Green Streets

Environmentally Friendly Landscapes
for Healthy Watersheds

Green Streets in Your Neighborhood

Department of Environmental Protection

Dennis Avenue

Introduction

THE BIG PICTURE...

The County plans to improve stormwater treatment on 4,300 acres 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 4,300 acres?

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

What are Green Streets?

Green Streets are roadway Low Impact Development (LID) designs that reduce and filter rainfall and pollutants that wash off surface areas (stormwater runoff), and enter our streams, degrading the water quality of our local streams and rivers. Green Streets is a County initiative that captures stormwater runoff in small landscaped areas that let water soak into the ground while plants and soils filter pollutants. Green Streets practices help to replenish groundwater and baseflows in our streams, rather than sending polluted and heated water through pipes directly into our streams. They also create aesthetically attractive streetscapes, provide natural habitat, and help visually to connect neighborhoods, schools, parks, and business districts.

Green Streets practices are constructed within the street right-of-way. Factors like utilities, existing drainage patterns, soils, tree impacts, the amount of runoff volume, and many other considerations are taken into account in the design of Green Streets.

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, forest cover, and soils that used to slowly 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 is directed to a storm drain where underground pipes transport it to local streams, along with pollutants it picks up along the way. In suburban areas, even lawns can act like a hard surface if they are highly compacted or do not drain well.

How Can I Get Involved

Many of the activities that you do on your property, in your yard, or in your neighborhood may directly affect the water quality of local streams. In addition to the amount of rainwater that may run off of your land, overfertilizing your lawns, car washing and car maintenance activities, if not properly done, can pollute runoff that flows to local streams. Preventing pollution at its source is part of the solution to ensuring that the County achieves healthy watersheds.

The County's RainScapes program promotes and implements projects on residential, institutional, and commercial properties to reduce stormwater pollution. The County offers technical and financial assistance to encourage property owners to implement eligible RainScapes techniques on their property. Visit www.rainscapes.org for more information and to apply online.

Collectively, we can help by participating in RainScapes and taking other easy everyday steps to prevent pollution. Go to www.montgomerycountymd.gov/protectyourwatershed for more information about what you can do to protect your watershed.

Techniques to Manage Stormwater Runoff

Rain Gardens

- A shallow depression planted with native plants
- Typical profile has a three inch mulch layer, two feet of planting media, followed by one to two feet of gravel
- Collects, stores and allows rainwater from roofs, driveways, patios, or sidewalks to absorb into the ground
- Adds beauty to your street, with maintenance that varies based on the plants you select
- Requires adequate space and well-draining soils

Bioretention Gardens

- Very similar to a Rain Garden - a shallow depression planted with native plants
- Typical profile has a three inch mulch layer, two feet of planting media, followed by one to two feet of gravel
- Gravel layer has an underdrain pipe that is connected to a nearby storm drain to help drain the facility after rain events
- Collects, stores and allows rainwater from roadway to absorb into ground
- Adds beauty to your street with a variety of plants
- Requires adequate space, but does not require well-draining soils because it has an underdrain

Tree Box Filters

- Mini bioretention boxes filled with a soil mixture, a mulch layer, under-drain system and a shrub or tree
- Typically used when space is limited
- Requires proximity to a storm drain system

Pervious Sidewalk, Permeable Pavers & Pavement Removal

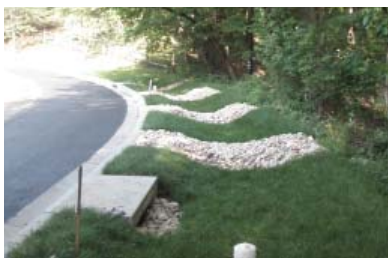
- Pervious sidewalk allows water to infiltrate into ground below
- Permeable pavers can be used to create parking pads along the roadway, also allowing water to infiltrate
- Pavement removal may be used in combination with a stormwater management technique depending on site conditions
- Less pavement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

Curb Extensions

- Placed within the road right-of-way between the curb and the sidewalk
- Sometimes curbs are extended into the parking lane and pavement is removed to widen the available footprint and treatable drainage area
- Requires adequate space and minimal impact to parking

Grass swales

- Allow runoff to percolate into the ground, reducing the amount of runoff leaving the roadway
- Check dams can be used within a swale to slow the flow rate, promote infiltration, and create small, temporary ponding areas
- The vegetation covering the side slopes and channel bottom provides a filtration surface for the water and helps to reduce the flow velocity



Green Streets in Your Neighborhood

Frequently Asked Questions (FAQ)

Why are you creating Green Streets in my neighborhood?

This project is part of the county's need to meet Federal and State mandates to control and treat stormwater runoff. The goal of this project is to reduce stormwater runoff, minimize pollution, promote infiltration, and restore stream conditions in Sligo Creek, the Anacostia River and the Chesapeake Bay.

What will the Green Streets LID Features look like?

There are many different looking Green Streets and LID features. It may be best to view some of the photo examples provided in this brochure. In the case of a rain garden or bioretention, they are typically bowl-shaped, sometimes sodded, and sometimes landscaped with plants and mulch in the County Right-of-Way. Tree box filters look smaller, with a square inlet with a tree or small shrub(s) planted inside a filter box filled with a bioretention soil mix. Typically, landscape designers work with the County to develop aesthetically pleasing designs that help connect a neighborhood together and provide a sense of neighborhood identity.

Who is responsible for maintaining the Green Streets practices and How can I help?

DEP is responsible for maintenance of the Green Street practices. DEP will monitor the practices monthly to make sure they are functioning properly. Our maintenance will ensure the plants are healthy; we will remove dead, diseased, or dying plants, replace plants as needed, replenish the mulch, regularly weed, and remove sediment and trash that accumulates in the facility. We know that the first two years are the most important when establishing the plants. Our plants are under warranty, and we will water and landscape to ensure the plants thrive during this critical time period.

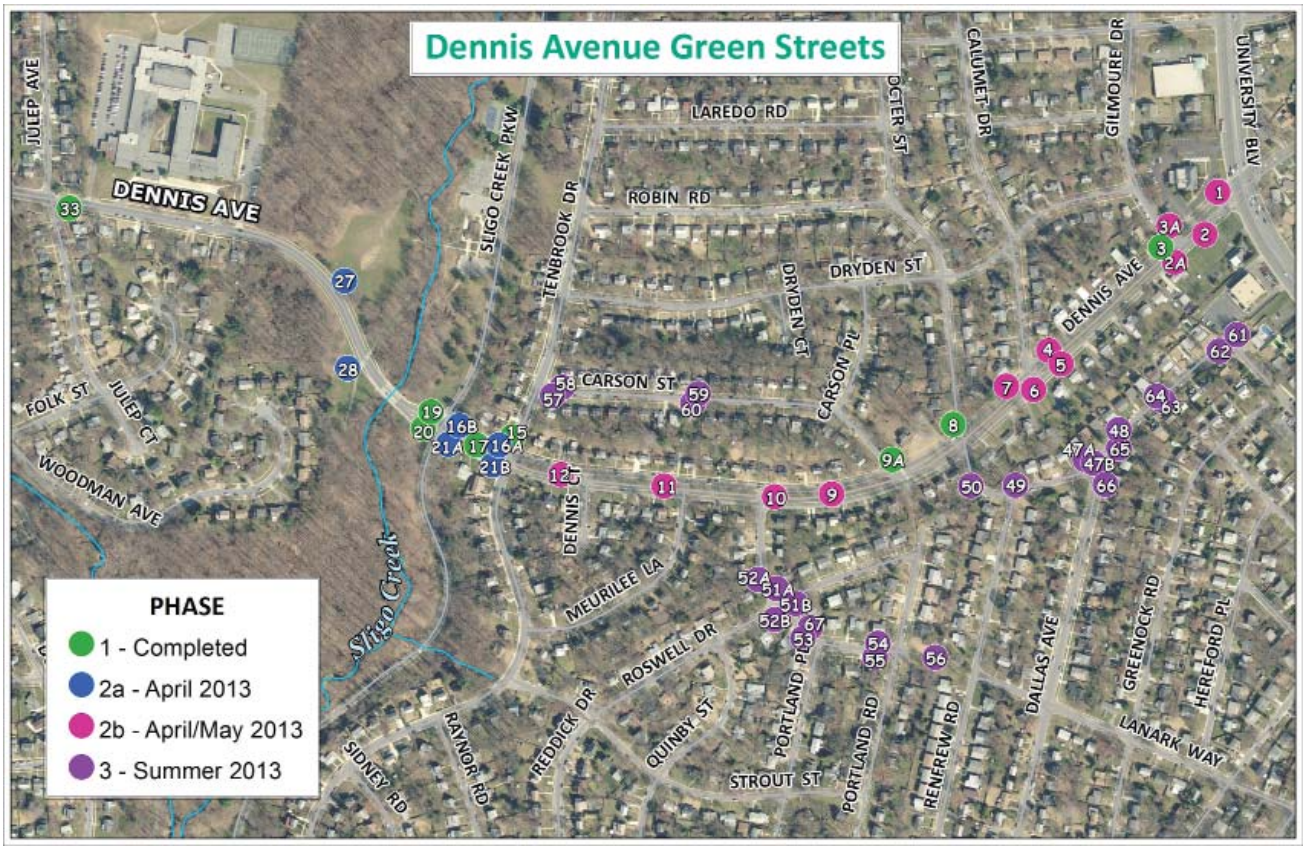
- For the initial plant and sod establishment, please keep large, heavy objects (such as garbage bags), off the newly planted sod. Cans and bags put out temporarily for trash collection day are okay.
- Please do not modify landscaping in any way. The plants are under warranty for two years and unauthorized alterations will void this warranty.
- When mowing the grass around the facility, try to keep grass clippings out of the practice because the clippings can clog the facility. Grass clippings, sediment, or debris left in the street and curb will also flow into the practice during rain events, so keeping these areas as clean as possible will help keep the practices working properly and looking nice.
- Please keep piles of leaves or snow out of the practices, as they can smother and crush the plants and clog the facility.
- Please try to walk around, and not through, the gardens, to protect the plants and prevent them from being trampled and compacting the soil.
- Please keep pet waste, herbicides, pesticides, and fertilizers out of the facilities – these materials pollute our streams.
- Communicate any major functional or aesthetic issues to the County. For example, if the facility takes more than 72 hours to drain after a storm, the plants are dying or dead, or if there is any damage to the practice.
- The County maintains these practices. If you have an interest in helping the practices in your neighborhood look good and function well, please call the Montgomery County Customer Service Center at 3-1-1 or send an email to AskDEP@montgomerycountymd.gov and ask for more information about our volunteer Stream Steward program.

How can I find out more information?

For more information, contact Jennifer St. John at: jennifer.st.john@montgomerycountymd.gov or 240-777-7740. Or visit our project webpage at: www.montgomerycountymd.gov/restorationprojects Click on Sligo Creek, then Dennis Avenue Low Impact Design Project.

Green Streets in Your Neighborhood

Dennis Avenue Green Streets Facility Locations



ID	TYPE	PHASE		ID	TYPE	PHASE
1	Tree Box	2		33	Tree Box	1
2	Tree Box	2		47A	Parking Pad	3
2A	Tree Box	2		47B	Bioswale	3
3A	Tree Box	2		48	Parking Pad	3
3	Swale Curb Extension	1		49	Bioswale	3
4	Swale Curb Extension	2		50	Tree Box	3
5	Swale Curb Extension	2		51A	Swale Curb Extension	3
6	Underground Rainstore & Infiltration	2		51B	Bioswale	3
7	Swale	2		52A	Parking Pad	3
8	Tree Box	1		52B	Swale Curb Extension	3
9	Bioretention	2		53	Swale Curb Extension	3
9A	Tree Box	1		54	Swale Curb Extension	3
10	Bioretention	2		55	Swale Curb Extension	3
11	Bioretention	2		56	Bioswale with Mini Pools	3
12	Bioretention	2		57	Tree Box	3
15	Tree Box	1		58	Tree Box	3
16A	Swale Curb Extension	1		59	Tree Box	3
16B	Swale Curb Extension	1		60	Tree Box	3
17	Step Pool Storm Conveyance	1		61	Bioretention	3
19	Tree Box	1		62	Parking Pad	3
20	Tree Box	1		63	Parking Pad	3
21A	Swale Curb Extension	1		64	Parking Pad	3
21B	Swale Curb Extension	1		65	Bioretention Curb Extension	3
27	Step Bioretention	1		66	Swale Curb Extension	3
28	Step Bioretention	1		67	Swale Curb Extension	3