



Stream Restoration Project on Unnamed Tributary of Accotink Creek

Keith Ave. east to Chain Bridge Rd. bridge

March 22, 2017



Stream Restoration

Stream restoration is the re-establishment of the general structure, function and self-sustaining behavior of a stream system.

Stream Restoration includes a broad range of measures including:

- Removal of the watershed disturbances that are causing the stream to become unstable.
- Installation of structures and vegetation to protect streambanks and provide habitat
- Reshaping or replacement of unstable stream reaches into functional streams

Benefits of Stream Restoration

- Add aesthetic improvements to the stream banks and private property (backyards)
- Protect and preserve natural floodplains by reducing flooding to structures in the area
- Decrease the velocity of the water which will prevent future erosion of personal property
- Improve and maintain a healthy habitat for aquatic plants and animals
- Improve water quality by reducing sediment, nitrogen, phosphorus and other pollutant loads
 - City will receive pollutant removal credits towards the allocated Total Maximum Daily Loads (TMDL) assigned to the City streams and creeks

Project Background

- Location: Keith Ave east to the Chain Bridge Rd. bridge. The neighborhoods impacted are Taba Cove, Rustfield and residents along Springmann Dr. and Center St.
- The 2008 Accotink Creek Stream Stability Assessment and Prioritization Plan listed this stretch under the Bank Erosion Hazard Index (BEHI) as Extreme.
- City was awarded a \$1.3 million matching Stormwater Local Assistance Fund (SLAF) Grant in 2014 from the Department of Environmental Quality (DEQ) for this project.
 - Grant applied for after Oak St. drainage improvements projects were in concept phase to complete the run from Route 50 to Route 123.

Existing Conditions of the Stream



Severe eroding has caused property line barriers to begin to collapse and fall into the stream. Continuous unstable erosion will lead to loss of private property.

Existing Conditions of the Stream



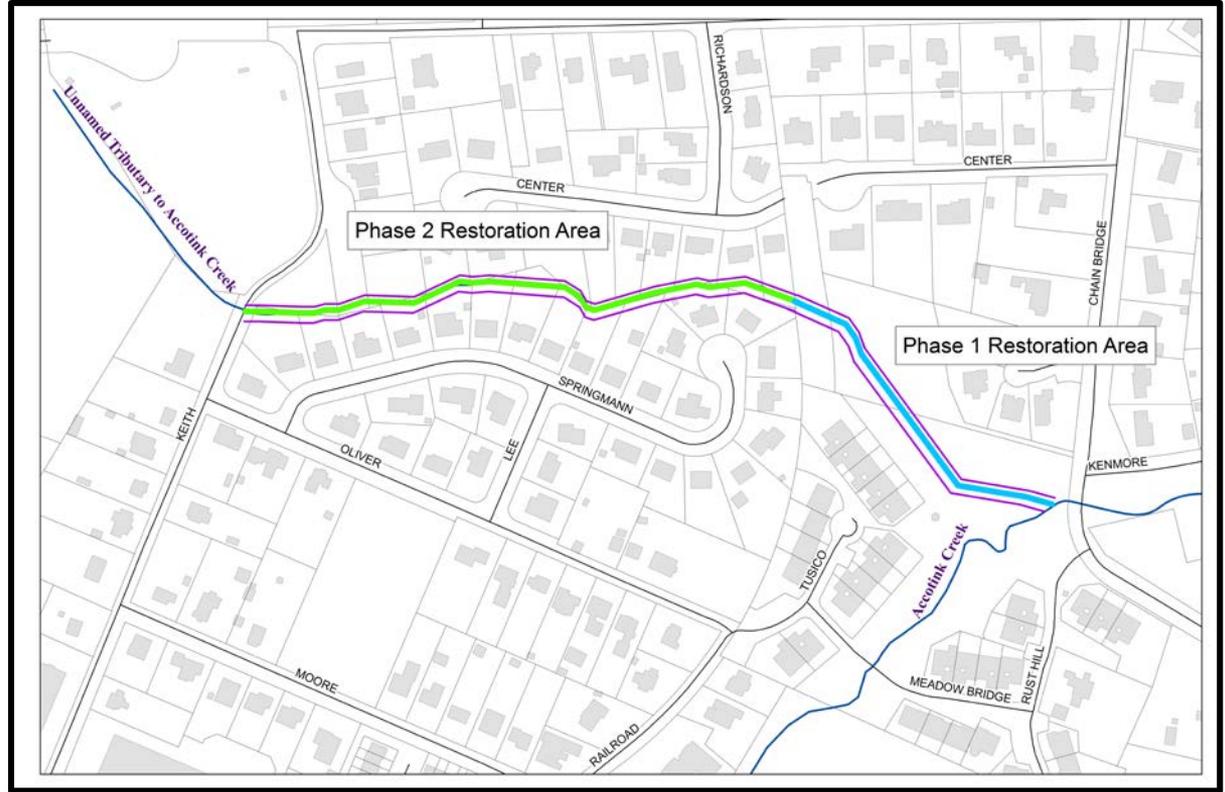
Tree roots are exposed where the stream is eroding, making trees and associated stream banks unstable and dangerous.

Project Impacts

- In-stream construction
- Construction equipment entering the project limits
- Removal of existing vegetation and trees in project area
 - Replanting of trees and native vegetation included in project scope
- Letters of permission from property owners will be required
- Estimated Construction Timeframe: 6 months

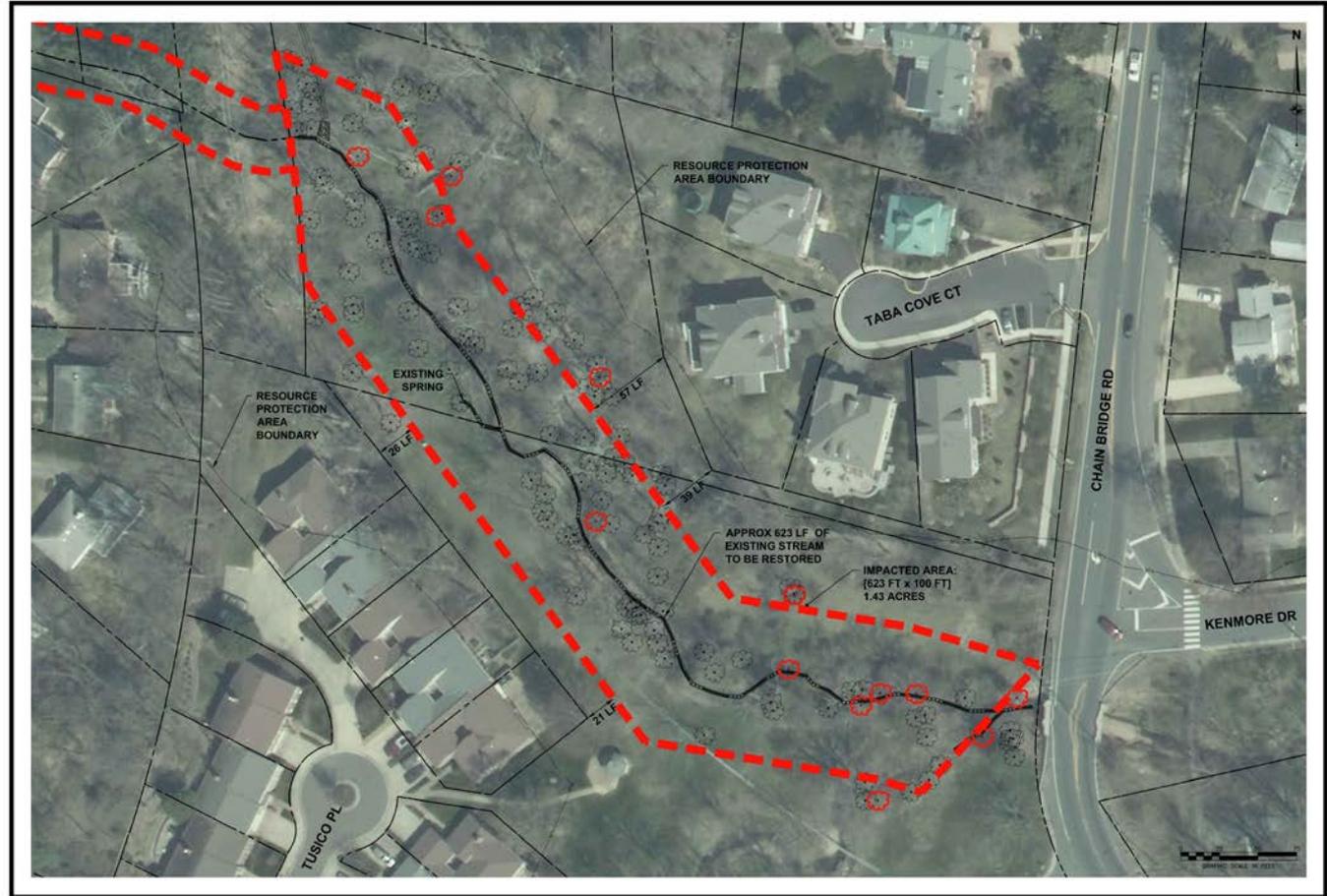
Phase I Project Scope

Approximately 600 linear feet of full restoration of the downstream section from the Chain Bridge Rd. bridge west along the Rustfield and Taba Cove neighborhood property lines (Blue)



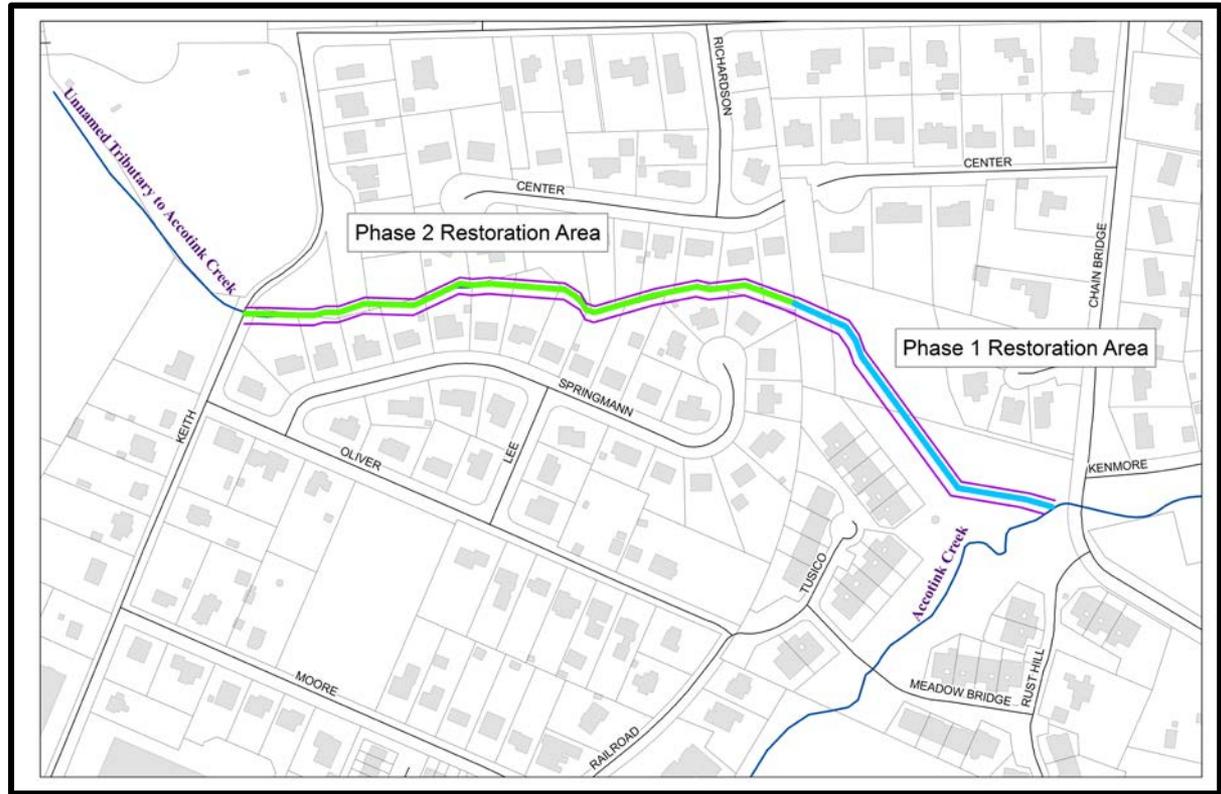
Impacts of Phase I

- Approx. 600 linear ft
- Approx. 100 ft wide project area
- Approx. 60,000 SF of private property
- Close proximity of 9 homes
- Approx. 56 trees to be removed



Phase II Project Scope

Approximately 1,300 linear feet of full restoration upstream from Phase I, west behind the residential homes located along Springmann Dr. and Center St., to Keith Ave. (Green)



Impacts of Phase II

- Approx. 1,300 linear ft
- Approx. 40 ft wide project area
- Approx. 52,000 SF of private property
- Close proximity of 26 homes
- Approx. 65 trees to be removed within project limits



Project Cost

- Total estimated cost of \$1.3 million
 - Includes engineering and construction costs
 - Funding Breakdown
 - \$650,000 SLAF grant
 - \$650,000 from Stormwater Fund
 - FY 16 = \$200,000
 - FY 17 = \$125,000
 - FY 18 = \$325,000 **in proposed budget**
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- Total = \$650,000

Example: Daniels Run Stream Restoration... Before and After



Daniels Run Stream Restoration... Before and After



Example: Snakeden Branch Reston, VA



Before



After

Note: After Photo was taken 1.5 years after construction ended.

Conceptual Cross Sections of the Stream



Existing Cross Section of Stream



Proposed Cross Section of Stream

Next Steps

- Receive letters of permission from owners on required parcels
- Develop engineering plans
- Receive bids and award a contractor the project
- Start Construction

QUESTIONS?
