Green Streets Wheaton Woods

Environmentally Friendly Landscapes

for Healthy Watersheds

Concept Design Presentation

March 25, 2014

www.montgomerycountymd.gov/watershedrestoration

Department of Environmental Protection
Montgomery County Maryland

McCORMICK TAYLOR

Introductions

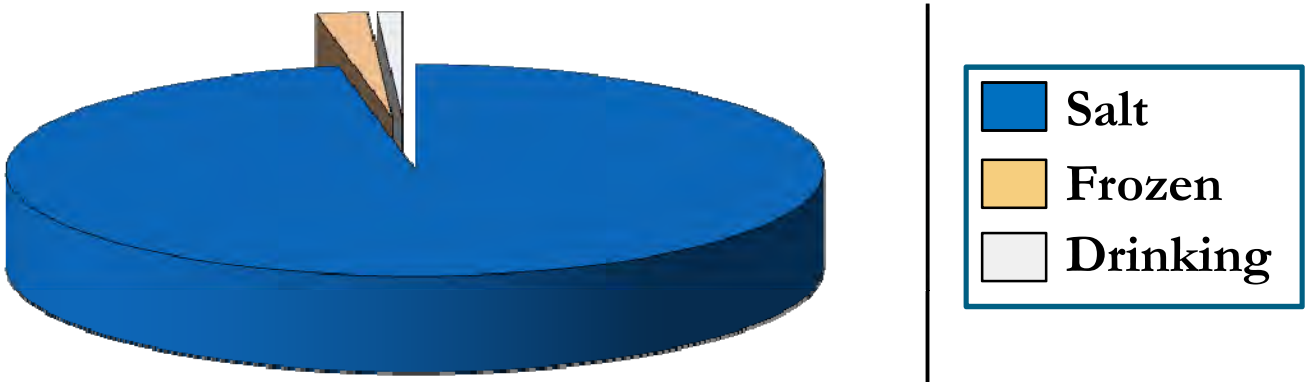
- Joan Fernandez, P.E.
  - DEP Project Manager (Brown and Caldwell)
- Paul Bogle, P.E.
  - DEP Senior Engineer
- Christy Ciarametaro
  - DEP Watershed Planner
- Kimi Schmidt, P.E.
  - McCormick Taylor Design Engineer
- Pam Rowe
  - DEP RainScapes Planner

Today's Agenda

- Watershed 101
- What are Green Streets?
- Why Green Streets?
- Green Street Locations
- Green Streets Practices
- Your Green Streets Project!
- **Your Involvement**
- RainScapes

Watershed 101

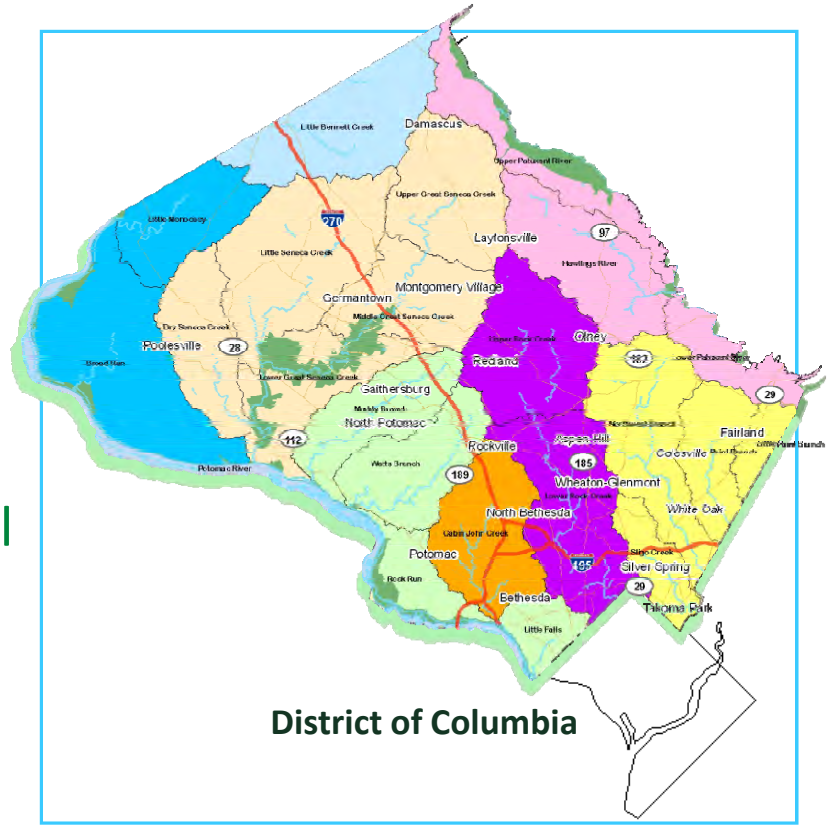
- **Sources of Water**



- About 97% is salt water
- About 2% is frozen
- Only 1% is available for drinking water
  - Across the Country, about 57% comes from groundwater sources
  - In Maryland, 74% is from surface water sources
- Potential for greater impacts from runoff in Maryland

Watershed 101

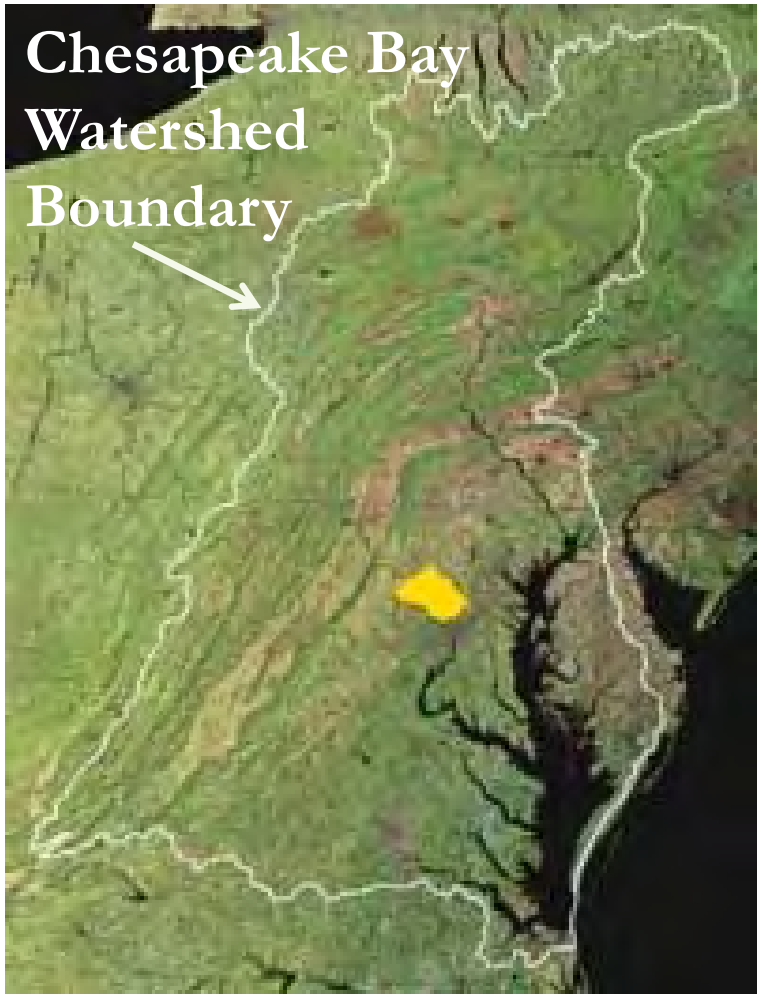
- **Montgomery County, MD**
  - 507 sq. miles
  - 1,000,000 people
    - Second only to Baltimore City within Maryland in average people per square mile
    - 184 languages spoken
  - About 12% impervious surface overall
    - About the size of Washington DC
  - Over 1,500 miles of streams
  - Two major river basins:
    - Potomac
    - Patuxent
    - Eight local *watersheds*



- **Impervious:** Not allowing water to soak through the ground.

Watershed 101

- **What is a Watershed?**
  - A ***watershed*** is an area from which the water above and below ground drains to the same place.
  - Different scales of watersheds:
    - Chesapeake Bay
    - Eight local watersheds
    - Neighborhood (to a storm drain)



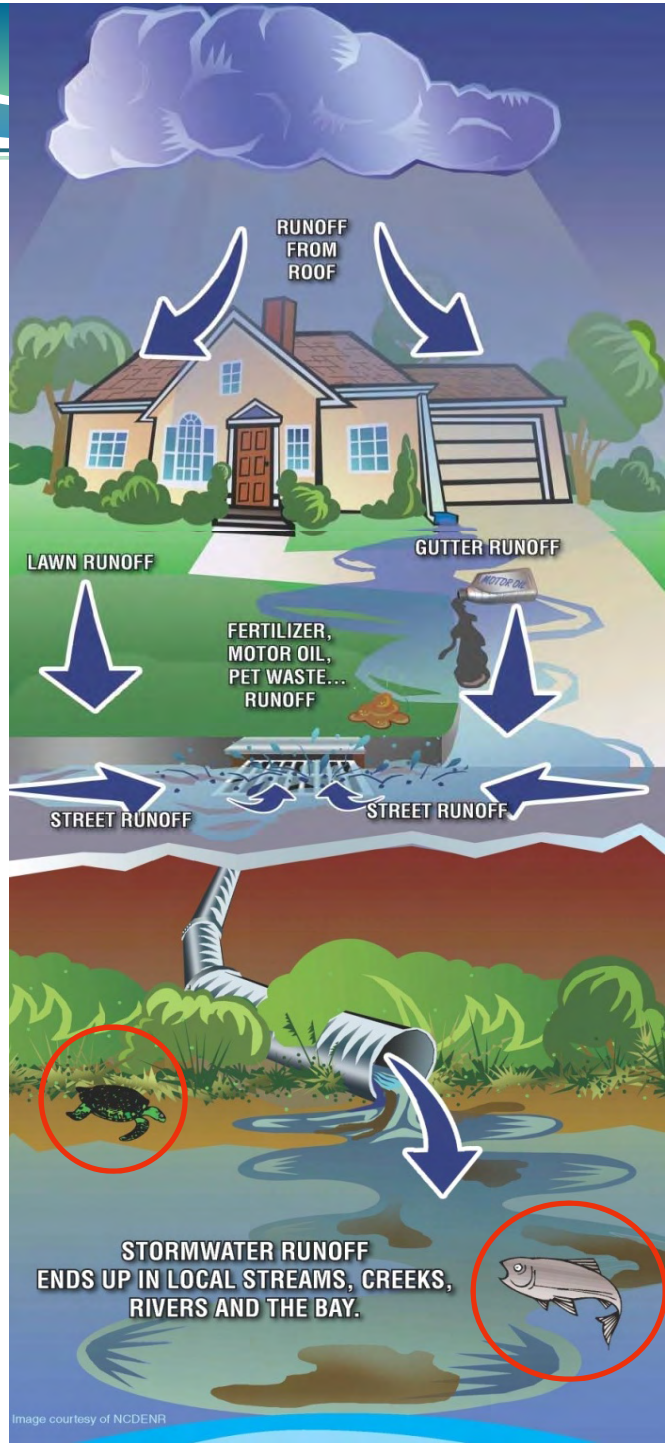
Watershed 101

- **What is Runoff?**
  - Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways and parking lots collecting potential contaminants and flows:
    - Directly into streams
    - Into storm drain pipes, eventually leading to streams
    - Into stormwater management facilities, then streams

<u>Two Major Issues:</u>

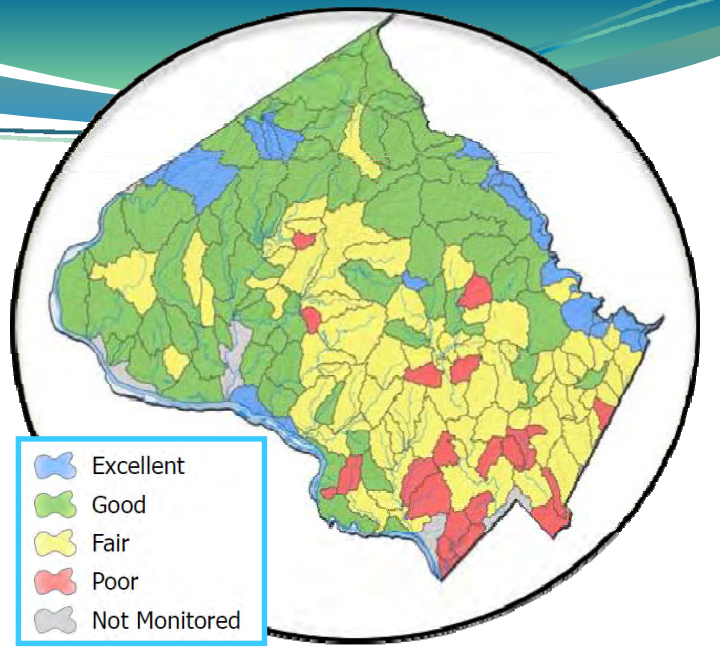
Volume/Timing of Runoff

Water Quality



Watershed 101

- **What is the County doing to protect our Streams?**



- Must meet regulatory requirements
  - Federal Clean Water Act permit program
  - **MS4** = **M**unicipal **S**eparate **S**torm **S**ewer **S**ystem
- Applies to all large and medium Maryland jurisdictions
- County Programs
  - Restore our streams and watersheds
    - Add runoff management
  - Meet water quality protection goals
    - Reduce pollutants getting into our streams
  - Educate and engage all stakeholders
    - Individual actions make a difference
  - Focus on watersheds showing greatest impacts

What is the County Doing to Protect our Streams?

- Montgomery County is responsible for:
  - What goes into our storm drain pipes
  - What comes out of them
  - What flows into the streams

- DEP is adding stormwater management for 20 % of impervious surfaces

  (4,292 acres = 6.7 square miles)… About three times the size of Takoma Park.

That's equivalent to 3,307 football fields!

What are Green Streets?

- Small scale stormwater practices located within street right of way areas.

- Approx. 1/3 of impervious surfaces in our County are roadways.

RAIN GARDEN, BIORETENTION

BIOSWALE

TREE BOX

PERVIOUS PARKING & WALKING PATHS

Why Green Streets?

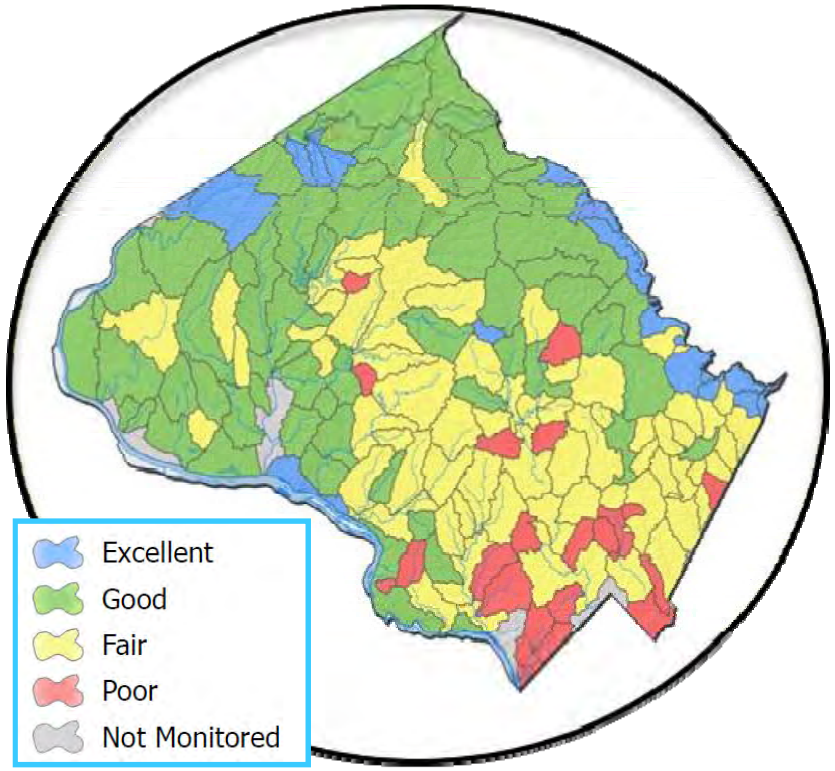
- Replenish groundwater and improve flow in local streams
- Water can soak into the ground while plants and soils filter pollutants

- Create aesthetically attractive streetscapes

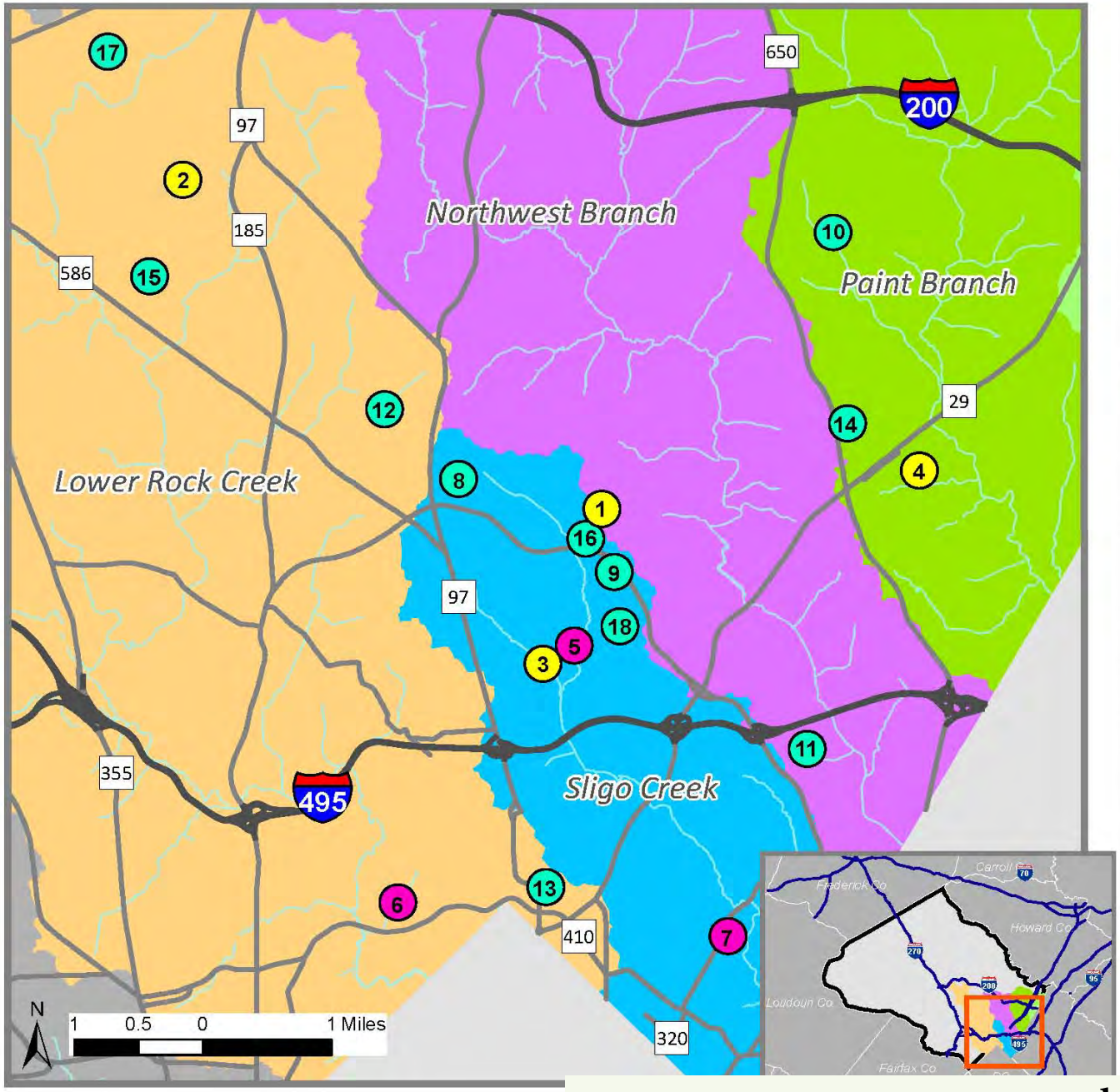
- Provide natural habitat

Where will Green Streets be?

- MCDEP plans Green Streets projects:
  - For priority areas identified in Watershed Studies or Restoration Plans
  - Coordinate with Department of Transportation's road & sidewalk improvements



Montgomery County **Green Streets**

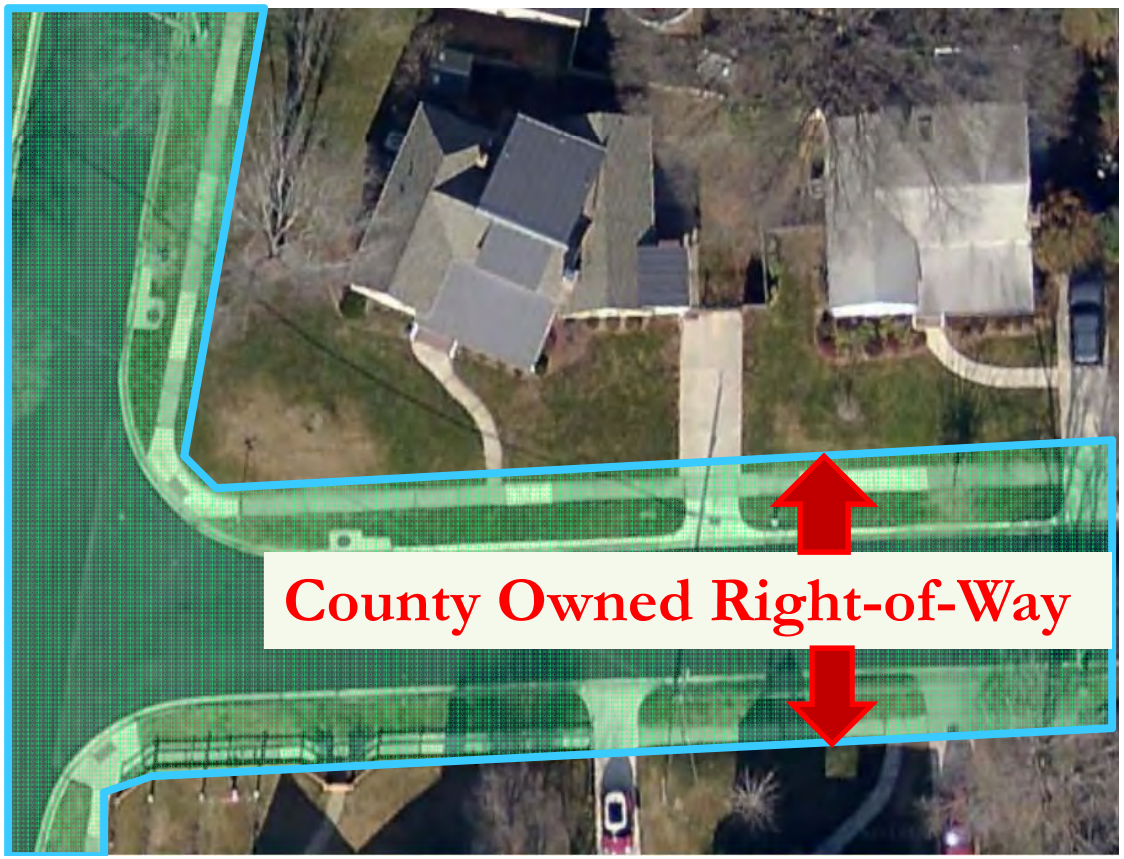


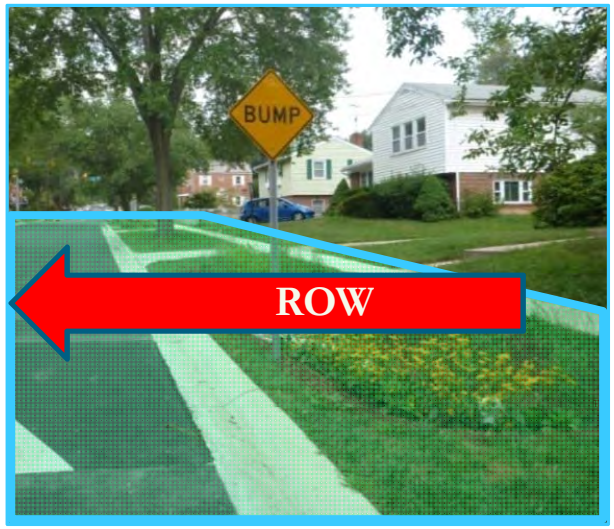
COMPLETE	
1	Arcola Avenue
2	Aspen Hill Library
3	Forest Estates
4	White Oak
IN CONSTRUCTION	
5	Dennis Avenue
6	Donnybrook
7	Sligo Park Hills
IN DESIGN	
8	Amherst
9	Breewood
10	Cannon Road
11	Franklin Knolls and Clifton Park
12	Glenmont Forest
13	Spring Street and Second Street
14	Springbrook \ Homestead Estate
15	Wheaton Woods
16	University Towers
17	Manor Woods
18	McDonald Knolls \ Ballantrae\Sligo Estates

www.montgomerycountymd.gov/restorationprojects

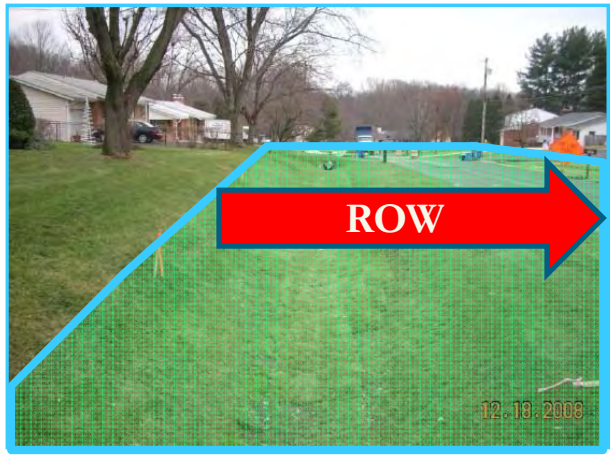
Where will Green Streets be?

- Selected areas within the County Right-of-Way (ROW)





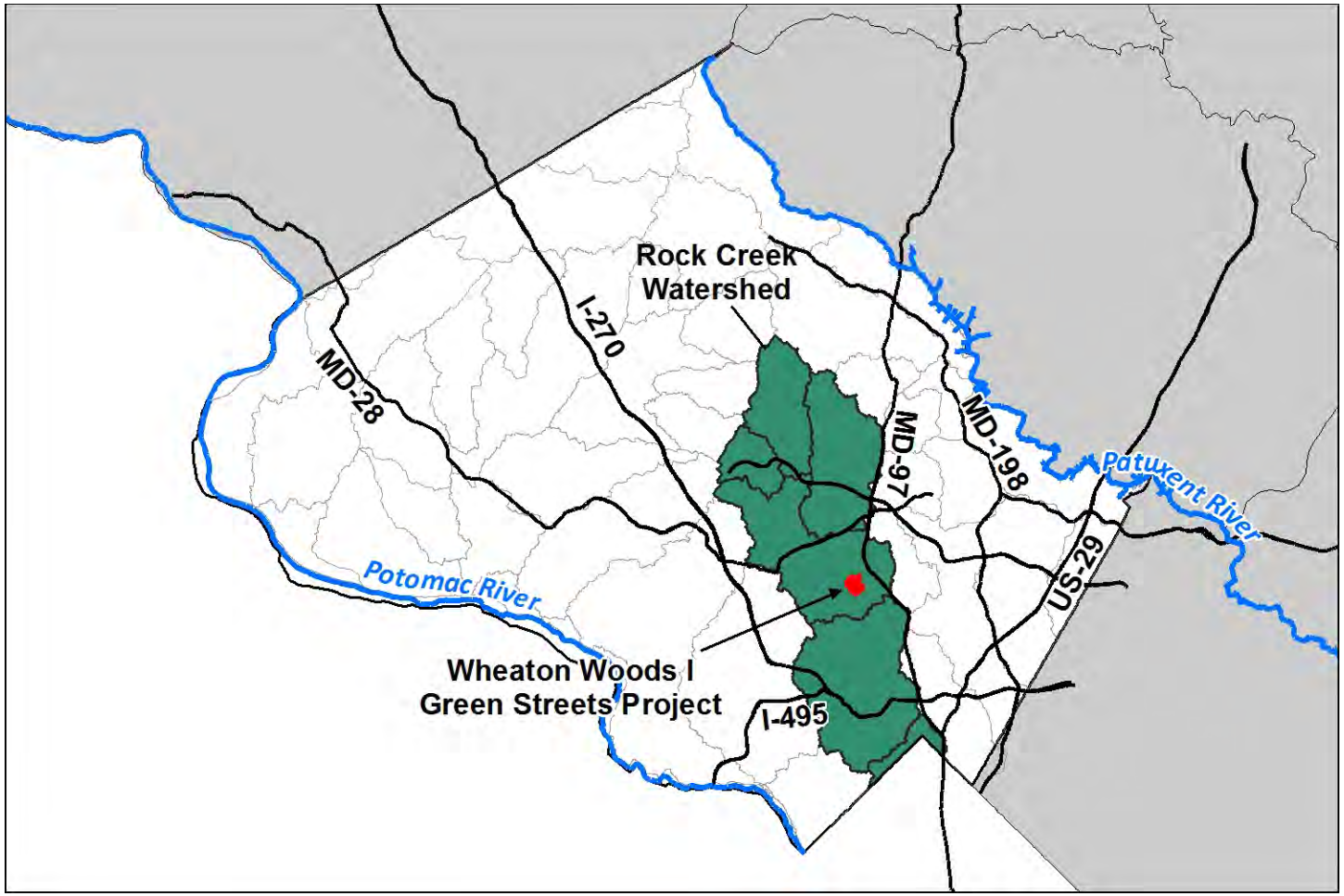
With Sidewalk



Without Sidewalk

Green Streets in Wheaton Woods

Project Location within County



Green Streets in Wheaton Woods

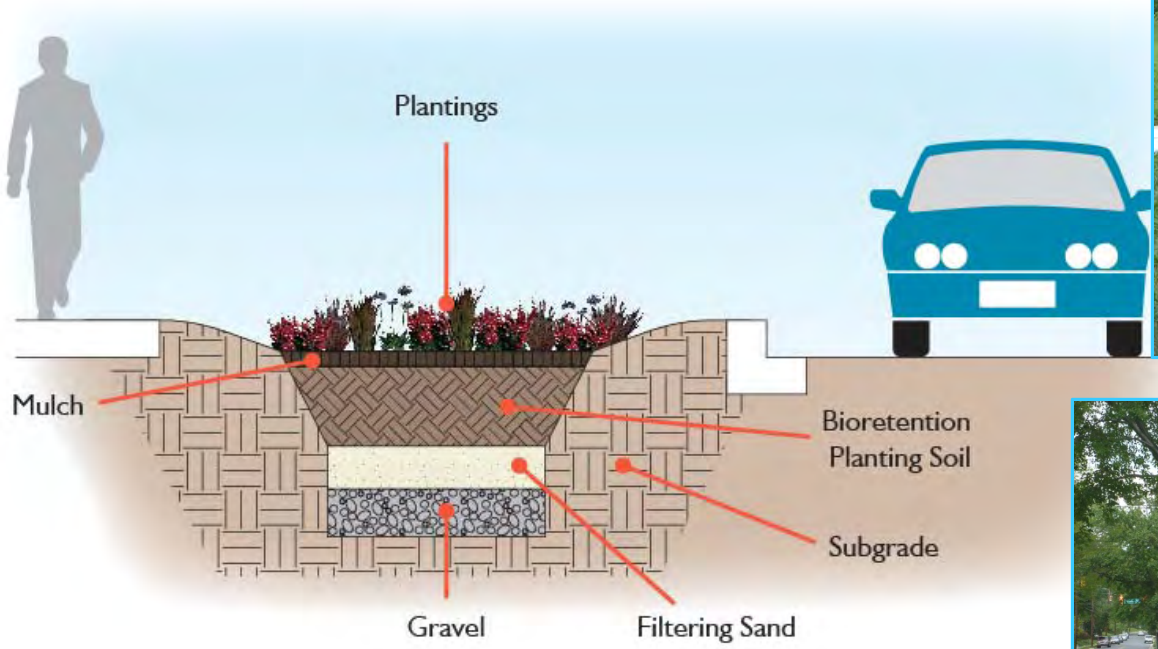
Project Location

Green Streets in the Wheaton Woods Neighborhood

- Neighborhood built in the late 1950's & early 1960's
  - Single family detached residential housing
  - Curb & gutter with sidewalks
  - Mature trees
- No existing SWM facilities

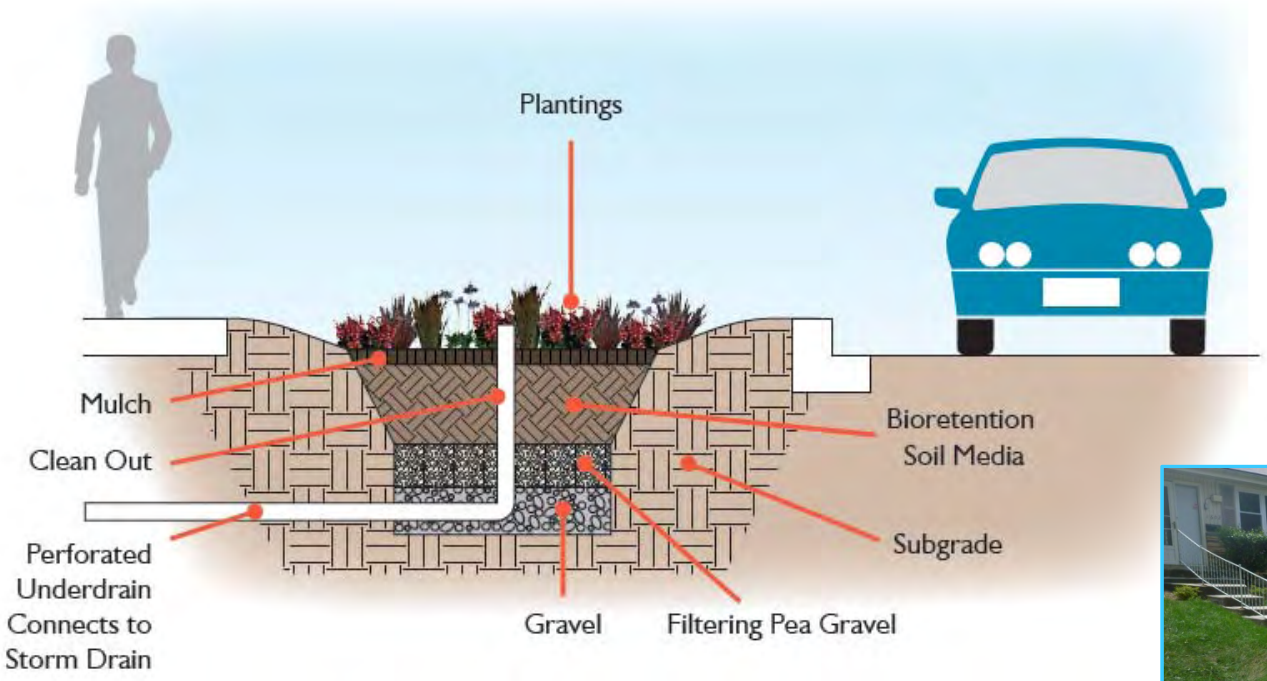
Green Streets Practices

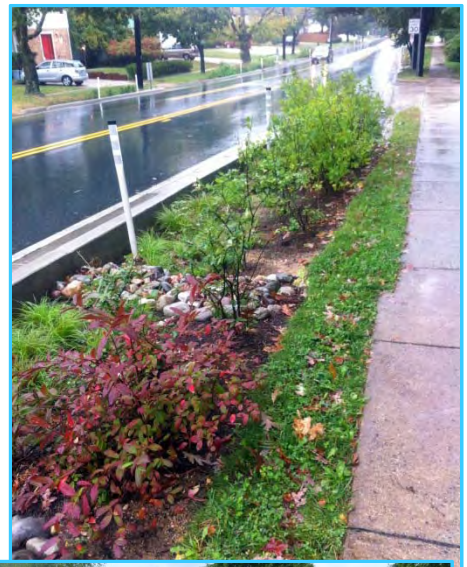
- Rain Garden



Green Streets Practices

- Bioretention





Green Streets Practices

- Curb Extension

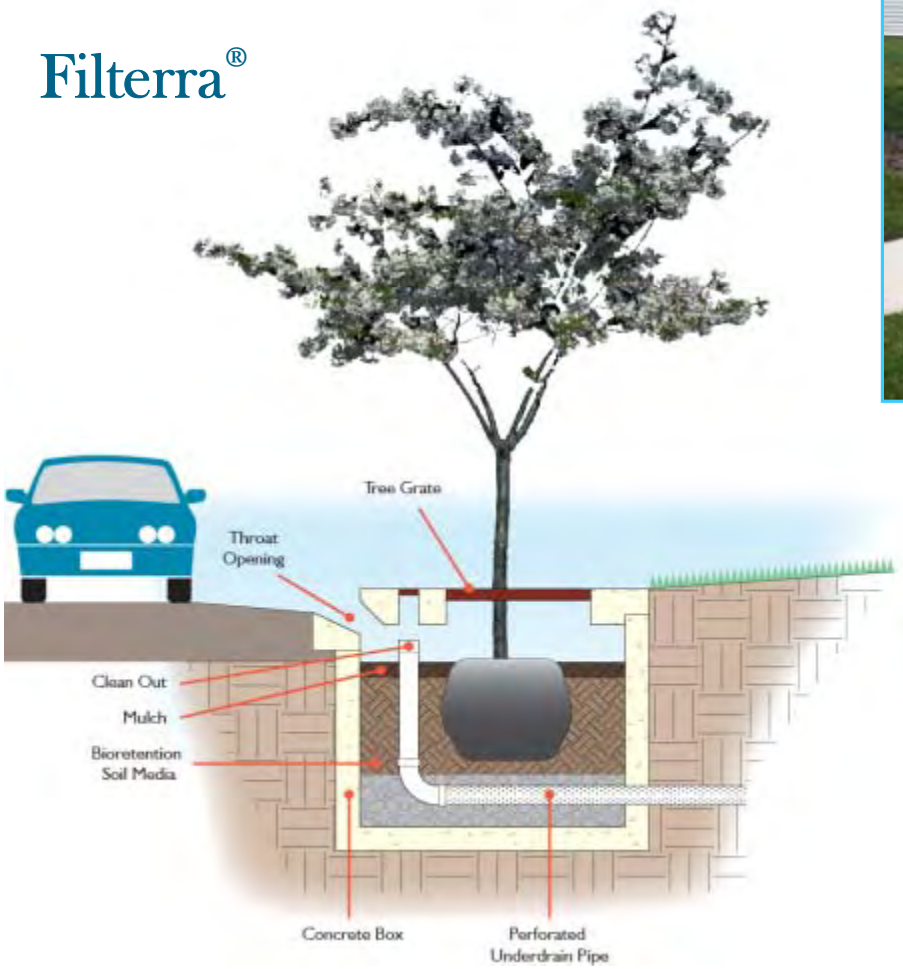
Green Streets Practices

- Bioswale

Green Streets Practices

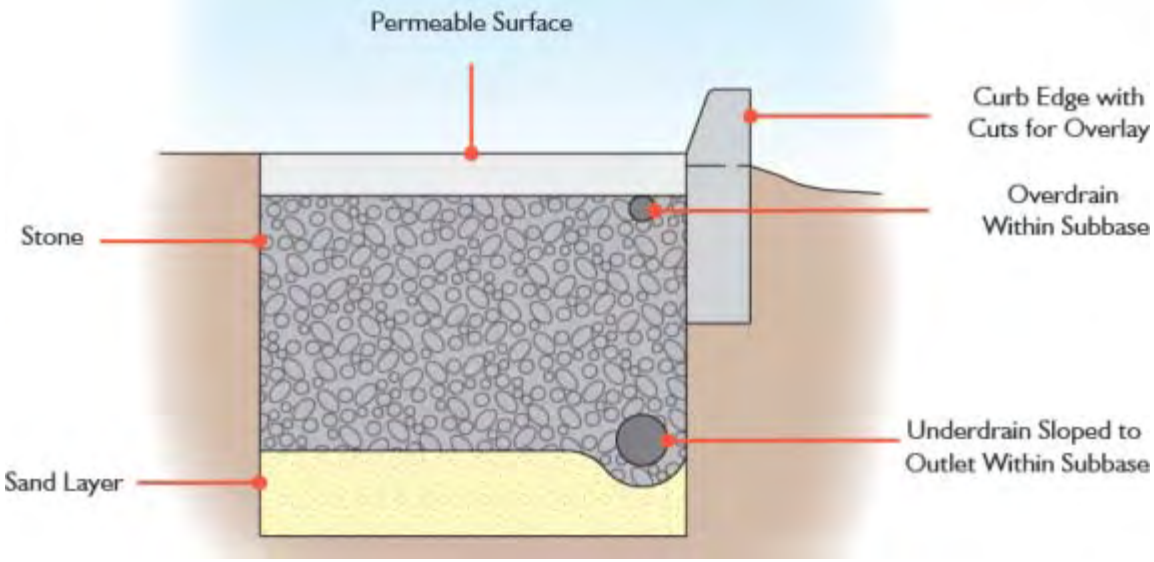
- Tree Box Filter

Filterra®



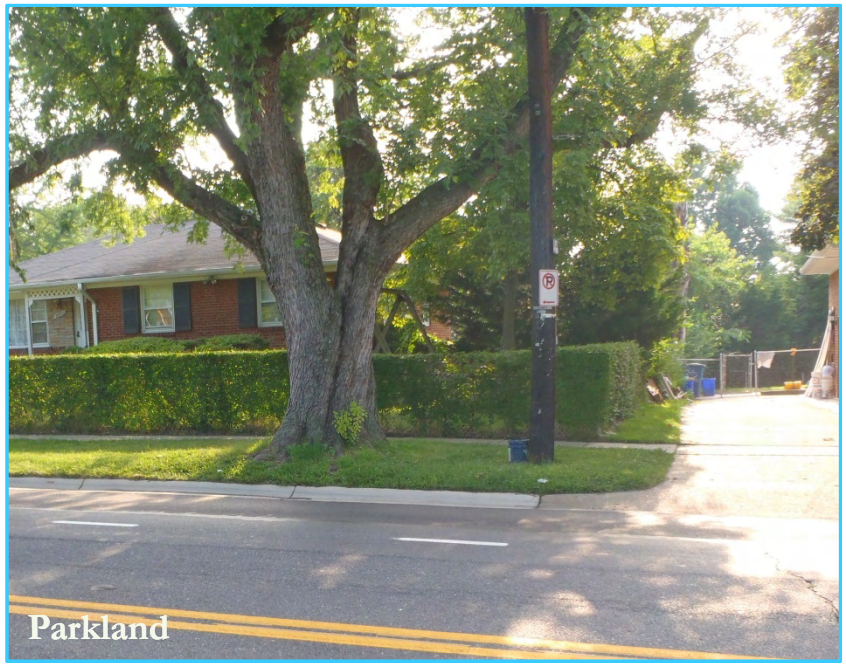
Green Streets Practices

- Pervious Parking & Walking Paths



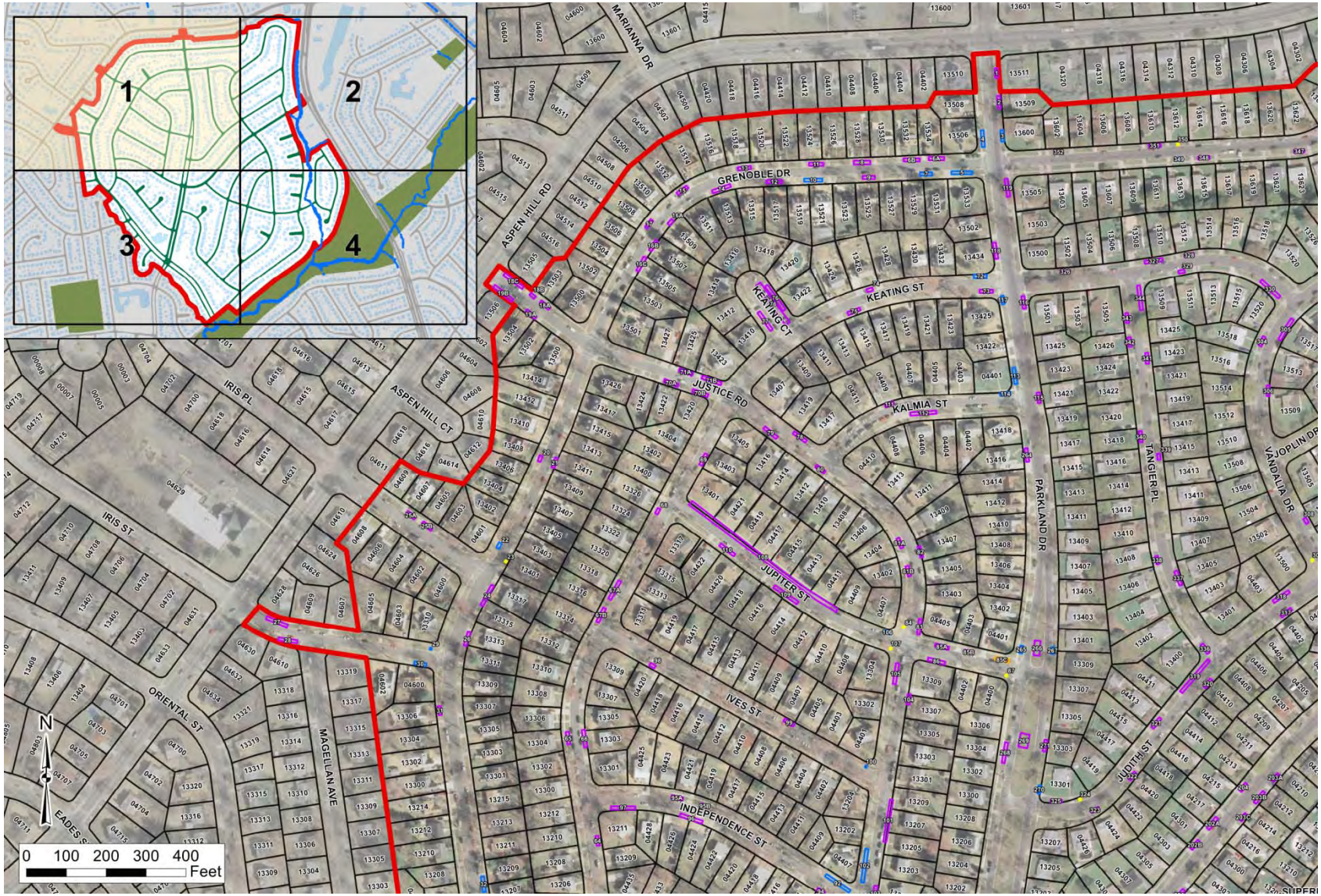
Green Streets – Preliminary Assessment

Assessment Completed in August 2013



- Identified 373 Locations for Potential Practices
  - Treatment of 70 acres of impervious area
  - 73% of impervious surfaces
- Design Constraints
  - Driveway/Leadwalk Locations
  - Existing Trees
  - Underground Utilities
  - On-street parking
  - Slope of roadway
  - Existing Soils/Infiltration Rate

Green Streets in Wheaton Woods



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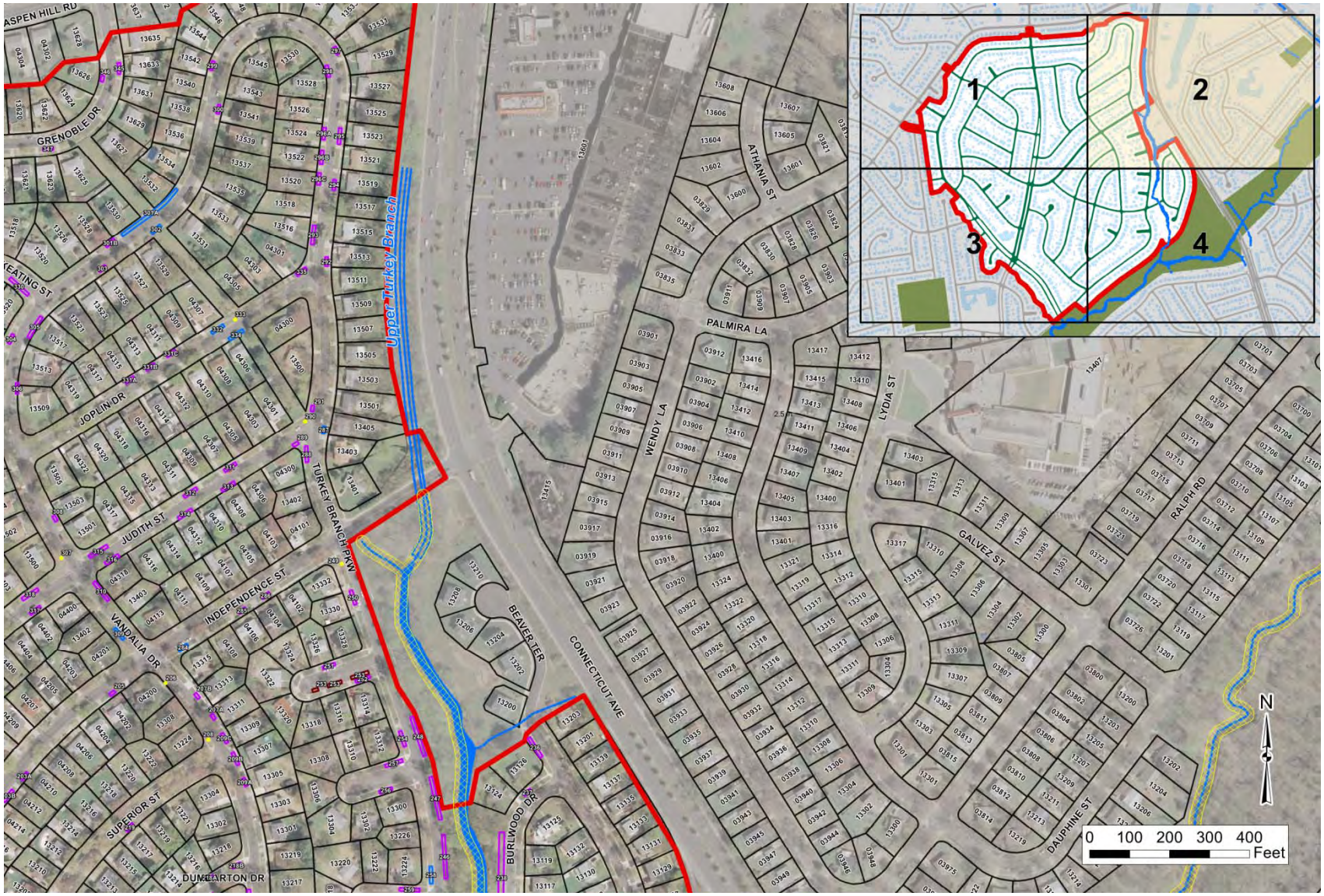

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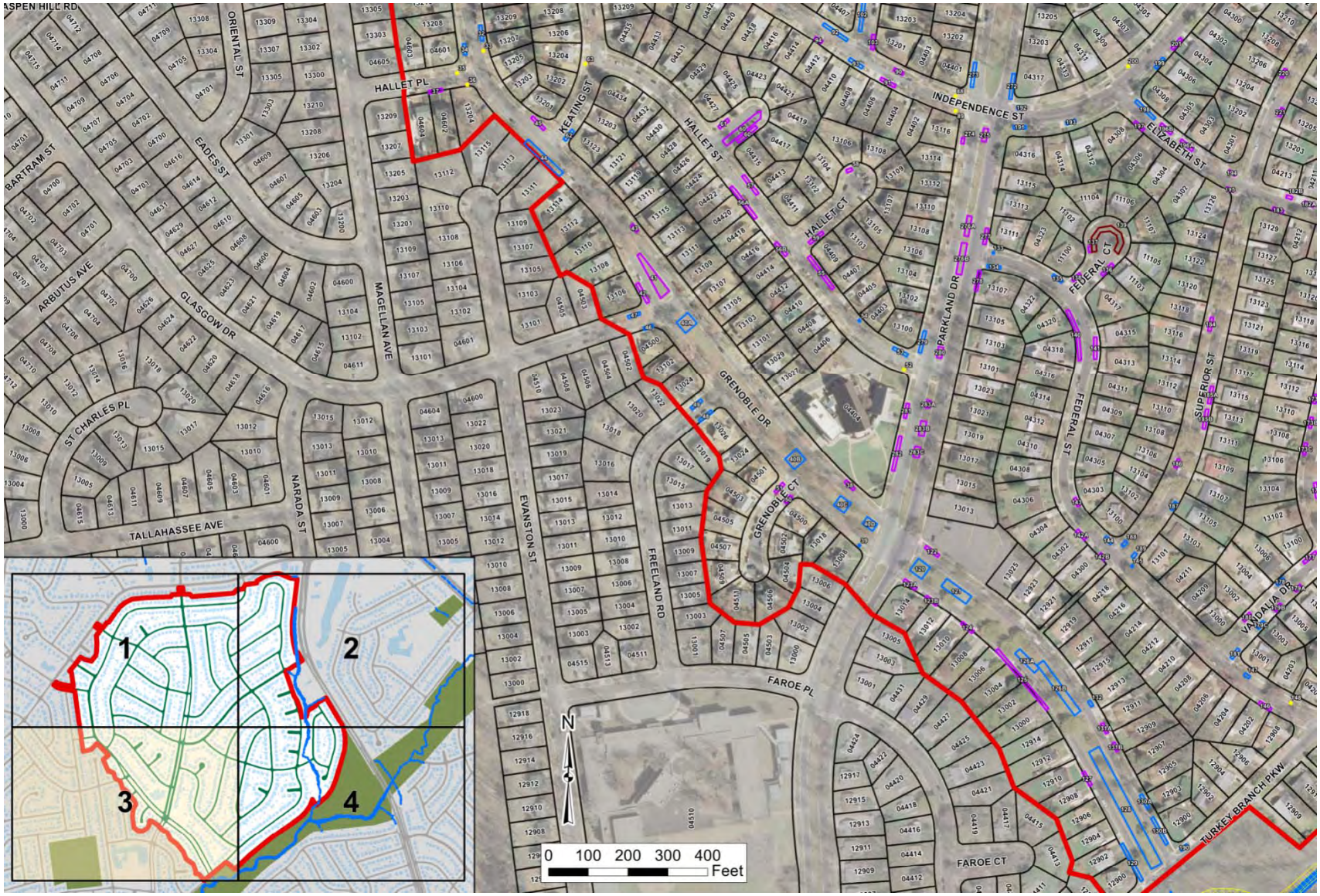

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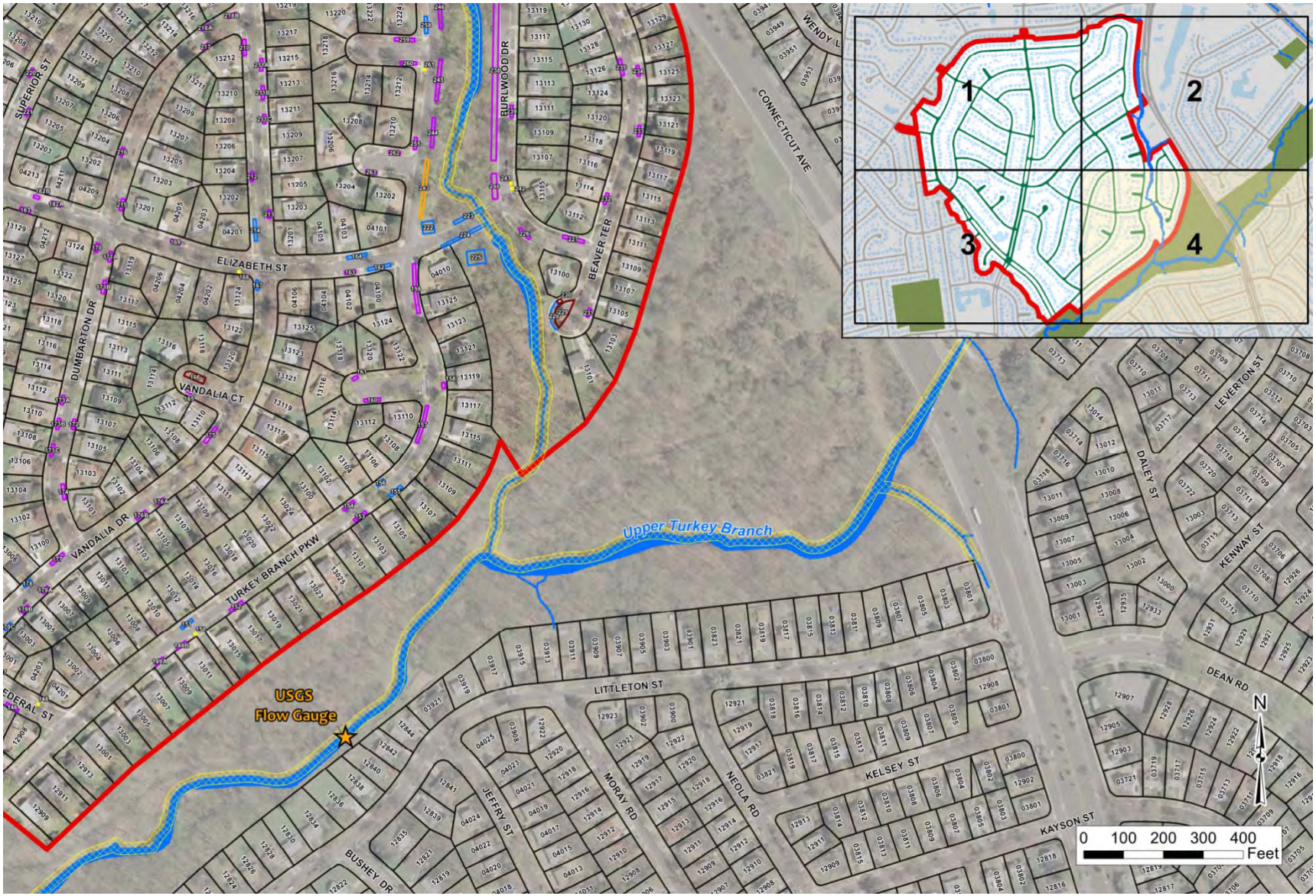


Community Involvement

- Public Meeting
- Community Walk
- Other meetings, as needed

Green Streets in Wheaton Woods

Public Events and Project Schedule (Tentative)

We are here

Event	Date / Time	Location
Preliminary Site Assessment	August 2013	Entire Project Area
Public Meeting	**March 25, 2013**	**Aspen Hill Library**
Draft Designs	Summer/Fall 2014	
Community Walk	**Fall 2014**	
Final Designs	Winter 2014	
Construction Duration	Summer 2015-2016	

Maintenance

- MCDEP will visit monthly (on average)

- We will:
  - Water plants, if needed
  - Replace plants as needed
  - Replenish mulch
  - Remove weeds
  - Remove sediment & trash

- Dedicated Funding

Healthy Watersheds Begin at Home !

Wheaton Woods

March 25th, 2014

Department of Environmental Protection

Montgomery County Maryland

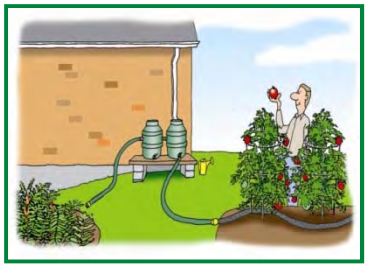
Rainscapes Techniques in Action

RainScapes Techniques
A wide range of natural drainage options

- Rain Gardens
- Native (Conservation) Landscaping
- Increased Urban Tree Canopy
- Permeable Pavers
- Pavement Removal
- Rain Barrels, Cisterns , Dry Wells (water collection and re-use)
- Green Roofs

Rain Gardens, Conservation Landscaping, Trees and Permeable Pavement

Water Harvesting with Rain Barrels, Cisterns and Dry Wells



RainScapes Rewards

Neighborhood Incentive Program

- **Site Assessment**

- **Rebates for single family residences:**
  - $2,500 per property total
    with specific project caps

- **Rebates for multi-family/commercial / institutional:**
  - $10,000 per property total
    with specific project caps

Working Together - A Neighborhood Process

County-led Stakeholder Coordination
- Coordinate and receive input from:
  - local watershed groups, county agencies, HOAs and civic associations
- Mail letter and send survey web-link to property owners

Who: Department of Environmental Protection (DEP) staff coordinate with interested groups and individuals

Neighborhood Assessment
- Screen properties to identify yards with good RainScapes potential
- Set neighborhood goal for runoff reduction
- Coordinate with DOT on possible Right-of-Way "Green Street" and stream restoration projects

Who: DEP, watershed groups or consultants conduct assessment, DEP coordinate with Department of Transportation (DOT)

Neighborhood RainScapes Outreach
- Provide informational materials to neighborhood and property owners about RainScapes
  - E-mail, phone calls, website
  - Distribute door hangers, newsletters, fact sheets
- Meet with neighborhood
  - Field walk
  - Public meetings

Who: DEP staff, watershed groups, local community leaders, & residents

RainScapes Design Development
- Individual site assessments and consult with interested property owners
- Project design meetings
- Property Owner Agreements for selected project

Who: DEP staff, watershed groups, landscape architect or design consultant and property owner meetings

Continue Outreach Efforts
- Focus on yards with good RainScapes potential to meet neighborhood goals
- Obtain voluntary property owner participation

Who: DEP staff, watershed groups

Final Design and Construction
- Completed project inspected

Who: DEP staff or consultants

Monitoring
- Post project follow-up
- Monitoring runoff reduction, where appropriate

Who: DEP staff or consultants

Selecting the best approach and project types to suit the neighborhood

Scheduling Site Assessments

Setting neighborhood goals

Tracking progress

Questions?

Green Streets Information:

Christy Ciarametaro

240-777-7720 CLC@montgomerycountymd.gov

www.montgomerycountymd.gov/watershedrestoration

RainScapes Information:

Pamela Rowe

240-777-7714 pamela.rowe@montgomerycountymd.gov

www.rainscapes.org