



# Watershed Management Plan Community Update

November 30, 2011

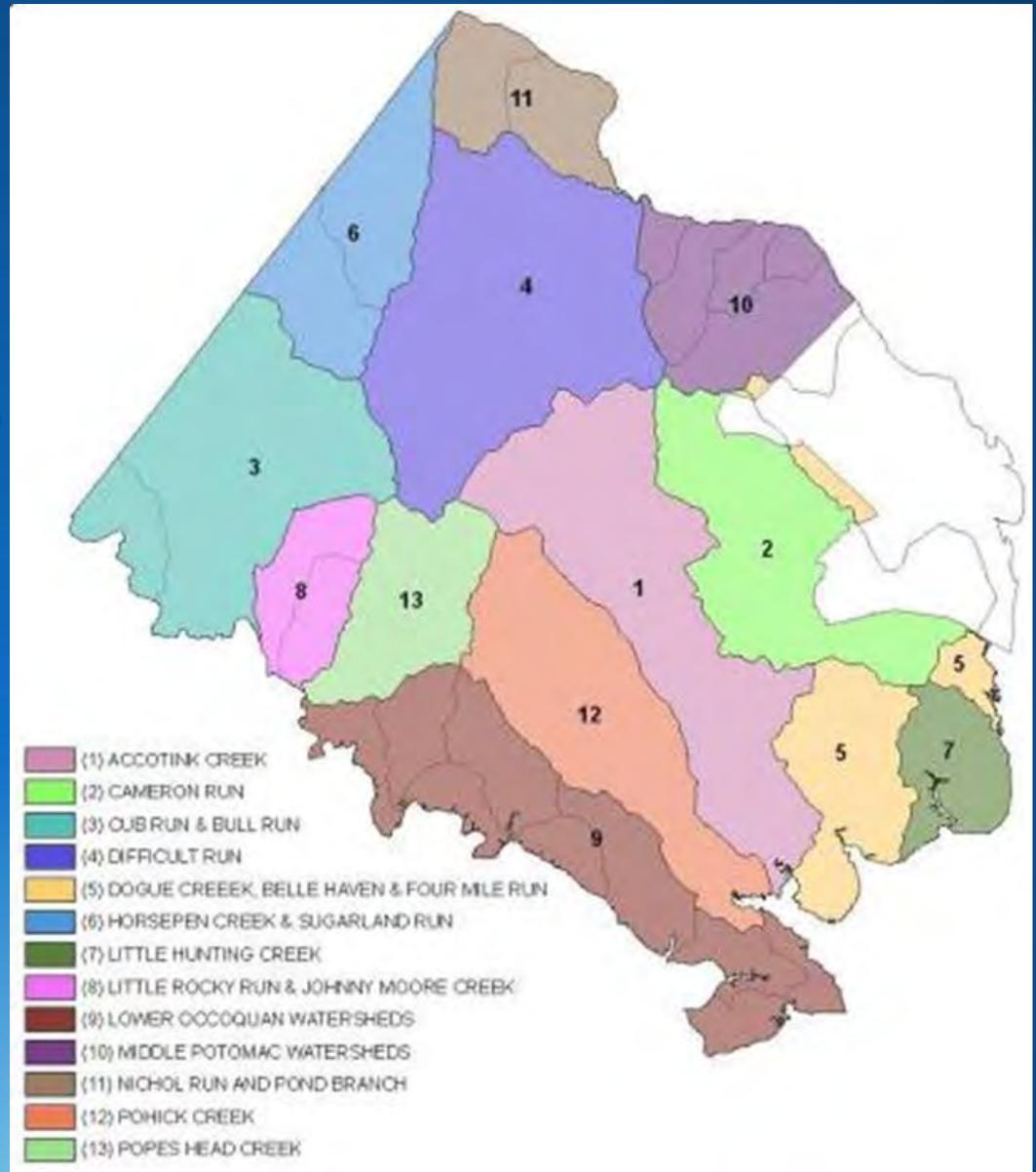
# Watershed Management Plans



As of Feb. 2011, all 13 watershed management plans have been completed and adopted by the Board of Supervisors.

The plans contain 1,700+ proposed projects and 300+ policy and action recommendations.

# Watershed Management Planning Groups



# Major Components of Fairfax County's Stormwater Program

- Watershed Planning
- Infrastructure Reinvestment
- Regulatory Compliance
- Operations
- Dam Safety
- Project Implementation



# Infrastructure Reinvestment

- Inspect and maintain approximately 1,500 miles of storm sewer
- Respond and investigate all storm drainage and flooding complaints
- GASB



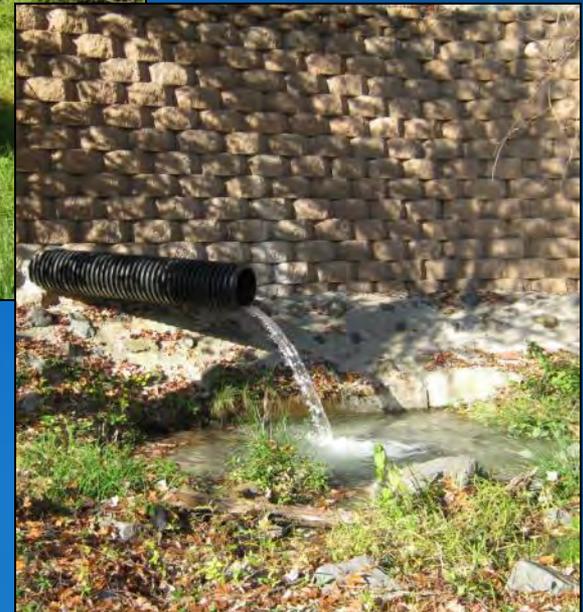
# Dam Safety

- Dam certification and regulatory compliance
- Dam Inspection and maintenance
- Emergency Management – Flood response
- National Flood Insurance Program



# Regulatory Compliance

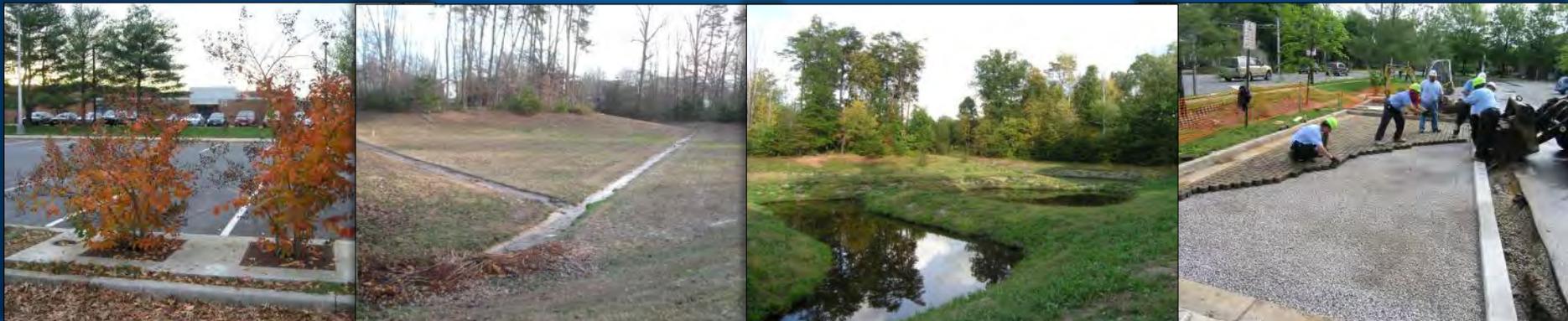
- MS4 permit
  - Monitoring and assessment
  - Illicit discharge response
  - Outreach and Education
- TMDL compliance



# Project Implementation

## Structural Projects

- Stormwater Pond Retrofits
- LID Implementation
- Outfall Improvement
- Stream restoration
- Area-Wide Drainage Improvement
- Flood Protection and Mitigation



# Non-Structural Projects

- Buffer Restoration
- Rain Barrel Program
- Dumpsite/Obstruction Removal
- Community Outreach & Public Education
- Stream clean-ups



# Policy and Action Recommendations

More than 300 recommendations were made in the first six plans.  
Recommendations are extremely varied in scope and mission.

- *Implement a watershed-wide rain barrel sale project.*
- *Reconnect floodplains to stream channels to provide Floodwater storage and treatment.*
- *Remove dump sites and obstructions from stream corridors.*
- *Retrofit existing stormwater management facilities and to make them more effective.*
- *Require developers to use LID to the “maximum extent practicable”*
- *Regulate the use of ATV ‘s to prevent environmental damage*

# Completed Recommendations

- *Post signage at stream crossings and watershed divides identifying the waterway to increase public awareness of watershed boundaries.*
- *Expand the list of BMP's to include newer practices such as porous pavement, bio-retention facilities and green roofs.*
- *Provide readily accessible information about stormwater, water quality and watersheds issues to the public on the county's watershed website.*
- *Regularly inspect privately owned and maintained stormwater facilities to verify they are properly constructed and maintained, and take appropriate actions where issues are identified.*

# Moving Forward with Recommendations



How do we go from 300 recommendations to an implementable plan?

300  
Recommendations

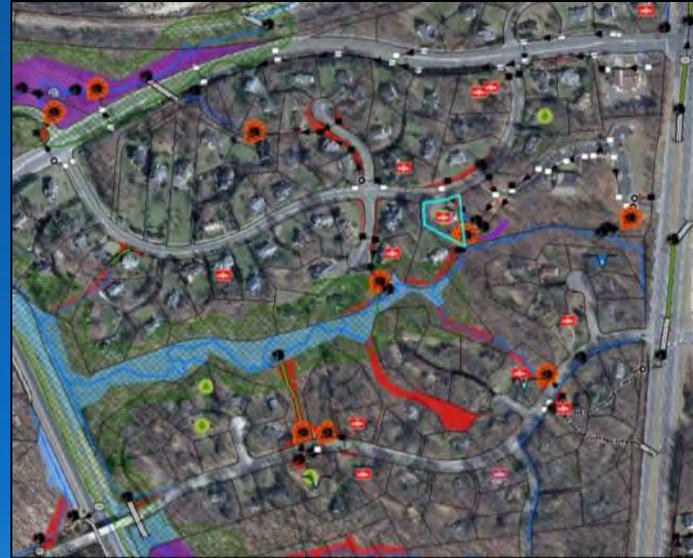
Consolidate into  
Categories  
(Ongoing)

Inter-Agency  
Review  
(early 2012)

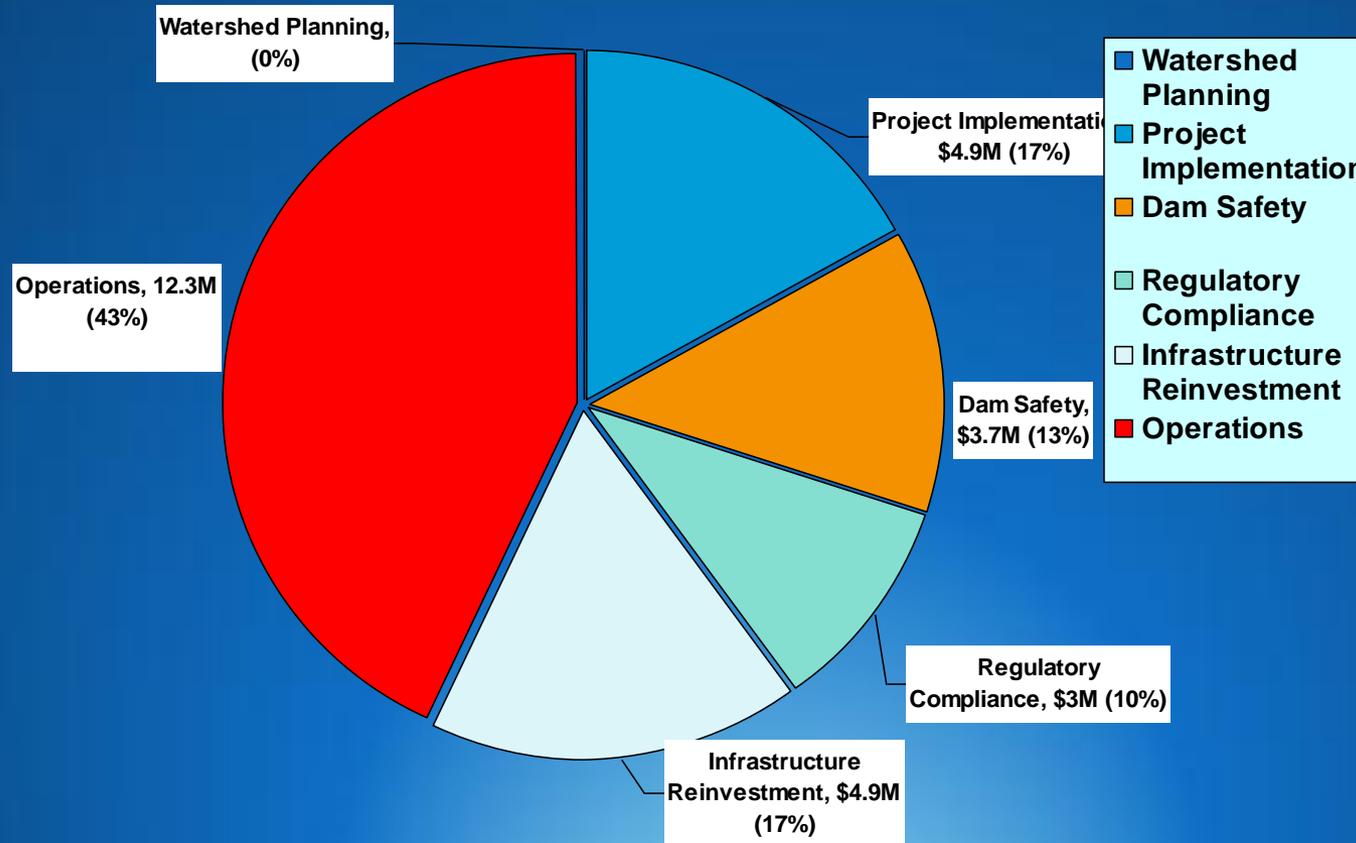
Implementation  
Plan  
(mid/late 2012)

# Challenges

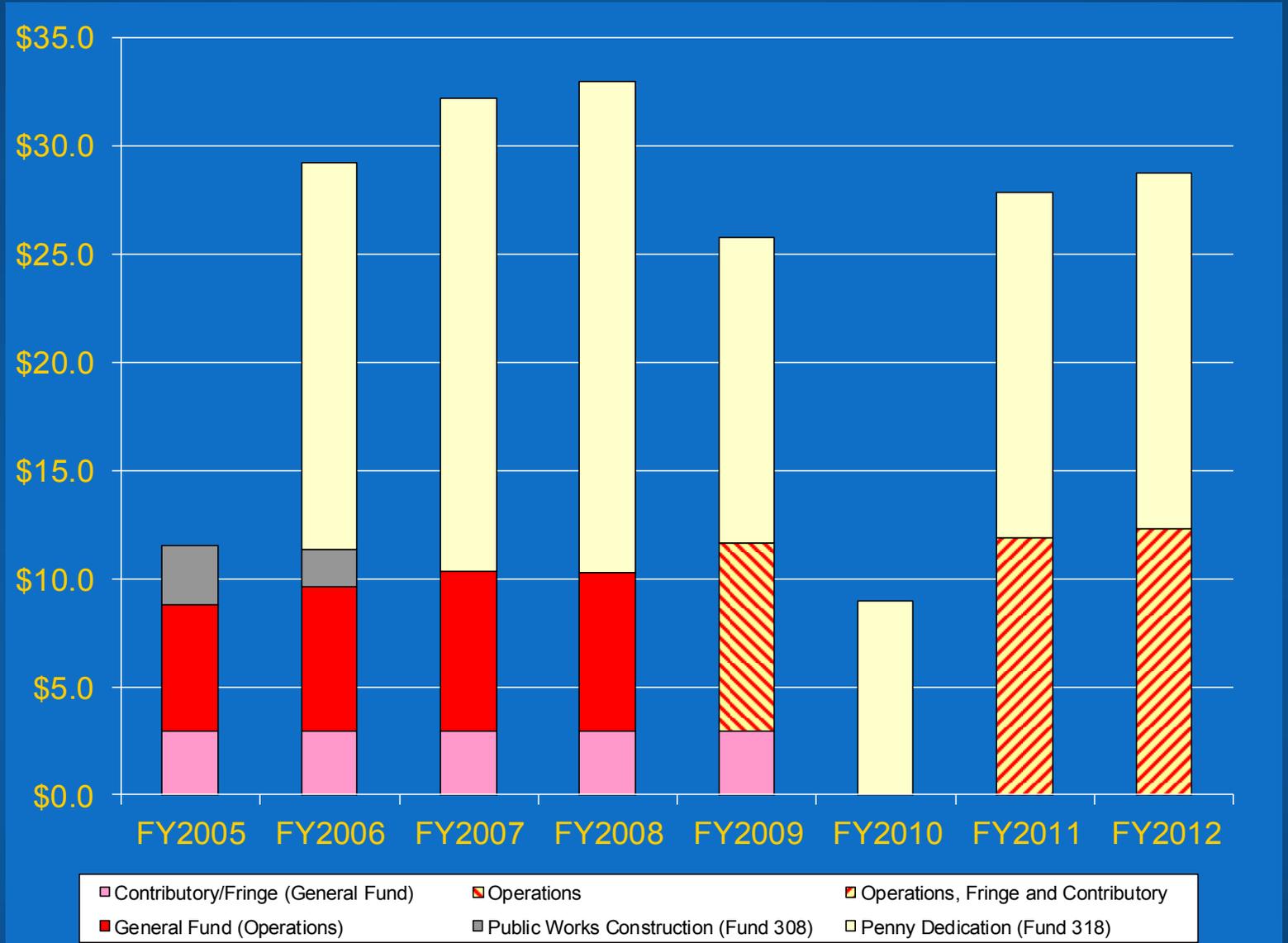
- Land Rights
- Legal Issues
- Aging infrastructure
- Growing Inventory
- New MS4 regulatory requirements
- TMDL requirements
- Evolving Science & Technology
- Changing Conditions
- Economic Constraints



# Stormwater FY12 Budget



# History of Stormwater Funding



# What Can Residents Do



# Volunteer Opportunities

- Fairfax County – Stormwater Planning
- Earth Sangha
- Fairfax Releaf
- Northern VA Soil and Water Conservation District
- Fairfax County Park Authority
- Friends of Groups
- Potomac Conservancy
- Alice Ferguson Foundation
- Clean Fairfax Council
- Master Gardener/Naturalist
- Izaak Walton League

# Completed Projects

# Stream Restoration

## Poplar Springs - Before & After



| Drainage Area<br>(acres) | Phosphorous Removal<br>(lbs/yr) | Nitrogen Removal<br>(lbs/yr) | Sediment Removal<br>(tons/yr) |
|--------------------------|---------------------------------|------------------------------|-------------------------------|
| 230.4                    | 7.5                             | 141                          | 1.25                          |

# Stream Restoration

Dead Run – During & After



| Drainage Area<br>(acres) | Phosphorous Removal<br>(lbs/yr) | Nitrogen Removal<br>(lbs/yr) | Sediment Removal<br>(tons/yr) |
|--------------------------|---------------------------------|------------------------------|-------------------------------|
| 415                      | 15                              | 283                          | 2.5                           |

# Pond Retrofits

## Sycamore Ridge - Before & After



| Area Treated (acres) | Phosphorous Removal (lbs/yr) | Nitrogen Removal (lbs/yr) | Sediment Removal (tons/yr) |
|----------------------|------------------------------|---------------------------|----------------------------|
| 78.4                 | 38                           | 202                       | 9.4                        |

# Pond Retrofits

## Cinnamon Oaks - Before & After



| Area Treated (acres) | Phosphorous Removal (lbs/yr) | Nitrogen Removal (lbs/yr) | Sediment Removal (tons/yr) |
|----------------------|------------------------------|---------------------------|----------------------------|
| 11                   | 9                            | 68                        | 2.1                        |

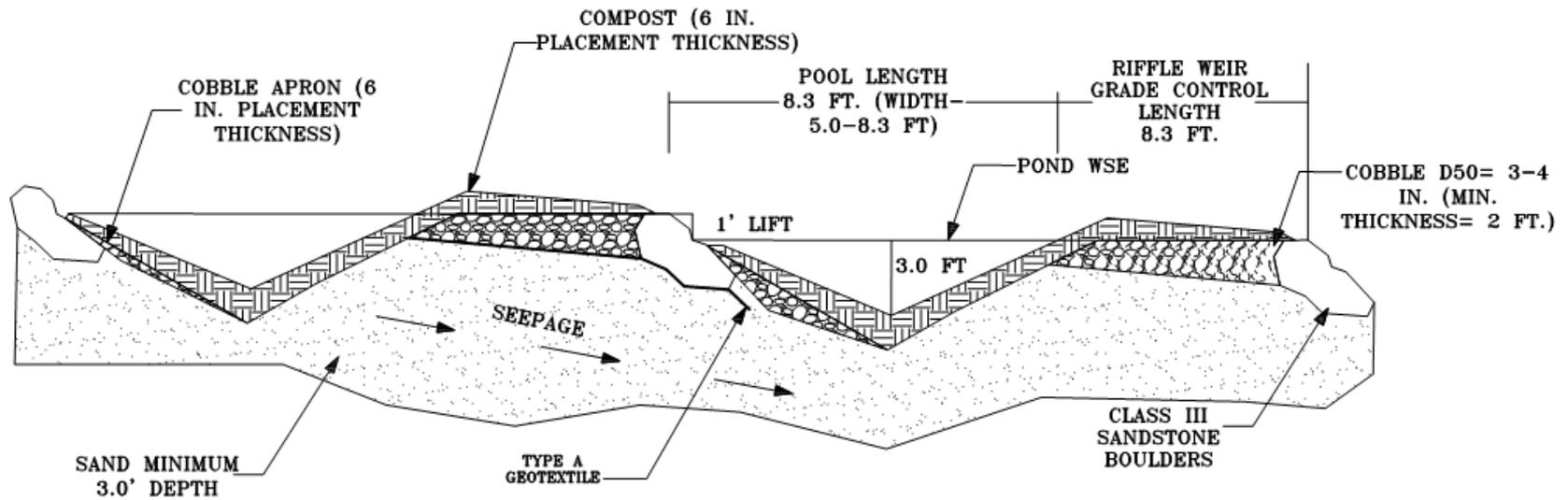
# Outfall Retrofits

Cinnamon Oaks Outfall into Basin - Before & After



# Outfall Retrofits

## Regenerative Conveyance Systems



# Outfall Restoration

Seven Woods – During & After



| Drainage Area<br>(acres) | Phosphorous Removal<br>(lbs/yr) | Nitrogen Removal<br>(lbs/yr) | Sediment Removal<br>(tons/yr) |
|--------------------------|---------------------------------|------------------------------|-------------------------------|
| 12                       | 3                               | 61                           | 1                             |

# Low Impact Development

## Sherwood Library - Permeable Pavers During & After



| Area Treated (acres) | Phosphorous Removal (lbs/yr) | Nitrogen Removal (lbs/yr) | Sediment Removal (tons/yr) |
|----------------------|------------------------------|---------------------------|----------------------------|
| 1.7                  | 3                            | 12                        | 0.6                        |

# Low Impact Development

Sherwood Library – Tree Box Filters



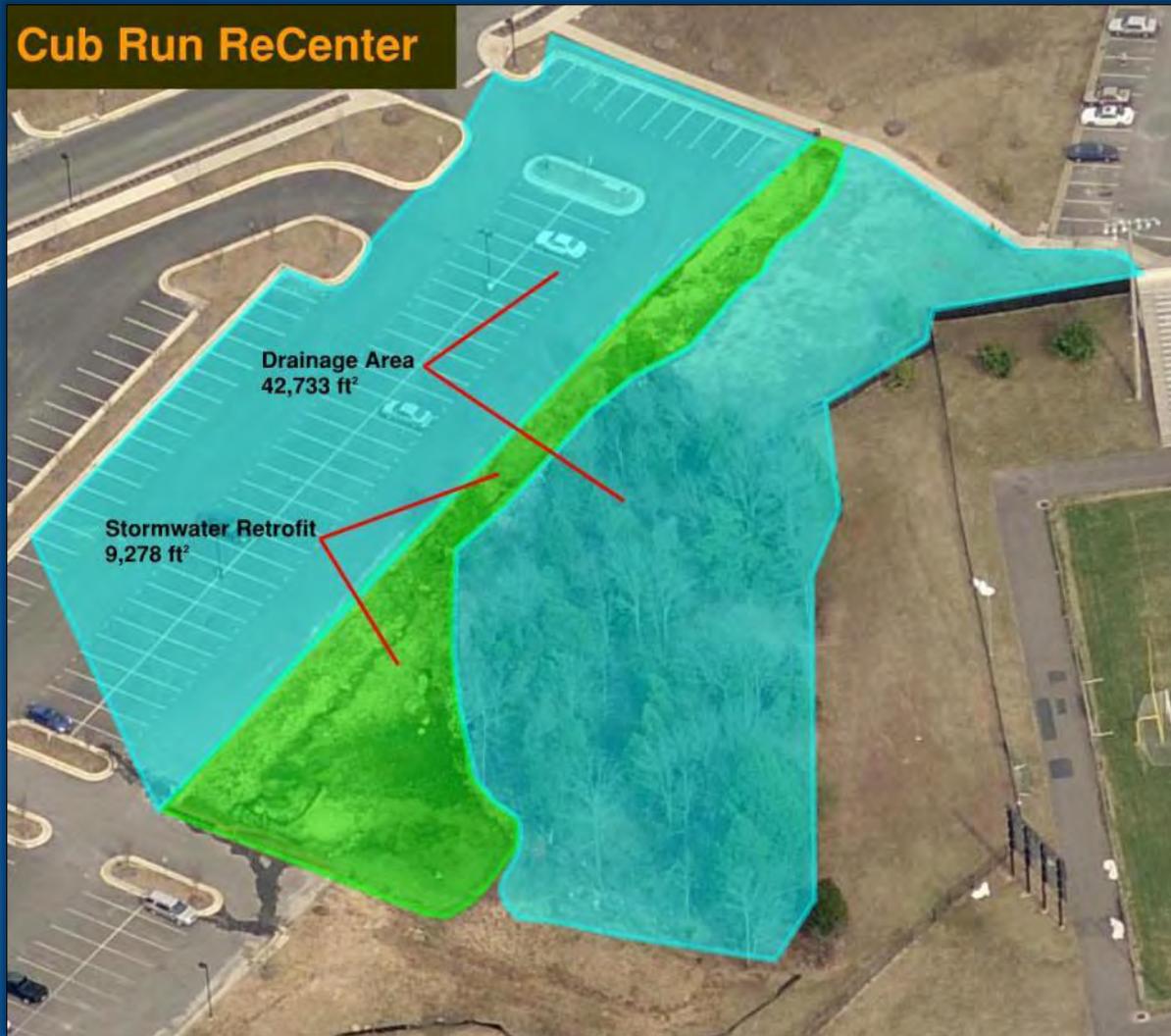
# Low Impact Development

## Walt Whitman Middle School – Rain Gardens



| Area Treated (acres) | Phosphorous Removal (lbs/yr) | Nitrogen Removal (lbs/yr) | Sediment Removal (tons/yr) |
|----------------------|------------------------------|---------------------------|----------------------------|
| 1.29                 | 2.2                          | 4.7                       | 0.6                        |

# Cub Run ReCenter



# Cub Run ReCenter

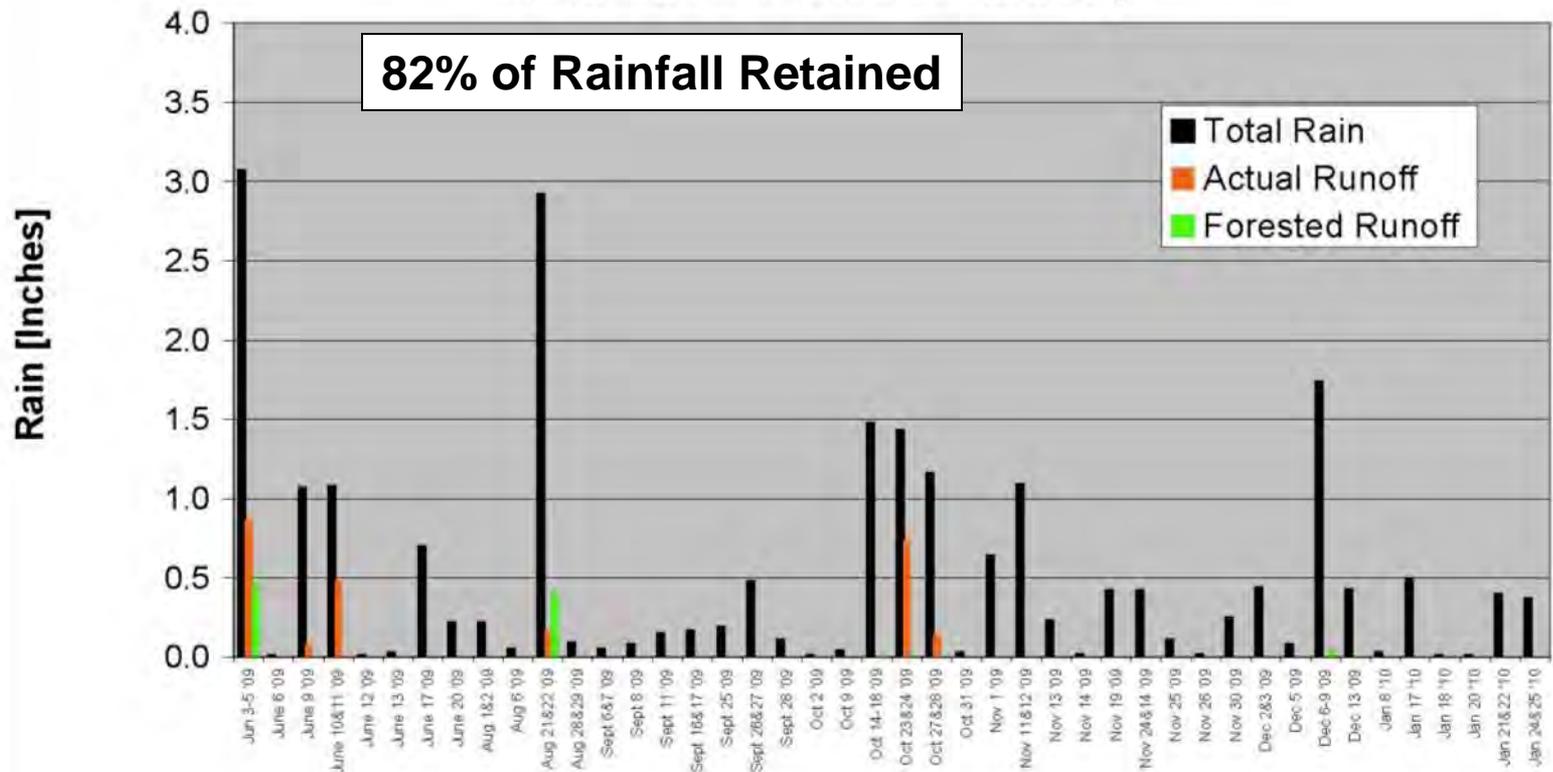
## Before & After



| Area Treated (acres) | Phosphorous Removal (lbs/yr) | Nitrogen Removal (lbs/yr) | Sediment Removal (tons/yr) |
|----------------------|------------------------------|---------------------------|----------------------------|
| 1.17                 | 1.6                          | 15                        | 0.3                        |

# ReCenter Summary

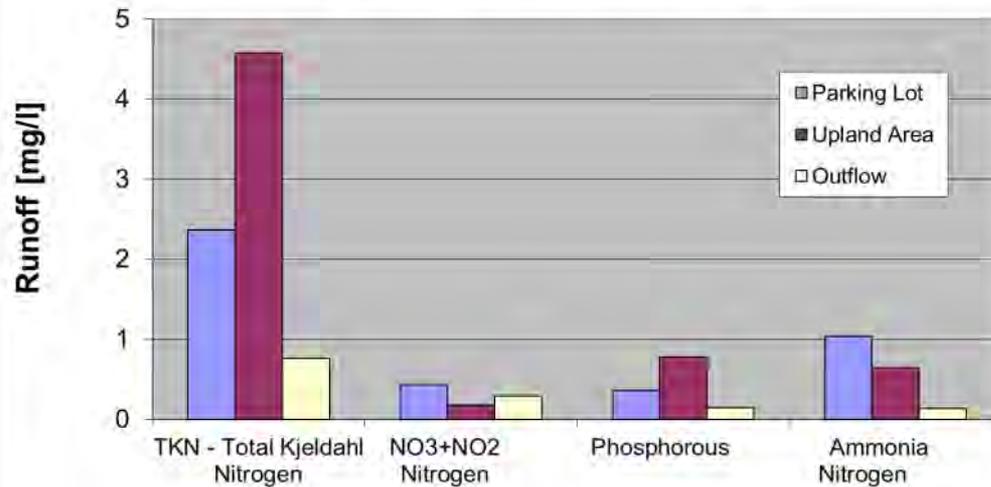
## Cub Run ReCenter Retention System Rain and Runoff Summary



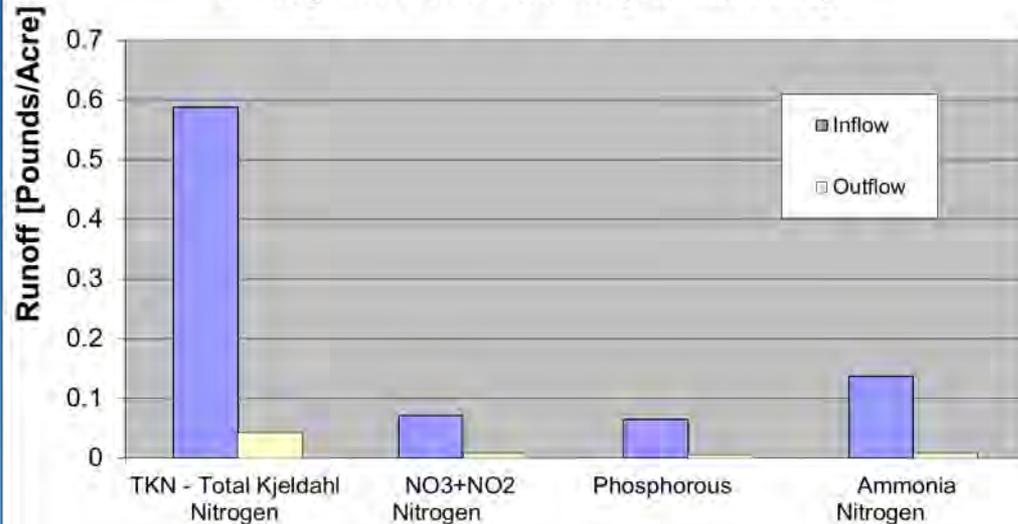
**Rainfall = 29.56 inches (46 events)    Actual Runoff = 5.38 inches**

# Results from Cub Run ReCenter Retention System

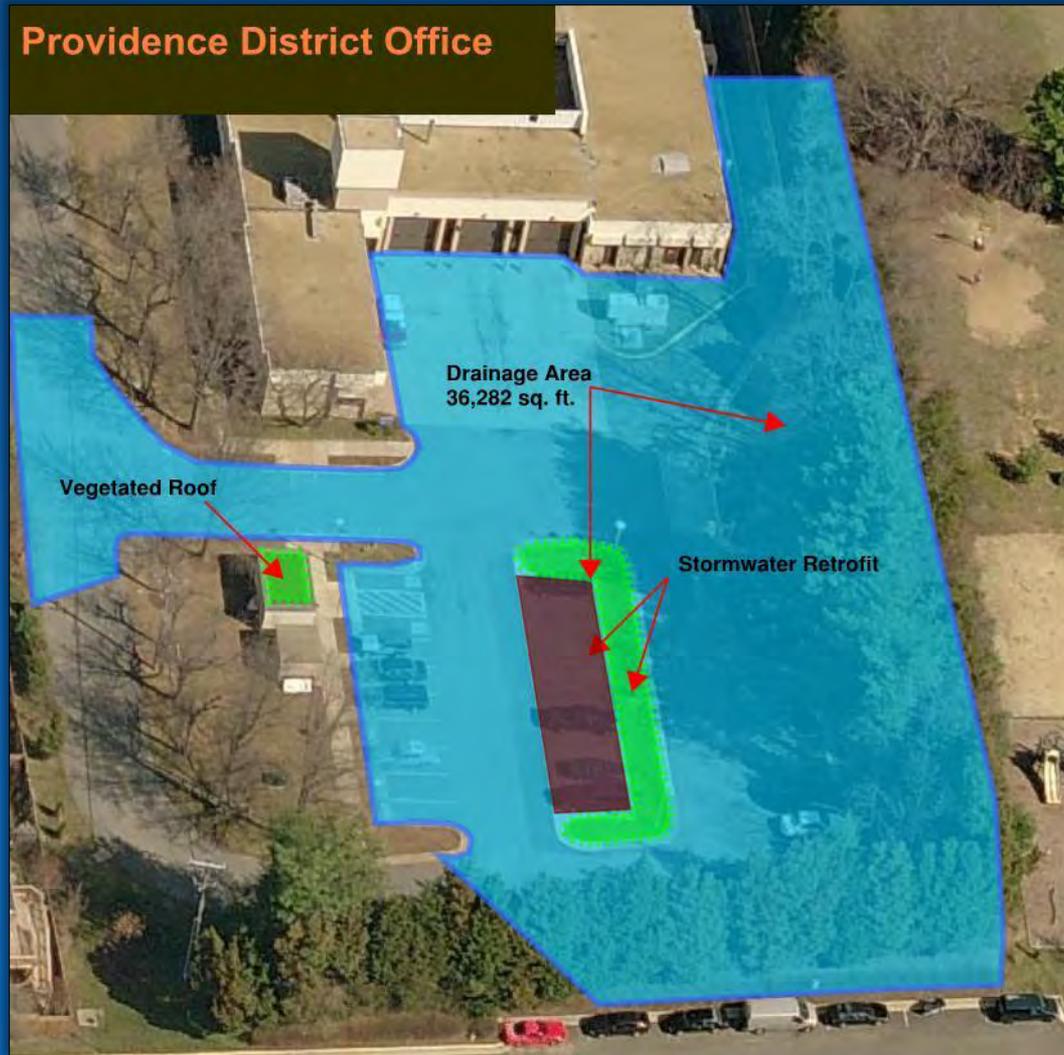
**Cub Run RECenter Retention System  
Average Values for Runoff [mg/l]**



**Cub Run RECenter Retention System  
Average Values for Runoff [Pounds/Acre]**



# Providence Fire Station



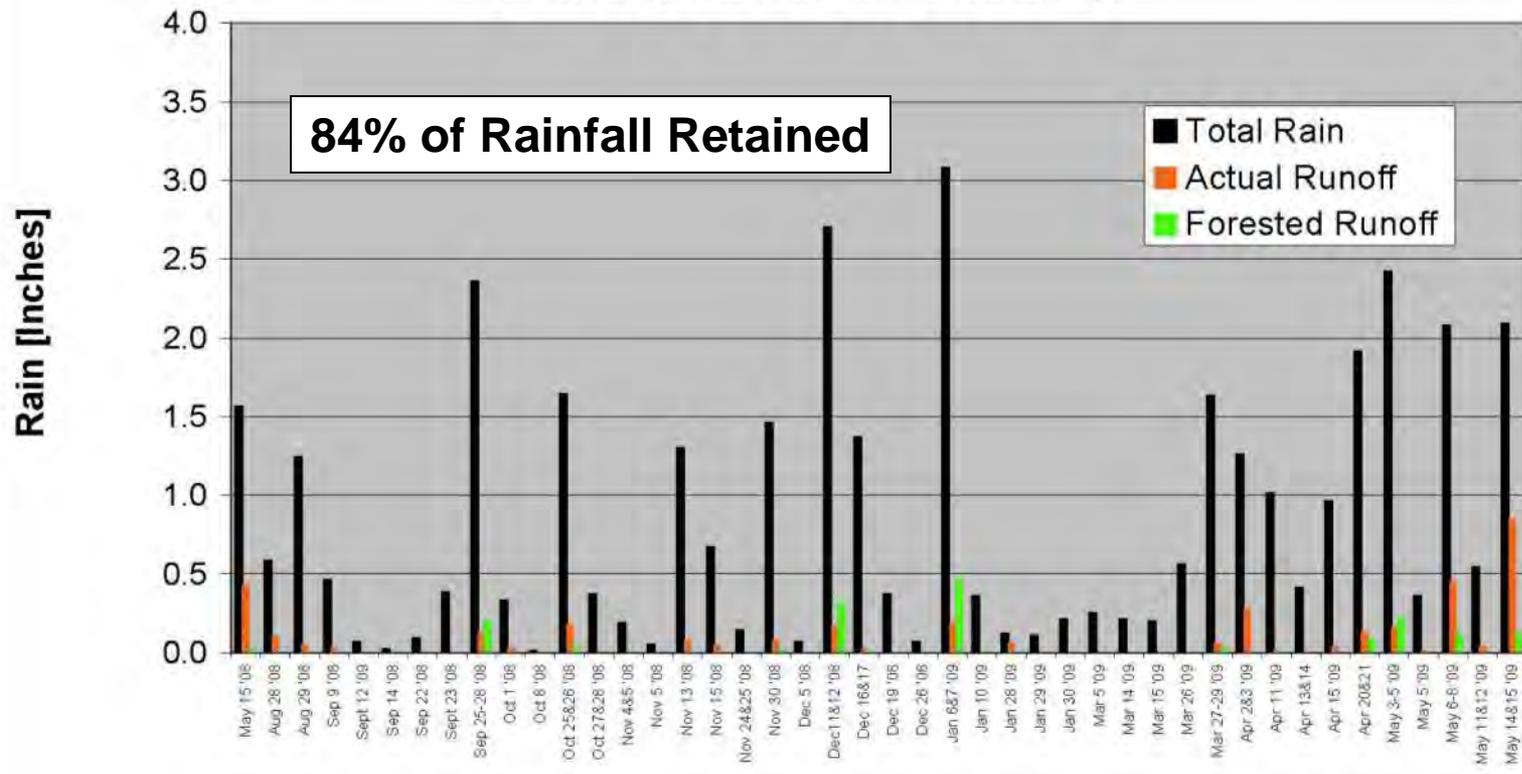
# Providence Fire Station During & After



| Area Treated<br>(acres) | Phosphorous Removal<br>(lbs/yr) | Nitrogen Removal<br>(lbs/yr) | Sediment Removal<br>(tons/yr) |
|-------------------------|---------------------------------|------------------------------|-------------------------------|
| 0.83                    | 1.5                             | 13                           | 0.2                           |

# Providence Summary

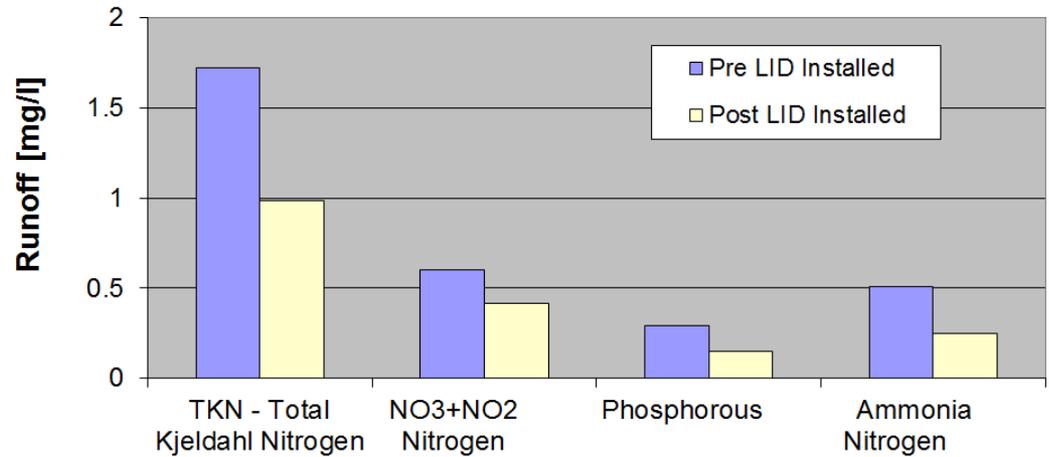
## Providence - Fire Station 30 Retention System Rain and Runoff Summary



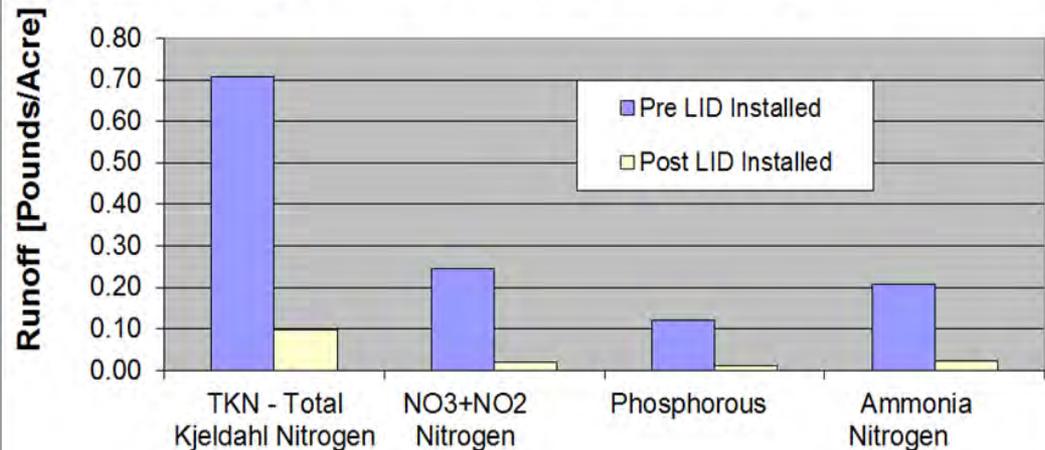
**Rainfall = 45.43 inches (45 events)    Actual Runoff = 7.32 inches**

# Results from Providence Retention System

Providence - Fire Station 30 Retention System  
Average Values for Runoff [mg/l]



Providence - Fire Station 30 Retention System  
Average Values for Runoff [Pounds/Acre]



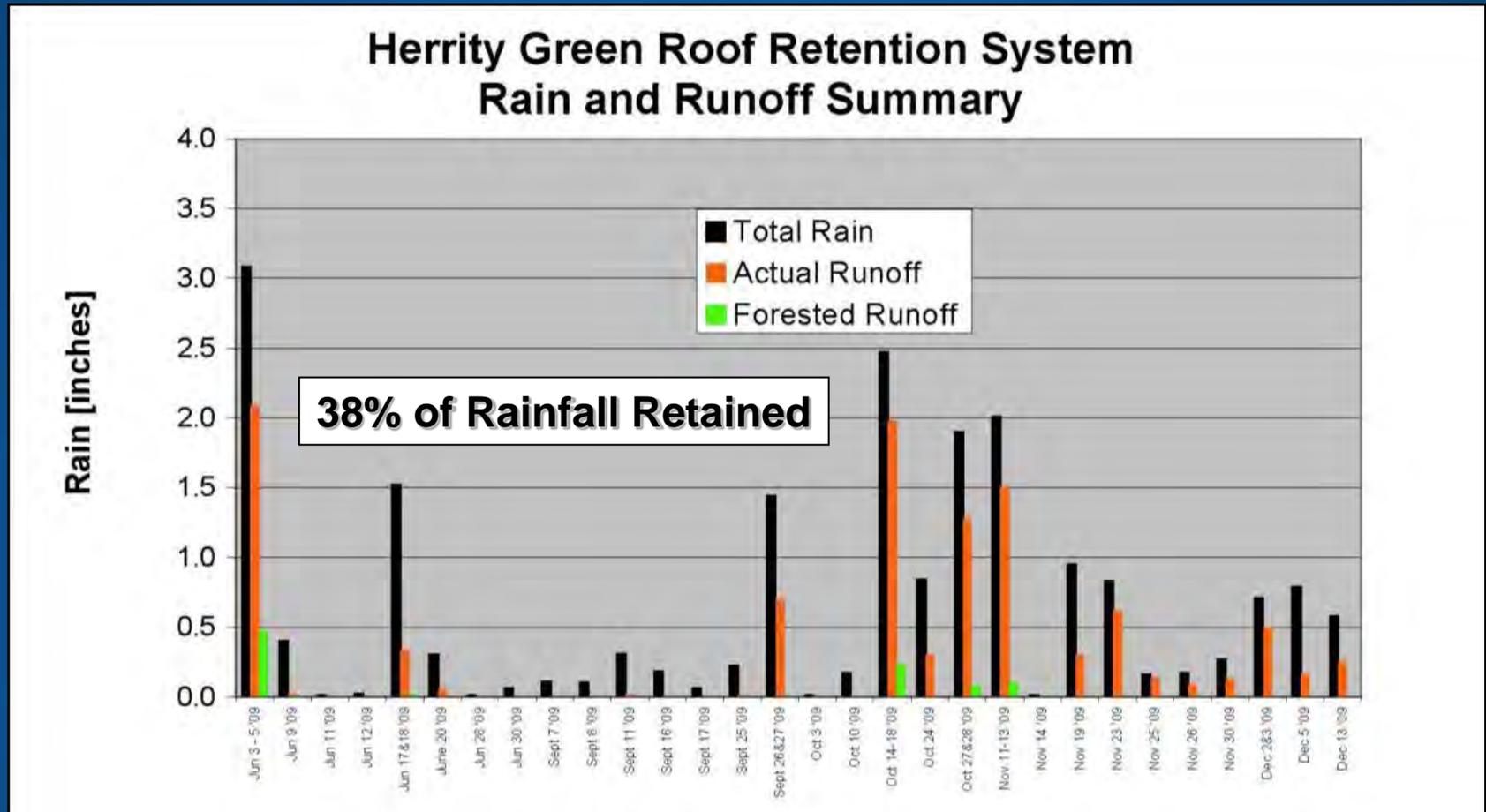
# Herrity Green Roof



**Runoff Reduction (cubic feet/year)**

**11,000**

# Herrity Green Roof Summary

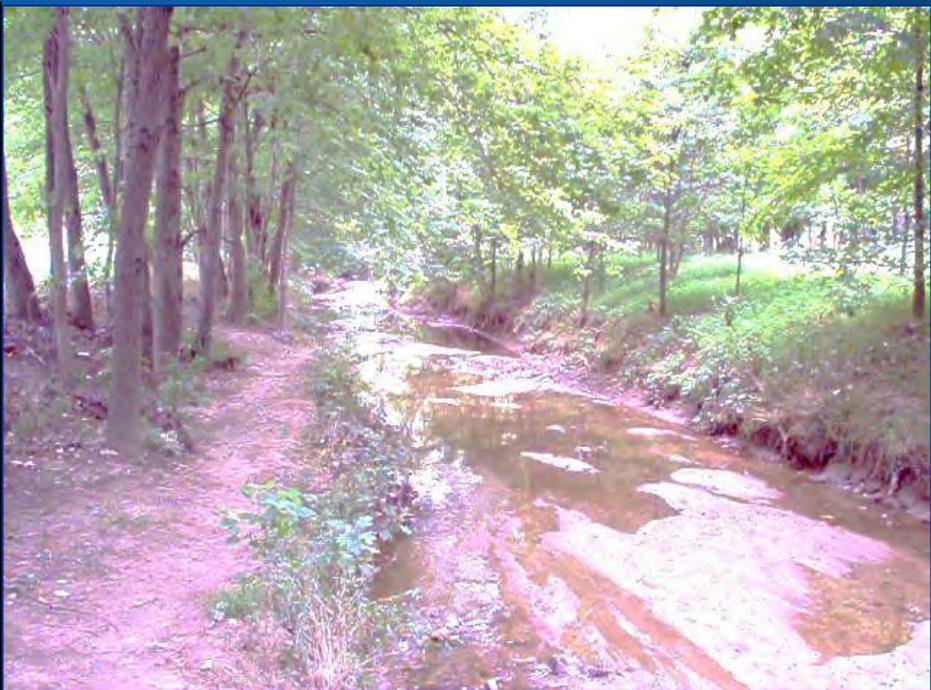


**Rainfall = 27.98 inches (32 events)**

**Actual Runoff = 17.37 inches**

# Debris Removal

Little Hunting Creek - Before & After



# Questions?

Stormwater Planning Division

703-324-5500, TTY 711

[www.fairfaxcounty.gov/dpwes/stormwater](http://www.fairfaxcounty.gov/dpwes/stormwater)

[www.fairfaxcounty.gov/dpwes/watersheds](http://www.fairfaxcounty.gov/dpwes/watersheds)

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