combination with another green street practice depending on site conditions
- Less pavement means less stormwater and pollutants entering local streams

Tree Box Filter



Green Streets in Your Neighborhood

Frequently Asked Questions (FAQ)

Why are you creating Green Streets?

Green Street projects are part of Montgomery County's efforts to meet Federal and State mandates to control and reduce pollution from stormwater runoff. The goal of these projects is to reduce the amount of runoff, minimize pollution, maintain clean and abundant groundwater, and restore the condition of Montgomery County streams and the Chesapeake Bay.

Who will maintain Green Street practices?

The County's Department of Environmental Protection (DEP) is responsible for maintaining Green Street projects. DEP will monitor the practices periodically to make sure they are functioning properly. DEP will ensure the plants are healthy by removing dead, diseased, or dying plants, replacing plants as needed, replenishing mulch, weeding, and removing sediment and trash that may accumulate. The first two years are the most important when establishing the plants. The County's plants are under warranty, and DEP will ensure they thrive during this critical time period.



How can I help the County maintain Green Street practices?

- While the plants are getting established, please keep large, heavy objects (such as garbage bags) off of the newly planted areas. Cans and bags put out temporarily for trash collection day are okay.
- Please do not modify landscaping in any way. The plants are under warranty for two years; unauthorized alterations may void it.
- When mowing the grass around a Green Street practice, keep grass clippings away. Grass clippings, sediment, or debris left in the street and curb will also flow into the practice when it rains, so keeping these areas as clean as possible will help keep it working properly and looking nice.
- Please try to keep piles of leaves or snow out of the practices, as they can smother and crush plants and clog the practice.
- Please try to walk around, and not through, the gardens to prevent trampled plants and compacted soil.
- Please keep pet waste, herbicides, pesticides, and fertilizers out of the practices. These materials pollute our streams.
- Communicate any major functional or aesthetic issues to the County (e.g., the practice takes more than 72 hours to drain after a storm, the plants are dying or dead, and/or the practice is damaged).

How can I help on my property?

Montgomery County's RainScapes program can help you to prevent pollution at its source. The County offers technical and financial assistance (in the form of rebates) to encourage people to implement eligible RainScapes techniques on their property. To learn more and apply, visit www.rainscapes.org.

Many of the things you do on your property or in your neighborhood can directly affect the water quality of local streams. Limiting the amount of rainwater that may run off of your land helps improve water quality. In contrast, over fertilizing your lawn, improper septic system operation, and car washing and car maintenance activities, if not properly done, can pollute runoff that flows to local streams.

How can I get more information?

For more information or to help your neighborhood's Green Street practices look good and function well, please see the contacts below.

- Call the Montgomery County Customer Service Center at 3-1-1
- Send an email to AskDEP@montgomerycountymd.gov
- Visit our website at www.montgomerycountymd.gov/watershedrestoration



Working Together—A Neighborhood Process

Project Selection

Project is selected based on priority watersheds identified in Watershed Study Report, or based on the Department of Transportation's roadway rehabilitation schedule, or other priority



Preliminary Assessment

- Opportunities are identified within the neighborhood based on available information and field visits by the County's project team
- Public meeting to receive input from the community



Design

- Proposed designs are prepared utilizing detailed field survey and geotechnical information
- Ongoing public outreach



Final Design

- **Community walk to provide design update and receive further public input**
- Additional design revisions



Construction

- Designs are finalized
- Green Street practices are constructed
- Green Street practices are planted

Maintenance

- Final inspection
- As-builts drawings are accepted
- Green Street practices are entered into DEP maintenance system
- **Green Street practices are inspected and maintained monthly**

last revised March 11, 2014