



Southport/Signal Hill HOAs Pohick Creek Tributary (PC9249) Stream Restoration

May 22, 2013

Fairfax County Department of Public Works and Environmental Services
Presented by Stormwater Planning Division



Agenda

Why?

- Program Drivers
- Pohick Creek Watershed Management Plan
 - Watershed Assessment and Characterization

How?

- Stream Restoration (PC9249)
- Approaches
- Examples
- Easements
- Design Development Process

When?

- Timeline/Next Steps



Why – Program Drivers?

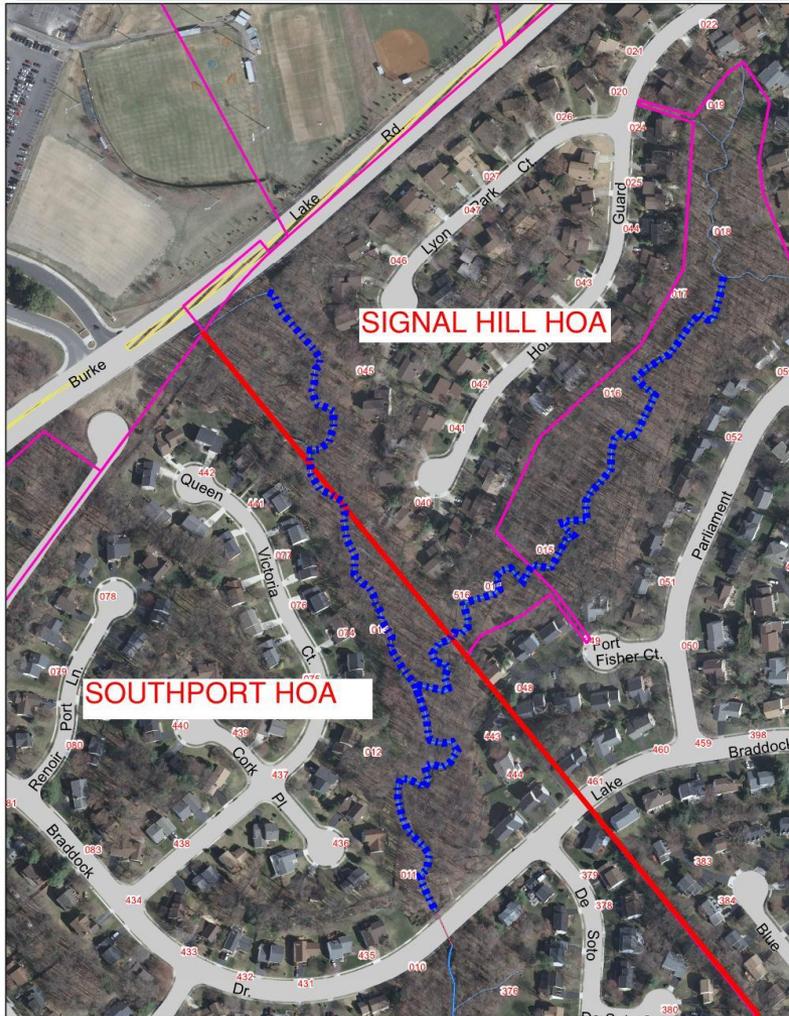
- **Stream Restoration:** Return physical and ecological functions of the stream to the maximum extent possible
- **Erosion Control**
- **Public Safety**
- **Improve Water Quality**
- **State and Federal Regulations**
 - **Chesapeake Bay Agreement**
 - Partnering states (VA, MD, DC, DE, PA, WV) signed the agreement to restore the bay health and ecosystem.
 - **Executive Order**
 - President Obama recognized bay as national treasure (May, 2009) and calls to restore the bay
 - **Municipal Separate Storm Sewer Permit (MS-4)**
 - Easements rights and responsibility to maintain/upgrade
 - **Total Maximum Daily Loads (TMDL)**
 - Regulates amounts of pollutants in waterways

Implementation Strategies (Fairfax County - 400 Sq. Mi.):

- **Watershed Management Plan**
 - Developed for 30 watersheds
 - Priority areas for retrofits/restoration



Proposed Project



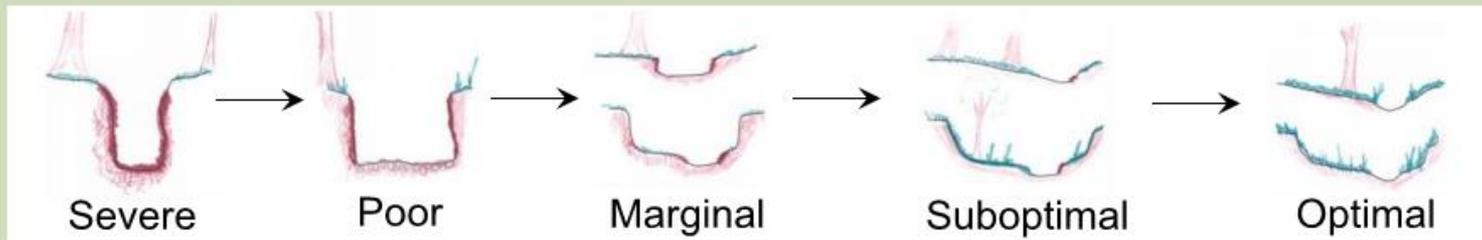
- ~ 3,353 LF of stream restoration
- Incised channel
- Eroded bed and banks

Project requires easements



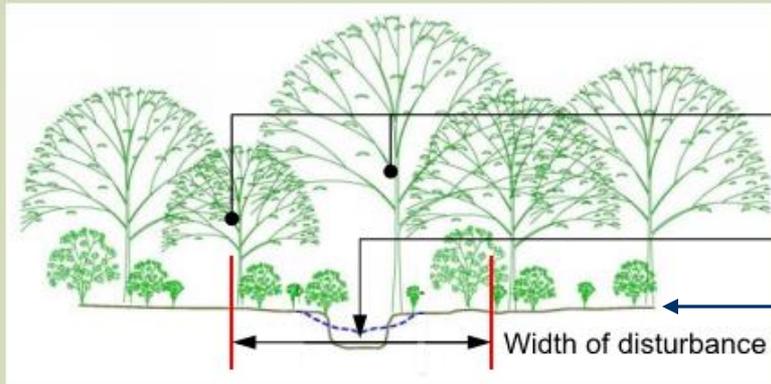
DESIGN METHODOLOGY FOR URBAN STREAMS - NATURAL CHANNEL EVOLUTION -

Evolutionary process considers the channel's incision, bank stability, & sedimentation load (aggrading or degrading)



RESTORATION APPROACHES

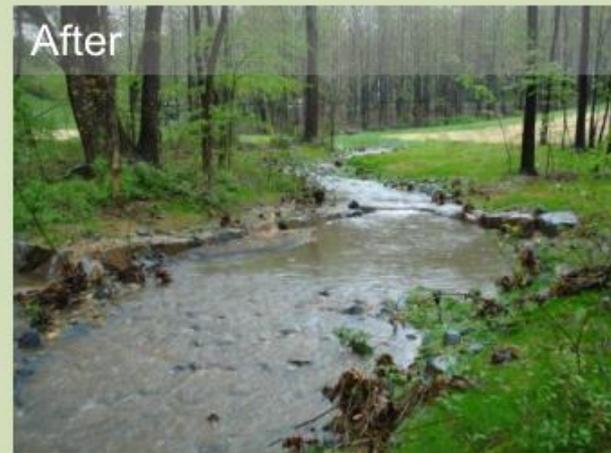
Priority 1 Restoration - Raise stream to reconnect with the floodplain.



Fewer trees removed

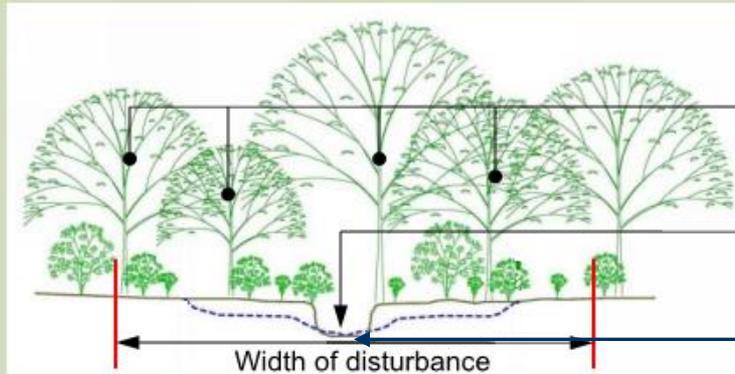
Balanced cut and fill volumes result in less waste

Keeps the floodplain at the same elevation



RESTORATION APPROACHES

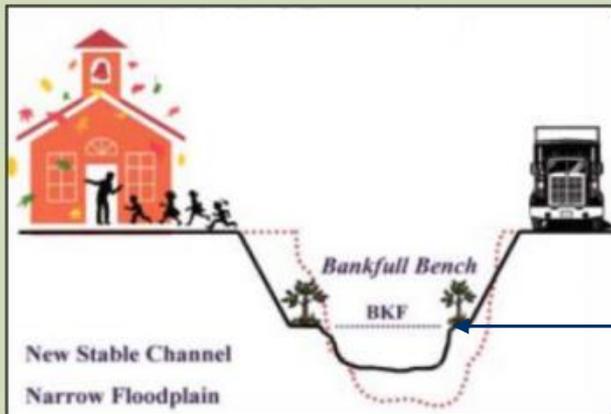
Priority 2 Restoration – Excavate floodplain at lower elevation.



Many trees removed

Large cut volumes result in waste material

Keeps the stream bed at the same elevation



Priority 3 Restoration – Confined stream valleys.

Keeps the Bankfull flow at the same elevation

RESTORATION APPROACHES

Priority 4 Restoration – Stabilize in-place



Snakeden Branch Reach 2
(2003, by others) –
Long-term stability not
achieved using this
approach.

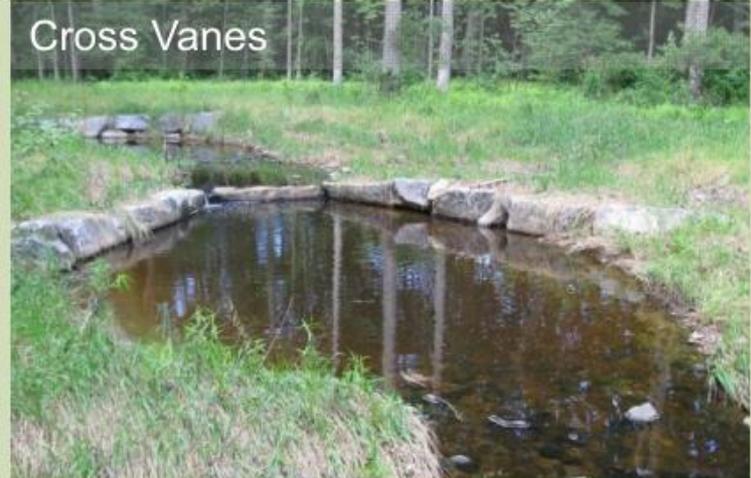


Design Elements

Step Pools



Cross Vanes



Reinforced Bed



Native Vegetation



Example Projects: Government Center Stream Restoration Before & After



Drainage Area (acres)	Phosphorous Removal (lbs/yr)	Nitrogen Removal (lbs/yr)	Sediment Removal (tons/yr)
150	10.7	202	1.6

Example Projects: Poplar Springs, Burke Before & After



Drainage Area (acres)	Phosphorous Removal (lbs/yr)	Nitrogen Removal (lbs/yr)	Sediment Removal (tons/yr)
230.4	7.5	141	1.25

Why - Easements?

- An easement allows the County and its contractors to:
 - Construct an improvement (restore the stream)
 - Maintain the improvement
- County Process
 - Title Search
 - Easement Instruments: **no modifications allowed to standard easements**
 - Easement plats: **Large enough to construct the project**
 - Recordation with the land records: **An easement is a legally enforceable use of the property.**



Land Rights Review

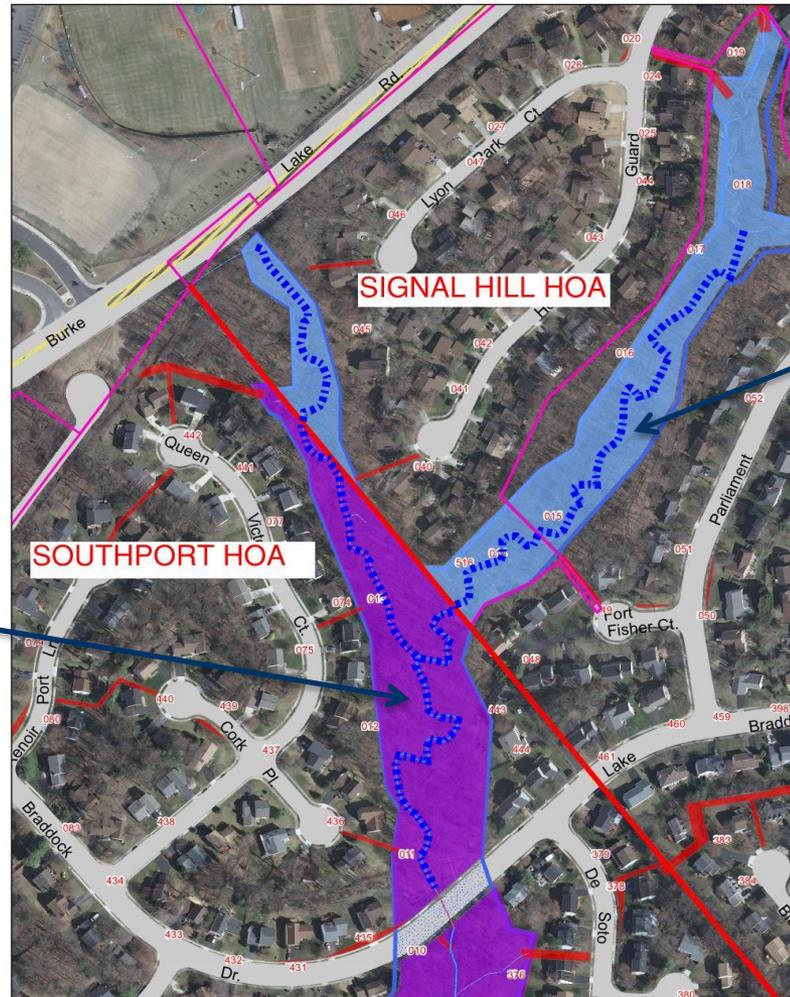
- Review of existing plats and easements
 - If adequate rights existing then a project can move into design
 - If adequate rights do not exist, then the county will requires a storm drainage easement

Storm Drainage Easements

- County needs to review community approval process:
 - Bye-laws
 - Articles of incorporation
 - Covenants
- Community leaders to coordinate for responses
- If certain majority required, HOA is responsible to hold a vote - county can help HOA by attending meeting, providing background information and example work
- **The county will initiate easement acquisition only when adequate property owner support has been determined.**



Easements (Existing)



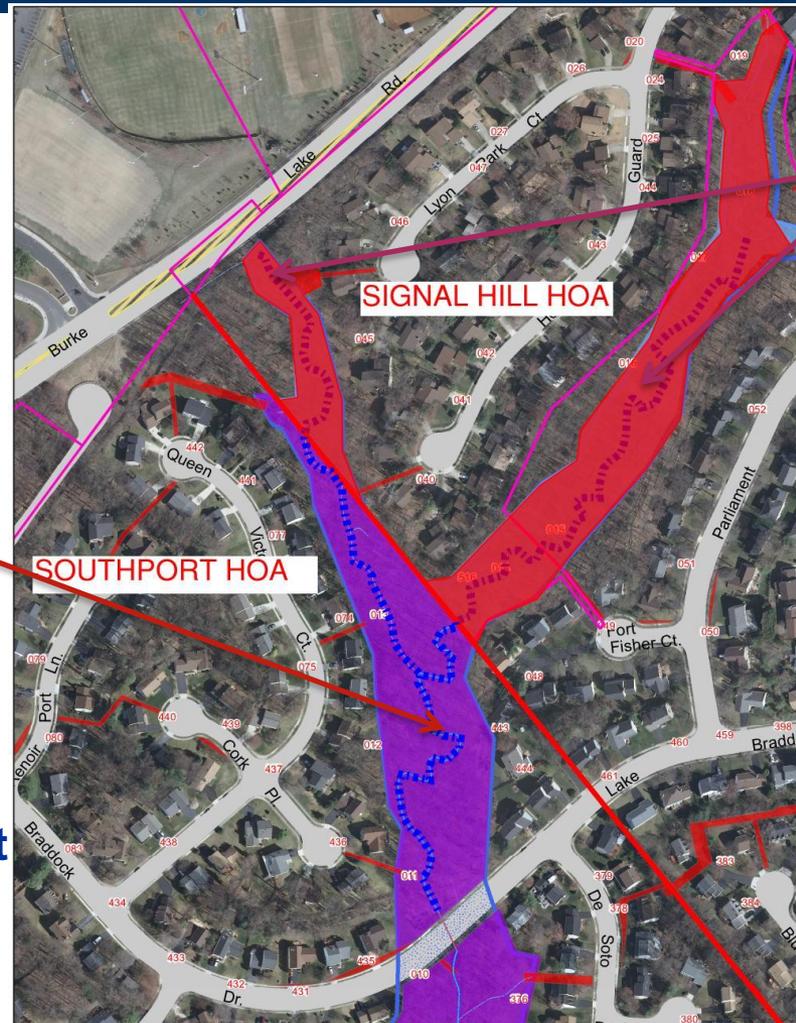
**Existing
Flood Plain
Easement**

**Existing
Flood Plain &
Storm
Drainage
Easement**



Easements (Proposed)

Existing/Proposed Flood Plain & Storm Drainage Easement (These easements could be larger depending on design situation but not smaller)



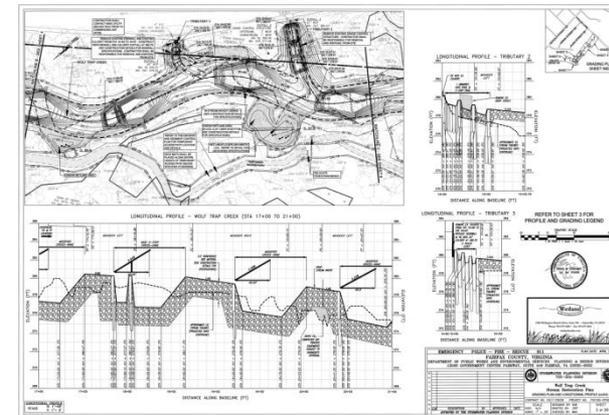
Proposed Flood Plain & Storm Drainage Easement (These easements could be larger depending on design situation but not smaller)



Design Development Process: Community Participation

Objective: Establish a partnership between Fairfax County staff and the Communities.

- Community involvement at the Pre-design, Concept, Preliminary, and 95% Final design phases.
 - one or 2 volunteers who could participate in the design process and bring back to community for sharing
- Community meetings
 - Design Review meeting
 - Discussion and feedback
- Construction Access
- Pre-Construction meeting
- Involvement during construction



Next Steps

Pohick Creek Tributary (PC9249) Stream Stabilization:

- Authorization of Southport HOA
- Authorization of Signal Hill HOA
- Southport HOA by-laws and covenant documents for the County to review
- Signal Hill HOA by-laws and covenant documents for the County to review
- County to review and formally start the easement process
- Design/Permitting/Construction: TBD

Min. 6 mos.

Contingent on easements





Contact Information

Sajan Pokharel – Project Manager

703-324-5687

sajan.pokharel@fairfaxcounty.gov

Shannon Curtis – Watershed Manager

703-324-5811

shannon.curtis@fairfaxcounty.gov

Fairfax County Stormwater Planning Division

703-324-5500 TTY 711

12000 Government Center Parkway, Suite 449

Fairfax, Virginia 22035

www.fairfaxcounty.gov/dpwes/stormwater

To request this information in an alternate format call 703-324-5500, TTY 711

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