

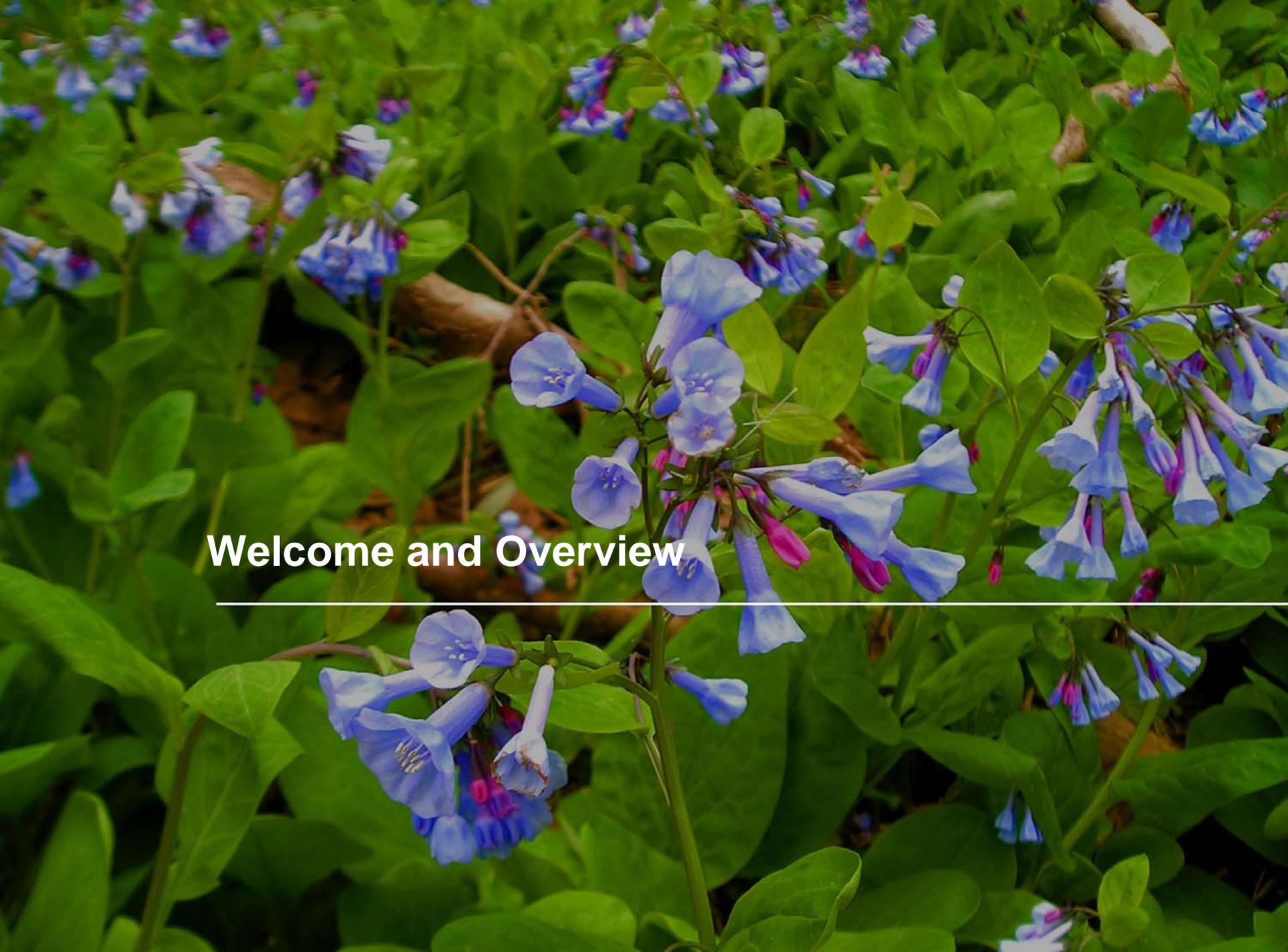
Little Rocky Run Johnny Moore Creek Watershed Management Plan

Watershed Advisory Group #3
May 18, 2009

**Fairfax County Department of Public Works
and Environmental Services**

Presented by Watershed Planning & Assessment Branch,
Stormwater Management



A close-up photograph of a dense field of blue and purple flowers, likely Salix caprea, with vibrant green foliage. The flowers are bell-shaped and hang from thin stems. The background is filled with more of the same plants, creating a lush, textured appearance.

Welcome and Overview

Schedule

- WAG 4 Meeting to review prioritized projects on June 15
- WAG 5 Meeting in August to review draft of watershed plan
- Public Workshop in September
- Plan to Board of Supervisors in Winter 2009

A close-up photograph of a dense field of blue and purple flowers, likely Salpiglossis, with vibrant green foliage. The flowers are bell-shaped and hang from thin stems. The background is filled with more of the same plants, creating a lush, textured appearance.

Project Development Process

“Project Universe”

- Developed a large set of possible projects in the watershed – desktop exercise based on:
 - Field investigations
 - Comments from issues forum and WAG
 - County’s existing data – stream physical assessment, complaints, stormwater parcel coverage

Watershed Restoration Strategies

- Stream/Buffer Restoration
- New Stormwater Management Facilities or Devices
- Stormwater Pond Retrofits
- Flooding Mitigation



County Goals & Objectives	Restoration Strategies			
	Stream/ Buffer Restoration	Pond Retrofits	New SWM Facilities	Flooding Mitigation
Minimize impacts of stormwater runoff on stream hydrology to promote stable stream morphology, protect habitat, and support biota – Stormwater Runoff	■	■	■	
Minimize flooding to protect property, human health, and safety				■
Provide for healthy habitat through protecting, restoring, and maintaining riparian buffers, wetlands, and instream habitat	■			
Improve and maintain diversity of native plants and animals in the County	■			
Minimize impacts to stream water quality from pollutants in stormwater runoff		■	■	
Minimize impacts to drinking water sources from pathogens, nutrients, and toxics in stormwater runoff		■	■	
Minimize impacts to drinking water storage capacity from sediment in stormwater runoff	■	■	■	
Encourage the public to participate in watershed stewardship	■	■	■	■
Coordinate with regional jurisdictions on watershed management and restoration efforts such as Chesapeake Bay initiatives	■	■	■	■
Improve watershed aesthetics in Fairfax County	■	■	■	■



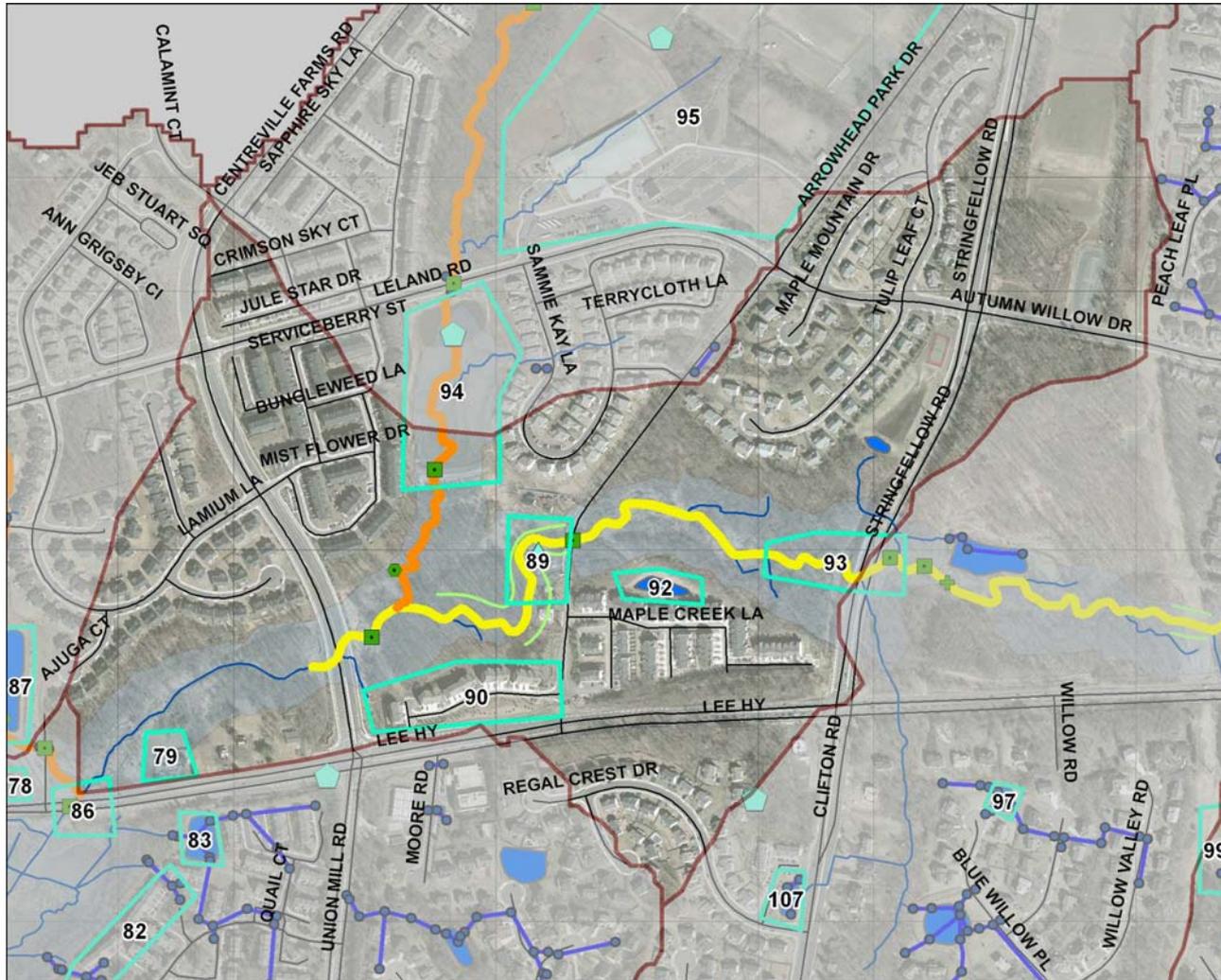
Candidate Project Selection

- Evaluated objective and source indicator scores from the subwatershed rankings
- Projects selected based on their potential impact on low scoring objectives and indicators
- Several different types of projects can provide the improvement needed

Example Subwatershed

- LR-LR-0018 (lowest scoring subwatershed)
- Low Scoring Objectives
 - Stream water quality
 - Drinking water quality
 - Storage capacity
 - Flooding (tied for lowest score)
- Low Scoring Stressors
 - Upland sediment
 - Total nitrogen
 - Total phosphorus
- Projects selected to address flooding, provide improvement in sediment, nitrogen and phosphorus scores – upstream projects will also provide benefits

Example Subwatershed



Project Types

Restoration Strategy	Project Type
Stream/Buffer Restoration	Stream/Bank Stabilization Stream Realignment Pipe Outfall Stabilization Buffer Reforestation
Pond Retrofits	Regrade pond to provide more storage Remove concrete trickle ditches Redesign pond to include micropools and wetland areas Redesign quantity only ponds to provide water quality storage
New SWM Facilities	Bioretention areas Grassed swales Green roofs Underground storage Manufactured BMPs Stormwater Ponds – extended detention dry ponds, wet ponds Constructed wetlands Tree box filters Rain barrel programs
Flooding Mitigation	Resize road crossing structures to convey design discharge Floodproof or purchase structures located in the floodplain



STORMWATER POND RETROFIT

Braddock Forest Pond 0718DP

District: Braddock Watershed: Popes Head Creek
A Maintenance and Stormwater Management Division Project

PRE-CONSTRUCTION

Problematic Conditions: Stormwater Pond was non-functional due to deterioration of control structures and depleted storage volume.



Outreach Activity: Community does not have an Association. Therefore, conducted meetings with all residents affected by project. Informed residents of the benefits of the project and answered all questions.

CONSTRUCTION



Key Project Elements: The height of the dam was increased, new control structures were installed, and a marsh was excavated in the pond floor.



POST-CONSTRUCTION



Existing Conditions: The pond has been seeded with an approved wetland seed mix and is currently stabilizing. Once it is stable the control devices (BMP plate and Trash Rack) will be installed.

Future activities: The pond was planted with a combination of wetland tolerant trees, shrubs and herbaceous plants in May 2005. The plantings help jump start the wetland habitat within the pond.

Feedback From Homeowners:
"Hope the pond does not dry up - we love having the mallards."





NEW BMP/LID GREENROOF

Herrity Building

Watershed: Difficult Run

Project Manager: Ron Tuttle

PRE-CONSTRUCTION

Problematic Conditions: Impervious surface rapidly conveyed stormwater from the rooftop, washing away pollutants from the parking area. Uncontrolled stormwater runoff leads to degraded water quality and in stream habitat.



Outreach Activity: The Herrity Green Roof is considered a pilot project located at a government building which is open for public viewing.

09/13/07

POST-CONSTRUCTION

Key Project Elements: Decreased impervious surface; provides better water quality; created an amenity for workers; reduced amount of pollutants from the area where installed.



08/20/08



STREAM RESTORATION/OUTFALL IMPROVEMENT

Mount Vernon

PROJECT NO. LH8000 – LH302

MOUNT VERNON DISTRICT TAX MAP NO. 110 - 2 Watershed: Little Hunting Creek

Issue: In stream Impairment

PRE-CONSTRUCTION

Problematic Conditions:
Large quantities of uncontrolled stormwater caused bank erosion, tree loss and negative impacts to aquatic life.



Possible Solution: Reduce runoff from upstream (LID & SWM); stabilize eroding banks & re-vegetate.

CONSTRUCTION

Key Project Elements:
The eroded stream was filled with suitable material to reconnect the channel to the natural floodplain.



Key Project Elements:
The project was designed using “natural stream restoration techniques” which aim at creating habitat for native wildlife.

POST-CONSTRUCTION



Existing Conditions: The stream was restored to a more natural design. A riparian seed mix and native trees were planted on impacted areas of the site.

Future activities: Continued monitoring of the vegetation and structures (cross veins, log jams, etc.) will occur. Ideally, aquatic organisms will re-inhabit the restored reach.



Improved Outfall





REGIONAL STORMWATER POND RETROFIT

Compton Heights Regional

A Maintenance and Stormwater Management Division Project

PRE-CONSTRUCTION



Problematic Conditions: Stormwater pond was non-functional due to deterioration of control structures and depleted storage volume.



Solution: Dredge silt from basin to increase volume. Retrofit existing Regional Pond with micro-pools, a gabion baffle, and wetland vegetation. Retrofit outlet control structure.

CONSTRUCTION



Key Project Elements: A sediment filter (gabion baffle) and micro-pools were installed to allow sediment to settle out of the stormwater before flowing out of the facility.



POST-CONSTRUCTION



Existing Conditions: The pond has been seeded with an approved wetland seed mix and is currently stabilizing. Once it is stable the control devices (BMP plate and Trash Rack) will be installed.

Future activities: The pond was planted with a combination of wetland tolerant trees, shrubs and herbaceous plants. The plantings will help to jump start the wetland habitat within the pond.





NEW BMP/LID RAIN GARDEN Mount Vernon Recreation Center

Watershed: Little Hunting Creek

PRE-CONSTRUCTION

Problematic Conditions: Stormwater from impervious surfaces lacked quality treatment (i.e.: nutrients, oil & other pollutants). Installation of a rain garden (bioretention basin) provides for water quality treatment and groundwater recharge through infiltration.



Key Project Elements: Bioretention basins are hybrid retention/detention facilities that provide both water quality control and peak discharge rate control for runoff from impervious areas.



CONSTRUCTION



Key Project Elements: Stormwater runoff is treated by rapid filtering through bioretention soil media, biological and biochemical reactions within the soil matrix and around the root zones of the plants, and infiltration into the underlying soil strata.



POST-CONSTRUCTION

Future activities: The rain garden was planted with a combination of native trees, shrubs and herbaceous plants that will provide nutrient uptake and provide an aesthetic benefit. The plantings will also provide habitat for organisms like birds and butterflies.





NEW BMP/LID

Rain Garden, Porous Pavement & Stormwater Storage System

Providence Fire Station 30

Watershed: Accotink

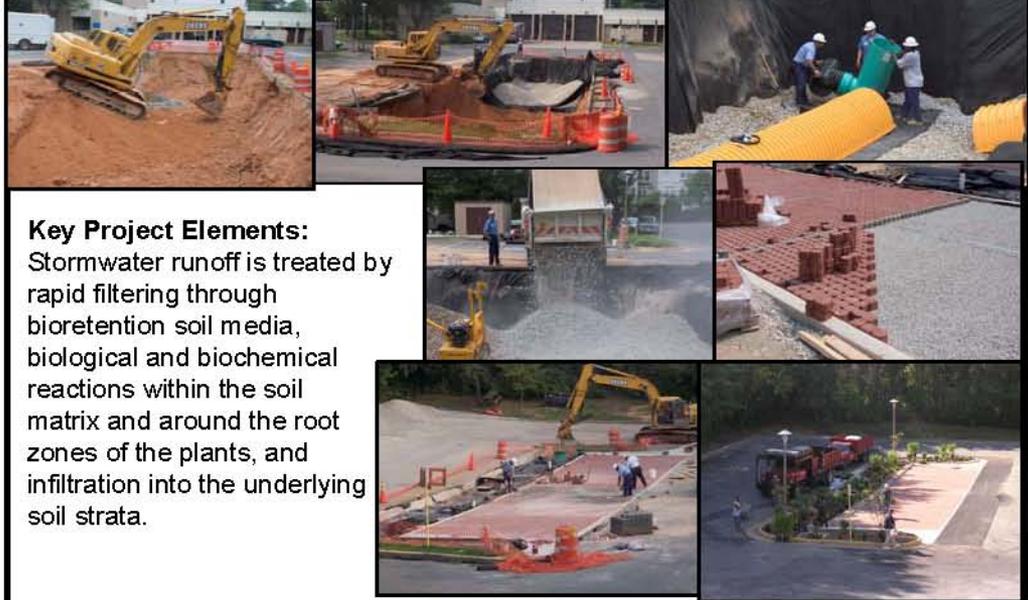
PRE-CONSTRUCTION



Key Project Elements: Bioretention basins are hybrid retention/detention facilities that provide both water quality control and peak discharge rate control for runoff from impervious areas.

Problematic Conditions: Stormwater from impervious surfaces lacked quality & quantity treatment (ie.: nutrients, oil, SW volume & other pollutants). Installation of a rain garden (bioretention basin) provides for water quality treatment and groundwater recharge through infiltration. The porous pavement provides for greater infiltration of runoff.

CONSTRUCTION

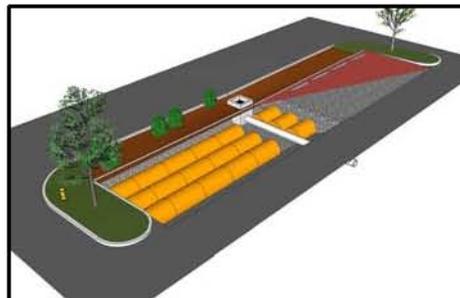


Key Project Elements: Stormwater runoff is treated by rapid filtering through bioretention soil media, biological and biochemical reactions within the soil matrix and around the root zones of the plants, and infiltration into the underlying soil strata.

POST-CONSTRUCTION



Future activities: The rain garden was planted with a combination of native trees, shrubs and herbaceous plants that provide nutrient uptake and an aesthetic benefit. The plantings also provide habitat for organisms like birds and butterflies.





BUFFER RESTORATION

Noman M. Cole Jr., Pollution Control Plant

Watershed: Pohick Creek

Project Manager: Chad Grupe

PRE-CONSTRUCTION



Problematic Conditions: Lack of a native riparian buffer decreases the amount of rain that infiltrates into the groundwater and increases the amount of pollutants that enter our waterways.



Key Project Elements:

Establishing a native riparian buffer will reduce the amount of stormwater entering streams and filter nonpoint source pollutants.

CONSTRUCTION



Key Project Elements: Educating residents on the importance of riparian buffers is key to the success of the planting. This site had 1005 trees and shrubs planted by 180 volunteers over two days.



POST-CONSTRUCTION



Future activities: Future monitoring and maintenance is required to ensure survivorship of the plants. When mature, this area will provide a balanced ecosystem that will help reduce stormwater impacts and create habitat for wildlife.





FLOOD PROTECTION/MITIGATION*

Watershed: Little Hunting Creek
Mount Vernon District

PRE-CONSTRUCTION



Problematic Conditions: The residential property flooded through the basement door in the rear yard.



Key Project Elements: Establishing a drainage swale to provide overland relief and prevent flooding.

CONSTRUCTION



Key Project Elements: The project consisted of excavating an overland relief swale from the rear yard to the front yard and street. The narrow space and depth of the overland swale required the construction of two small retaining walls and the re-grading of the rear yard.



POST-CONSTRUCTION



*Watershed Plans will not address individual dwelling flooding issues.



NEW BMP/LID

Rain Garden & Infiltration Trench (Vegetated Swale)

CUB RUN RECREATION CENTER

Watershed: Cub Run

PRE-CONSTRUCTION



Problematic Conditions: Stormwater from impervious surfaces lacked quality & quantity treatment (ie.: nutrients, oil, SW volume & other pollutants). Installation of a rain garden (bioretention basin) and an infiltration trench (vegetated swale) provides for water quality treatment and groundwater recharge through infiltration.

Key Project Elements: Infiltration trenches serve as a stormwater management trench will allows for ponding/conveyance and eventual infiltration.

CONSTRUCTION



Key Project Elements: Stormwater runoff is treated by rapid filtering through bioretention soil media, biological and biochemical reactions within the soil matrix and around the root zones of the plants, and infiltration into the underlying soil strata.



POST-CONSTRUCTION



Future activities: The rain garden was planted with a combination of native trees, shrubs and herbaceous plants that provide nutrient uptake and an aesthetic benefit. The plantings also provide habitat for organisms like birds and butterflies.



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Project Comments: Breakout Groups



Project Comments

- Is this an appropriate project location? If not, is there an alternate location?
- Do you know of any conflicts that would prohibit certain projects?
- Are there any missing projects?
- Do you and your community support the projects listed and if not, why not?

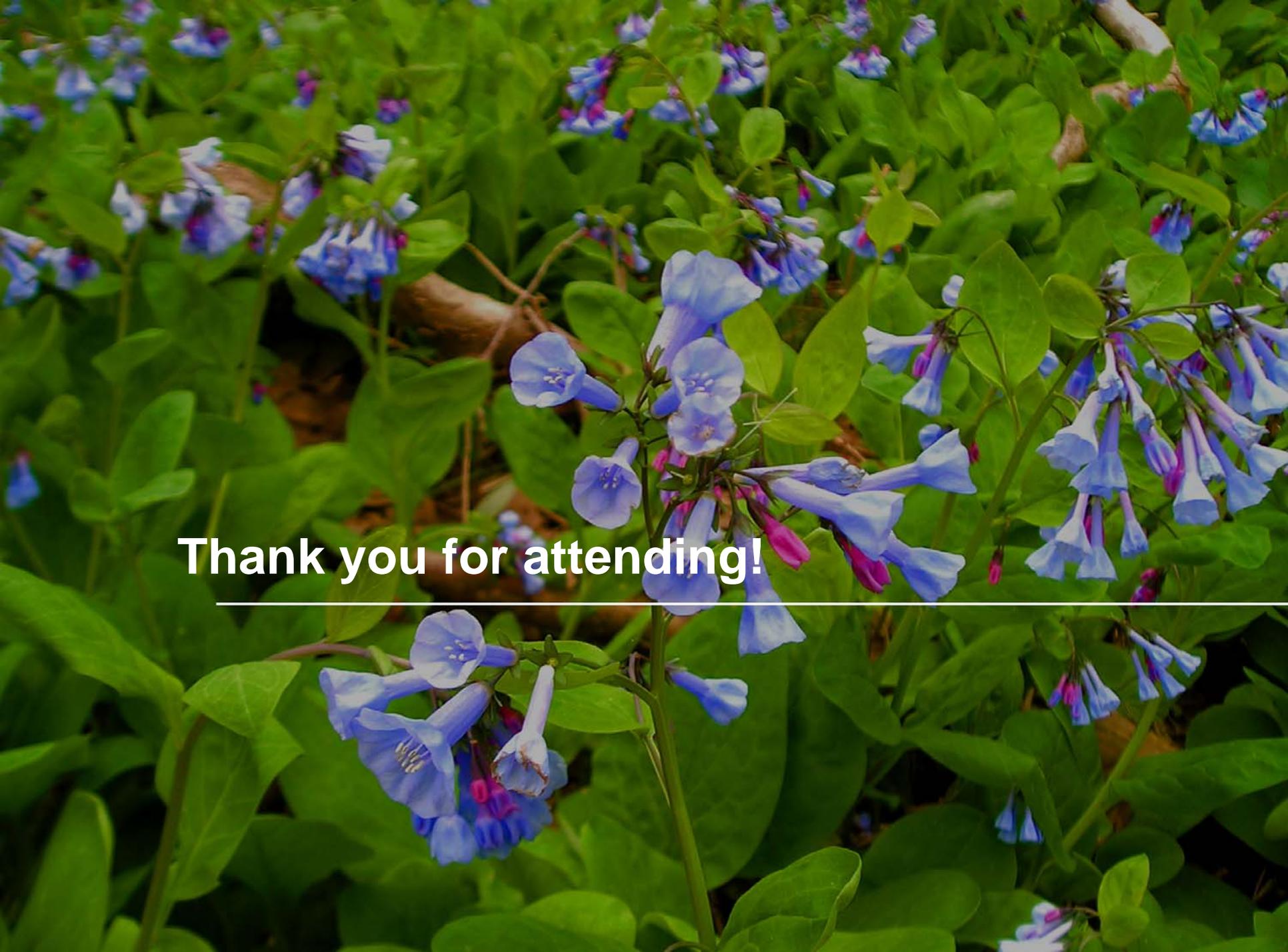
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Next Steps



Next Steps

- Comments due to AMEC by May 22
- Next meeting proposed for June 15 to discuss refined project list

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Thank you for attending!
