

Green Infrastructure: Maryland's Green Streets

- Prince George's County
 - Decatur Avenue in Edmonston, MD
- Montgomery County
 - Dennis Avenue
 - Forest Estates



Forest Estates Green Street
Montgomery County, MD

**Adam Ortiz, Director of the Department of Environmental Protection of
Montgomery County**



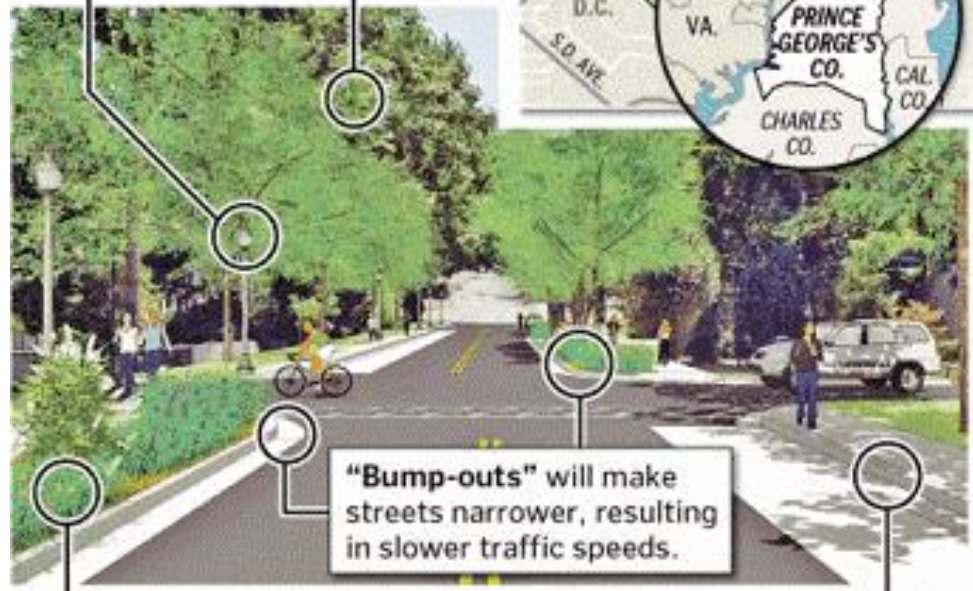
Edmonston, MD Green Street: Decatur Street

Prince George's County, MD



Wind-powered LED lighting.

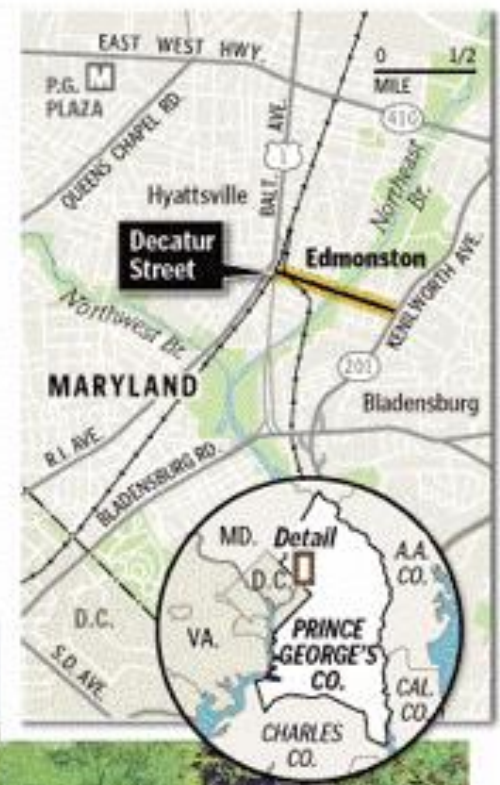
Native trees will provide shade and reduce heat.



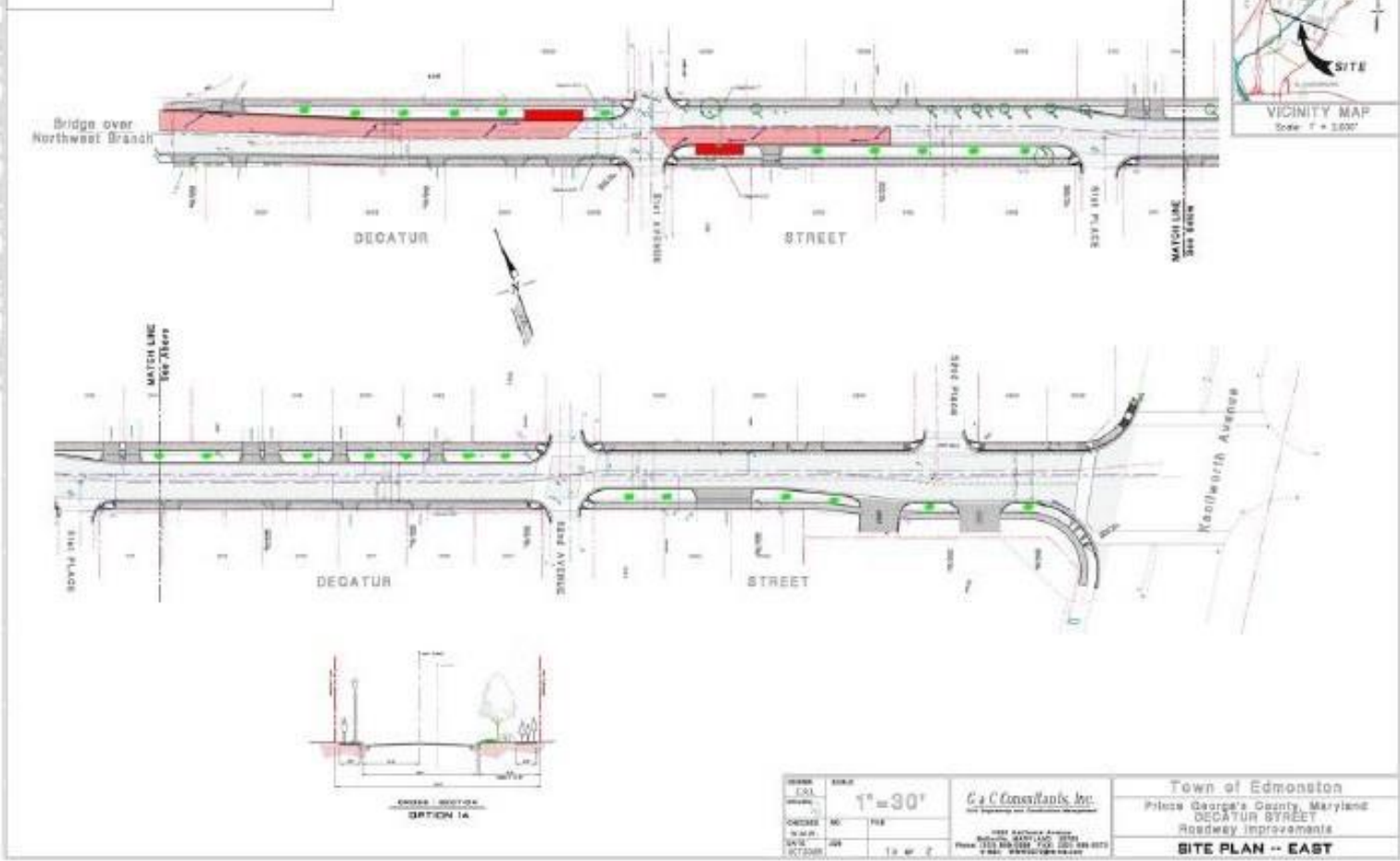
"Bump-outs" will make streets narrower, resulting in slower traffic speeds.

Rain gardens will reduce runoff from storms.

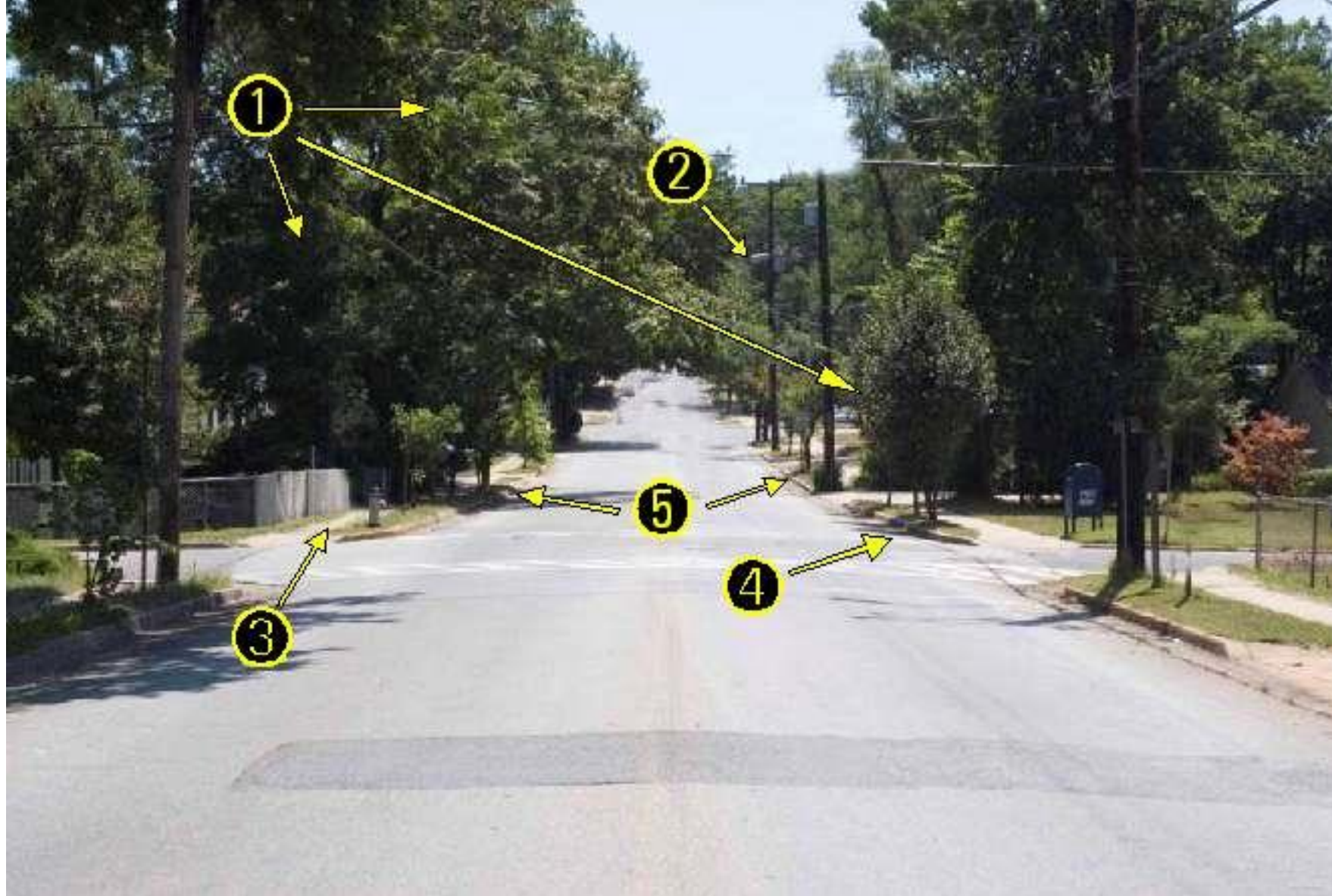
Lighter colored pavements will reduce heat. Permeable concrete will be installed, allowing water to move through to the soil below.



Option 1 - Decatur East



DATE	SCALE	G & C Consultants, Inc. 10000 Old Annapolis Road P.O. Box 1000 P.O. Box 1000 P.O. Box 1000	Town of Edmonston Prince George's County, Maryland DECATUR STREET Roadway Improvements SITE PLAN -- EAST
CSL	1" = 30'		
CHECKED BY	DATE		
DATE	SCALE		



Decatur Street Before



Decatur Street After

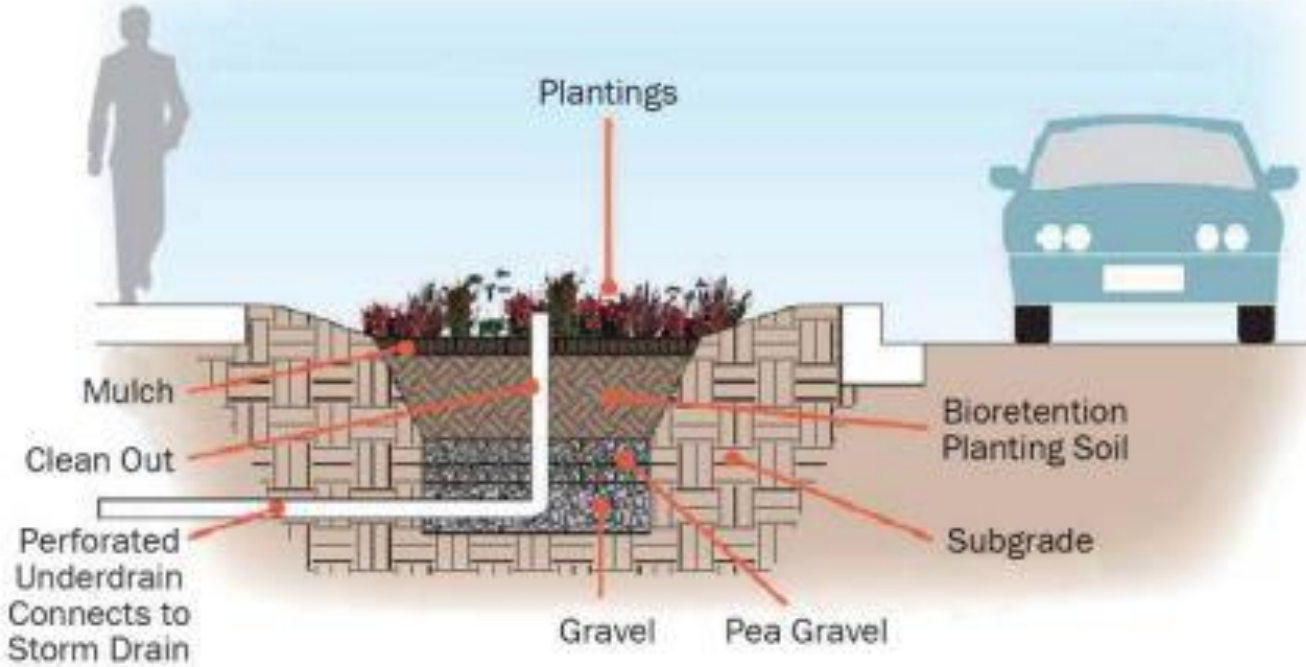


Dennis Avenue Green Street

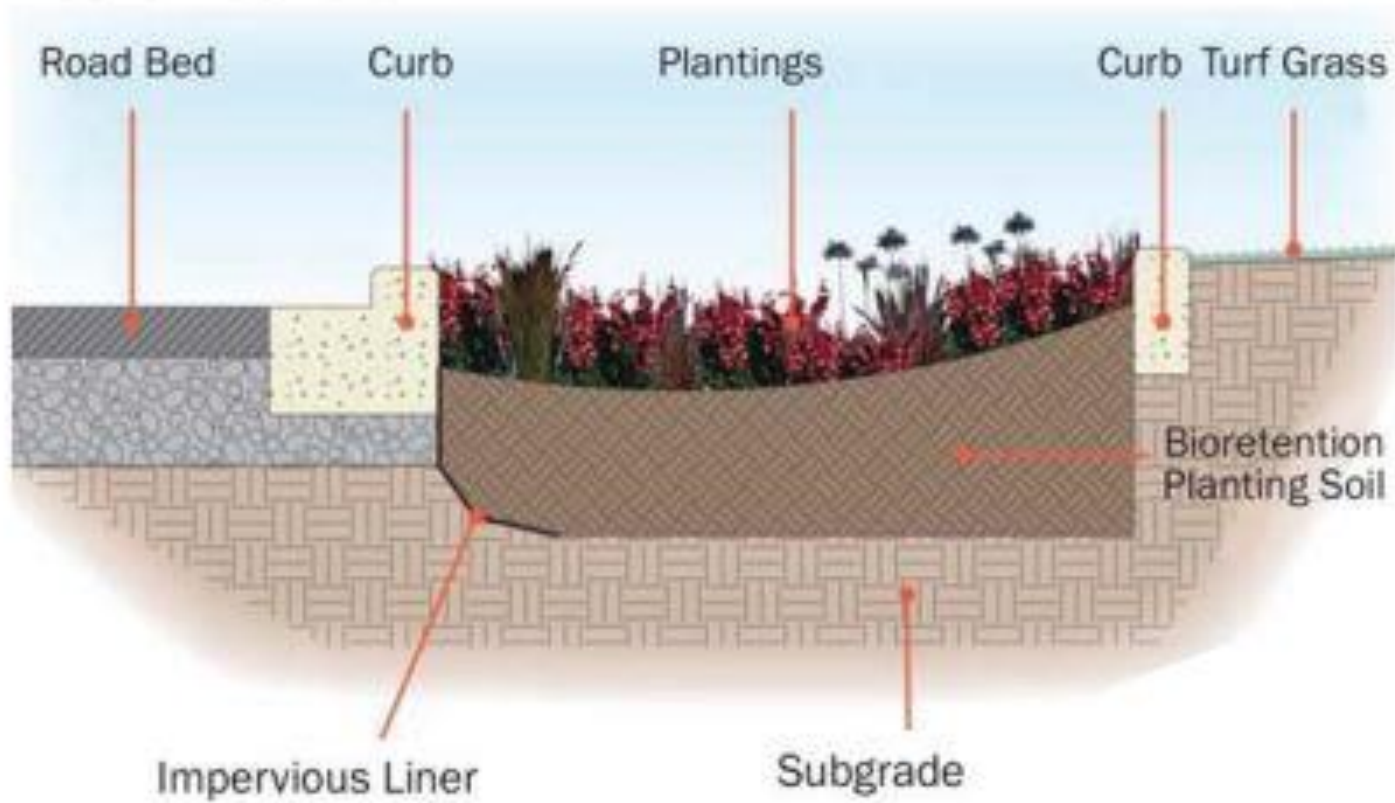
Montgomery County, MD



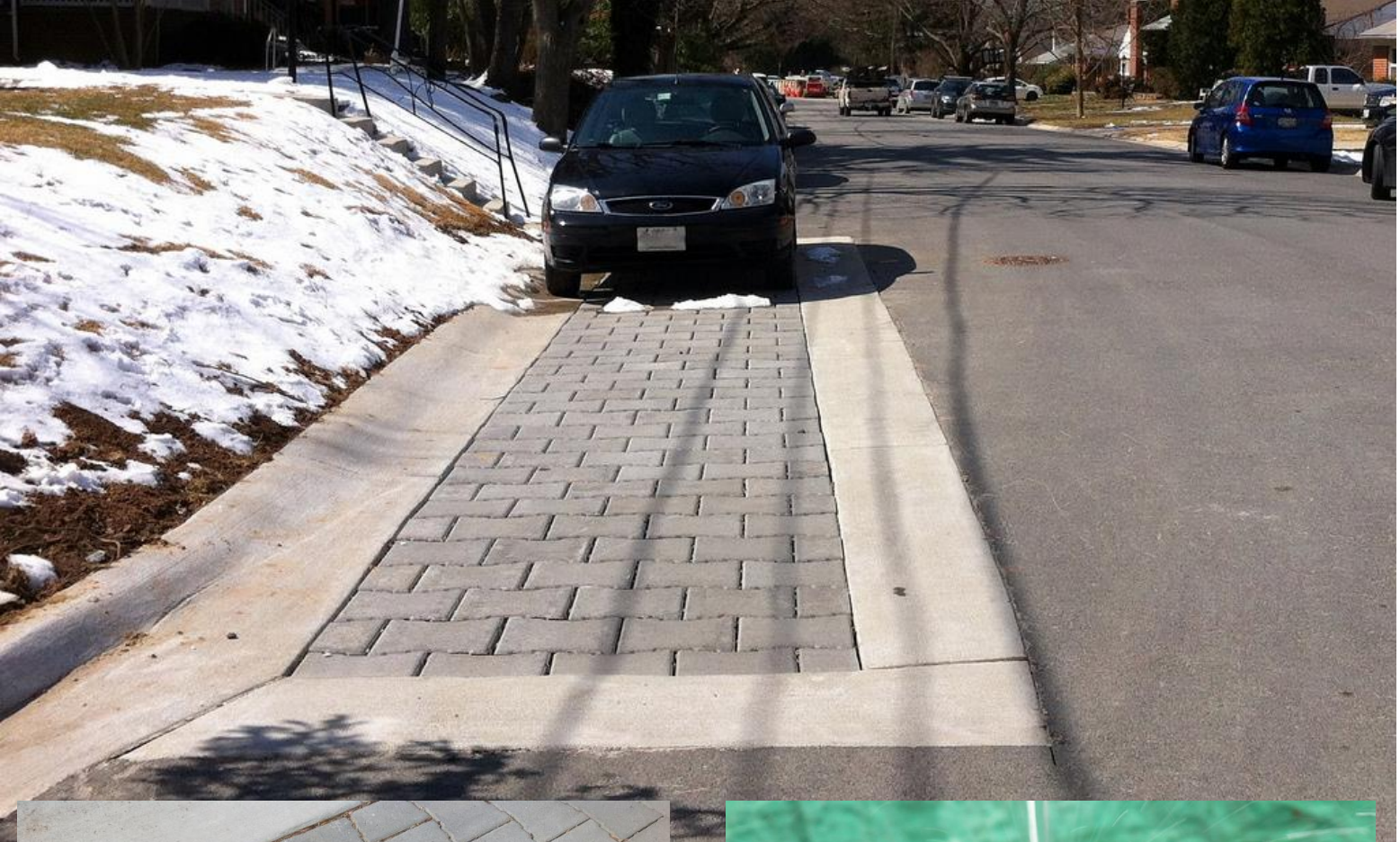
Bioretention Garden



Curb Extension



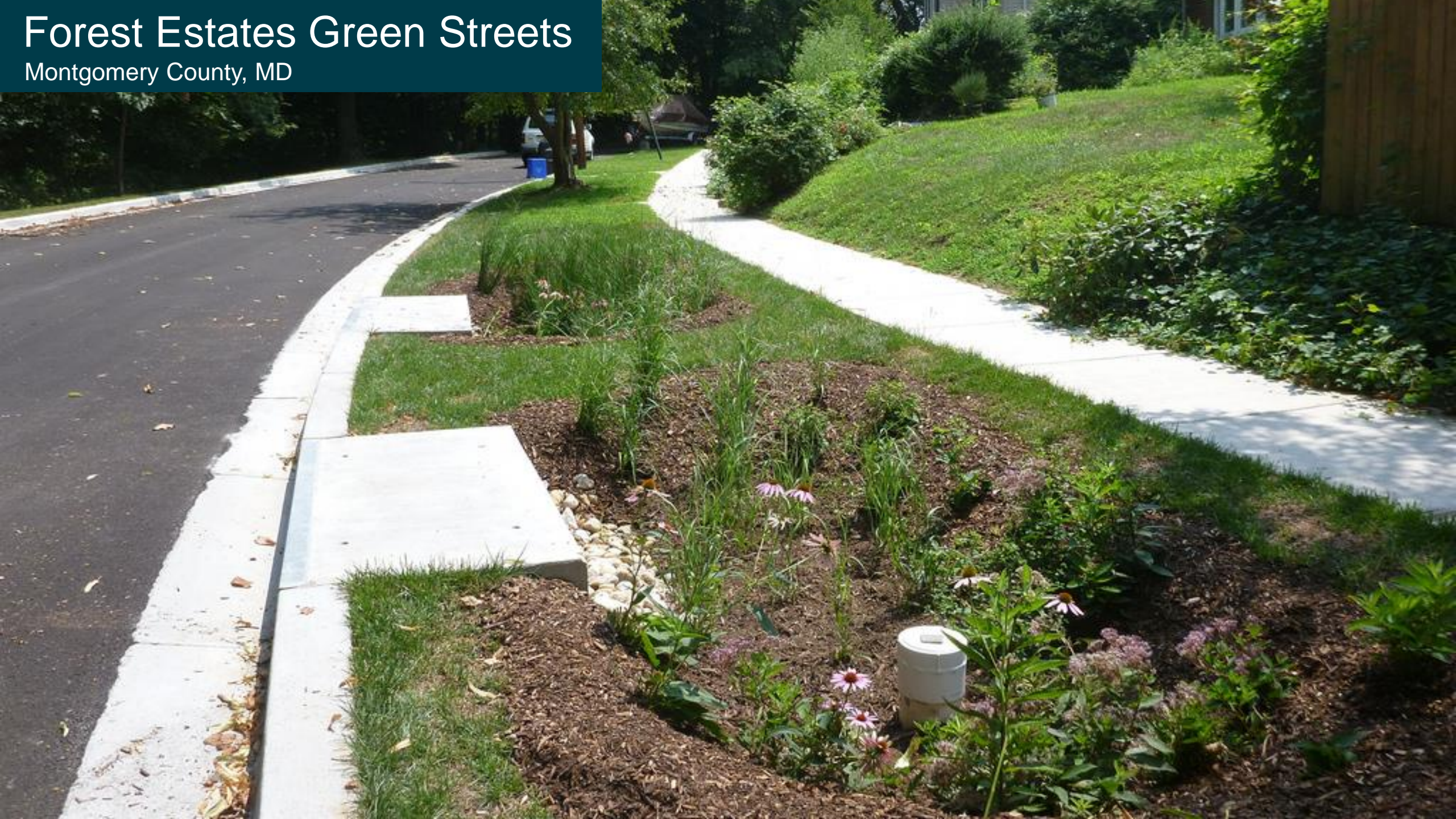
Permeable Surfaces





Forest Estates Green Streets

Montgomery County, MD



Forest Estates Before Green Infrastructure



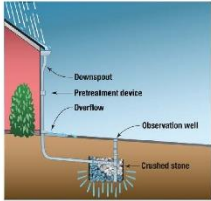
Forest Estates After Green Infrastructure





What is a buried dry well?

A buried dry well is a small underground pit filled with stone that collects rainwater from roof gutters and allows it to absorb into the surrounding soil. Underground piping connects the dry well to the roof downspout. Dry wells are common on residential lots, where there may be three or more dry wells on one lot. Since most are buried and covered with grass, people can recognize their location by an observation well cap that is typically at least 20 feet from the house.



Dry well to catch runoff from roof

Barred dry wells need simple maintenance to keep stormwater flowing into them:
Remove leaves and tree debris from gutters and downspouts



Clean gutters will help keep debris from clogging your dry well.

How to Maintain Your Buried Dry Well
Montgomery County, Maryland, Department of Environmental Protection • Stormwater Facility Maintenance Program • www.montgomerycountymd.gov/stormwater

Actions you can take

Do...

Monthly

- ✓ Inspect your gutters and pretreatment devices after storms to make sure that rain water properly drains to the dry well.
- ✓ Ensure caps on observation wells are fastened.

Seasonally

- ✓ Remove leaves and tree debris from roof gutters and pretreatment devices from April through November.
- ✓ To prevent damage to your mower or to the observation well cap, do not mow over the caps.
- ✓ Repair any damage to gutters/downspouts from winter snow or ice.

As needed

- ✓ Inform contractors working on your property of the dry well's location, to prevent accidentally damaging it.
- ✓ Be sure pretreatment devices are filtering out leaves and sediment before rainwater reaches the dry well.

Don't...

- ✗ Do not remove a dry well or reconfigure your downspouts to direct water somewhere else.
- ✗ Don't place decks, sheds, or other structures on top of a dry well.
- ✗ Don't let children remove the observation well caps.

Why is it important to maintain your buried dry well?

An unmaintained dry well may:

- Cause flooding on other areas of your property if the stormwater is not able to flow into the dry well
 - Cause rainwater to pool on the surface and become a breeding place for insects
 - Require a complete replacement of the facility which can be very expensive
- By maintaining your dry well, you are doing your part to help the environment and protect your local streams and the Chesapeake Bay.

Who is responsible for this maintenance?

As the property owner, YOU are responsible for all maintenance of your dry well.

What are rain gardens, bioswales, and micro-bioretentation facilities?

Rain gardens, bioswales, and micro-bioretentation areas are functional landscaping features that filter rainwater and improve water quality.

Micro-bioretentation areas are typically planted with native plants and have three layers: mulch, a layer of soil, sand, and organic material mixture; and a stone layer. A perforated pipe within the stone layer collects and directs the filtered rainwater from large storms to a storm drain system so the facility drains within 2 days. Micro-bioretentation areas are often located in parking lot islands, cul-de-sac islands, or along roads.

Rain gardens are very similar to micro-bioretentation areas, except they do not have a buried perforated pipe. They often collect water from roof gutters, driveways, and sidewalks. Rain gardens are common around homes and townhomes.

A bioswale is similar to a micro-bioretentation area in the way it is designed with layers of vegetation, soil, and a perforated pipe within the bottom stone layer. Bioswales typically are located along a roadway.

These facilities need simple maintenance, similar to other landscaping areas, including:
-Weeding -Pruning -Mulching
-Removing Trash and Debris



How to Maintain Your Rain Garden, Bioswale, and Micro-Bioretentation Area
Montgomery County, Maryland, Department of Environmental Protection • Stormwater Facility Maintenance Program • www.montgomerycountymd.gov/stormwater

Actions you can take

Do...

Monthly

- ✓ Regularly inspect the facility. Notify DEP if signs of erosion, obstructions, or unhealthy vegetation.
- ✓ Remove weeds and invasive plants.
- ✓ Remove any trash that has washed into the bioretention area or the inlet channels or pipes.
- ✓ Check the facility a few days after a rain storm to make sure that there is not standing water after 2 days.

As needed

- ✓ Cut back dead stems of herbaceous plants in March and remove from the facility.
- ✓ Water new plants during initial establishment of plant growth (first 18 months) and extreme droughts. Watering should only be needed when it has not rained for more than 10 days.
- ✓ Replenish and redistribute mulch to a total depth of 3 inches.
- ✓ Contact DEP if you observe severe erosion.
- ✓ In Fall, remove fallen leaves from the area. Leaves may block the flow of rainwater.

Don't...

- ✗ Don't apply excess salt and sand around the property in winter.
- ✗ Don't store snow and leaves on top of the bioretention area.
- ✗ Don't use fertilizer or pesticide
- ✗ Don't let grass clippings into it

Can I remove the practice?

No, you cannot remove any facilities that were part of your building installation—these are permitted structures and DEP maintains a database of these facility locations. DEP may perform a maintenance inspection of your practice if it is a permitted structure. Contact DEP to find out if you have a permitted structure or if you would like to discuss options for modifying your facility.

Who is responsible for this maintenance?

As the property owner, YOU are responsible for all of the maintenance of your micro-bioretentation facility, rain garden, and bioswale. If you live along a Green Street with rain gardens in the County right-of-way, please see our [Rain Gardens Along the Roadway](#) fact sheet.

You can prolong the life of your rain garden, bioswale, and micro-bioretentation facility and save on maintenance costs by keeping your site clean and regularly inspecting and maintaining the facility to ensure it is functioning properly.



www.montgomerycountymd.gov/stormwater

What is a grass drainage swale?

A grass drainage swale is an open channel that collects water from hard surfaces and allows it to percolate into the ground, reducing the amount of runoff leaving the road or property. The grass covering the side slopes and swale bottom provides a filtration surface for the water and helps to reduce the flow velocity. In steeper areas, some swales have stone or concrete "check dams" across the width to help slow the flow rate, promote infiltration, and prevent erosion. During large storms, swales can direct extra runoff to other stormwater facilities or the storm drain system. Swales are commonly found along roads, parking lots, or between properties of some residential lots.



Grass drainage swale

Actions you can take

Do...

Monthly

- ✓ Inspect your swale after storms to make sure that rainwater has drained and there is no erosion.
- ✓ Remove sediment and debris from in and around the swale.

Seasonally

- ✓ Mow fescues and bluegrass no shorter than 2 1/2 to 3 inches. Remove or compost tall grass clippings.
- ✓ Manually remove any weeds or invasive plants.
- ✓ Remove or compost leaves in autumn. Leaves may smother the grass and block the flow of water.
- ✓ Adjust the mower height to avoid scalping the edges of the side slopes.

As needed

- ✓ Reforest any bare areas and water during the initial establishment period.
- ✓ Contact DEP if you continue to have ongoing erosion problems.

Grass drainage swales need regular maintenance, similar to other landscaped areas, including:
- Removing trash and debris
- Mowing

Don't...

- ✗ Don't use fertilizer or pesticides in your swale.
- ✗ Don't over-mow or mow shorter than 2 1/2 to 3 inches.
- ✗ Don't mow immediately after a rain event.

Who is responsible for this maintenance?

As the property owner, YOU are responsible for all maintenance of your grass drainage swale.

How to Maintain Your Grass Drainage Swale
Montgomery County, Maryland, Department of Environmental Protection • Stormwater Facility Maintenance Program • www.montgomerycountymd.gov/stormwater