


City of Alexandria, Virginia

Four Mile Run Restoration Project

Plan B

April 2014



Background of Four Mile Run



- Watershed Area is Approximately 20 square miles.
- During the 1960s and 1970s, Four Mile Run was subjected to multiple significant flooding events as the watershed became more urbanized.
- In 1974, Congress authorized the United States Army Corps of Engineers (USACE) to design and construct a flood control channel that would contain the increased flows from the watershed determined by USACE.
- Conditions of the federal project were cost sharing and maintenance agreements from Alexandria and Arlington County.

Four Mile Run Master Plan

- In 2000, the City teamed with Arlington County and the Northern Virginia Regional Commission (NRVC) to explore the stream's water quality and recreation potentials.
- Formal study was proposed to assess engineered modifications to the channel to improve water quality without decreasing **flood control capacity**. US Army Corps of Engineers (USACE) partnered with team to conduct a feasibility study on an alluvial restoration plan.
- US Congressman Moran sought allocation through EPA of \$1M for development of the Four Mile Run Master Plan, completed and adopted by City Council in 2006. The plan had significant community support from both Arlington and Alexandria residents.



Four Mile Run Restoration Master Plan

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Four Mile Run Master Plan Design and Capacity

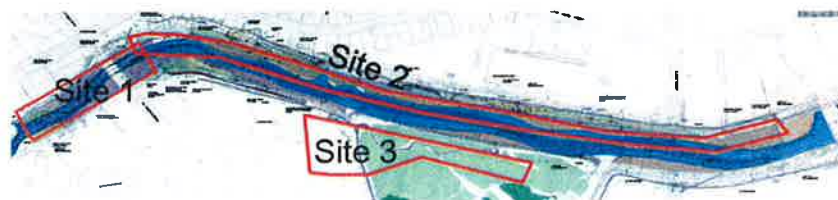
- In 2008, NVRC, Arlington County and Alexandria received a Federal State and Tribal Grant (STAG) matched with local funding for the design and construction of the "Demonstration Project" for stream enhancements from Mt. Vernon Ave to Route-1. Combined, the jurisdictions have approximately \$6 million for the project.
- From 2008 to 2011 the in-stream restoration project proceeded and reached 90% design. The project would have restored in-stream habitat of Four Mile Run and re-introduced tidal wetlands, based upon newly modeled flow, in conjunction with USACE.
- Since Hurricane Katrina, the USACE began stricter implementation of policies, related to flood control structures which effects federally sponsored projects included in the Flood Control and Coastal Emergency Act (PL 84-99).
- Under these policies, the Four Mile Run Restoration Project, was required to meet Authorized Capacity of PL 84-99 by the USACE Baltimore District Levee Safety Section. **The USACE informed the jurisdictions of this new requirement in 2011.**

Four Mile Run Tidal Restoration Design Capacity Issues

- The Original Tidal Restoration project cannot carry the Authorized Capacity
- Based upon the new USACE interpretations of the regulations, if the Tidal Restoration Project were to move forward as designed, City/County would have to forego participation in the USACE Flood Control Program (PL 84-99).
- After two attempts for congressional reauthorization in 2012, it has been determined that changing the Authorized Capacity to reflect current methodology (reduced peak flows) through Congress is not feasible***.
- A meeting with the EPA in December 2012, determined that STAG grants could be used for a re-design of the project, provided that the funds are used towards ecological and water quality improvements within the Four Mile Run Watershed
- Funds must be used by September 30, 2015

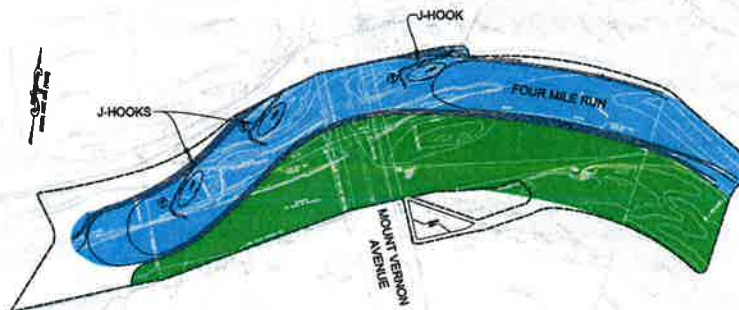
Four Mile Run Tidal Restoration Plan B- Sites 1, 2, 3

- Naturalize the banks along the corridor and improved access to the stream through overlooks and terracing
- Minimize sediment flow by capturing it in accessible area (Site 1)
- Replace rip-rap with vegetation and improve access on Arlington side (Site 2)
- Establish historical tidal wetland condition in Four Mile Run Park (Site 3)



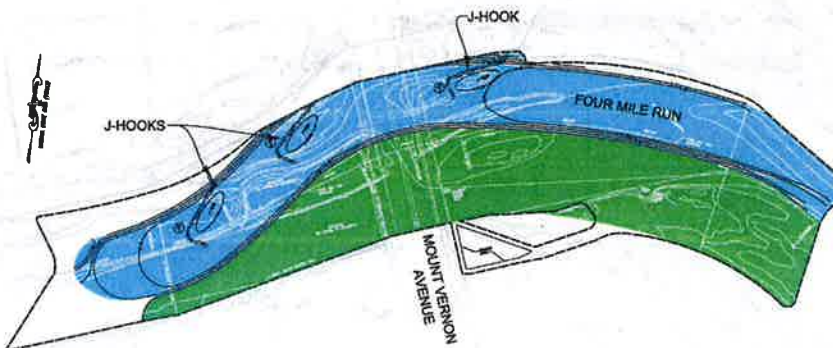
Four Mile Run Tidal Restoration Plan B- Site 1

- Create Natural Channel Size and Geometry to create deposition bar for sediment accumulation and ease of future maintenance of flood capacity.



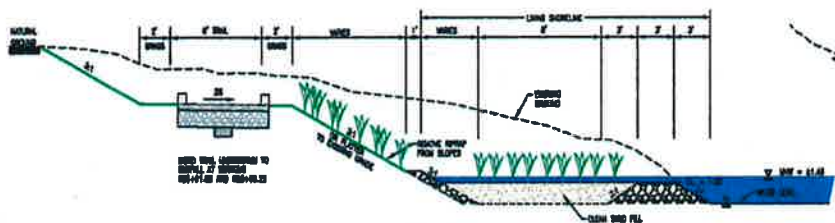
Four Mile Run Tidal Restoration Plan B- Site 1

- Construction Phase 1- Divert Flows along South. Grade and install J-hooks to the North



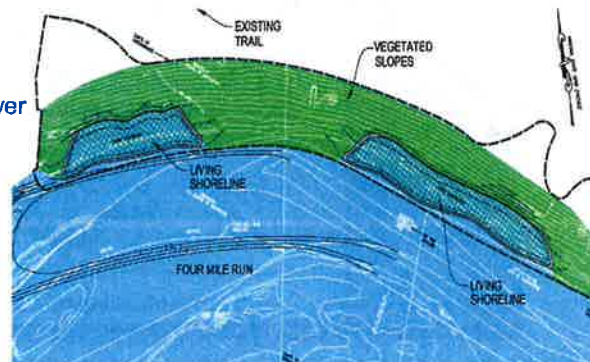
Four Mile Run Tidal Restoration Plan B- Site 2

- Naturalize the Arlington County Banks
- Recycle some of the riprap with use on the living shorelines
- Remove the riprap along slopes

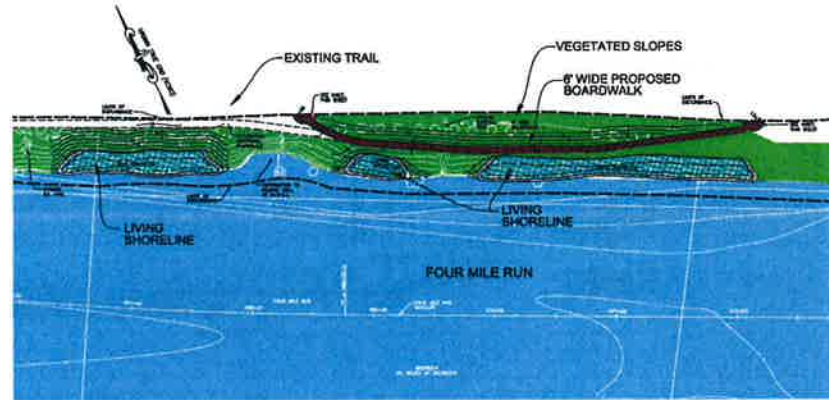


Four Mile Run Tidal Restoration Plan B- Site 2

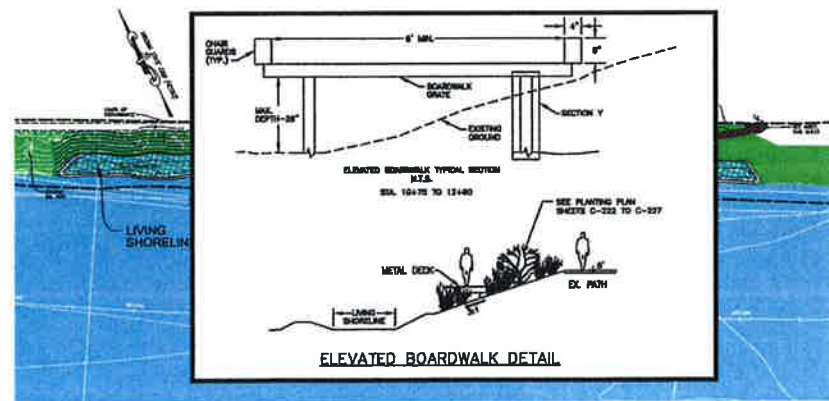
- Naturalize the Arlington County Banks
- Recycle some of the riprap with use on the living shorelines
- Construct an informal boardwalk type trail on lower end
- Remove the riprap along slopes



Four Mile Run Tidal Restoration Plan B- Site 2

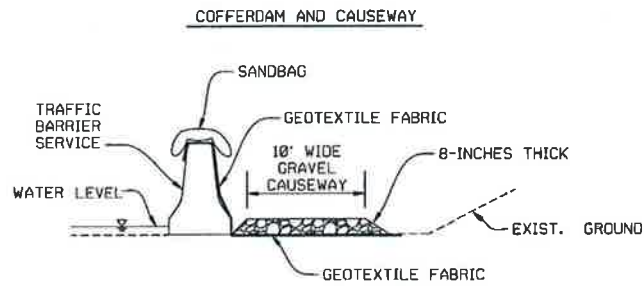


Four Mile Run Tidal Restoration Plan B- Site 2



Four Mile Run Tidal Restoration Plan B- Site 2

- Construction Approach



Four Mile Run Tidal Restoration Plan B- Site 3

- Historic Tidal Wetland Restoration

USGS 1945 Conditions



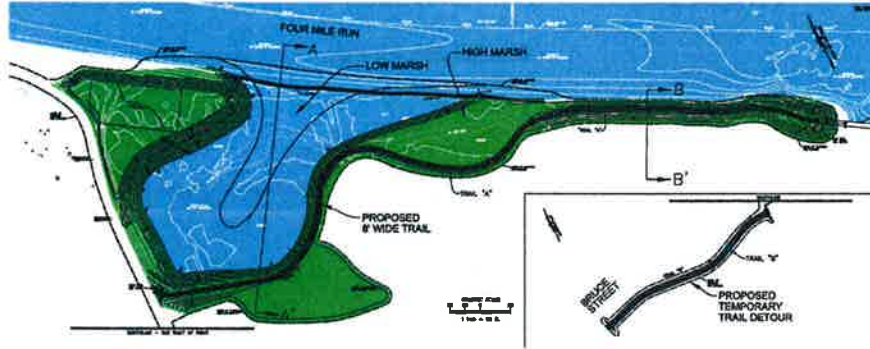
2014 Conditions



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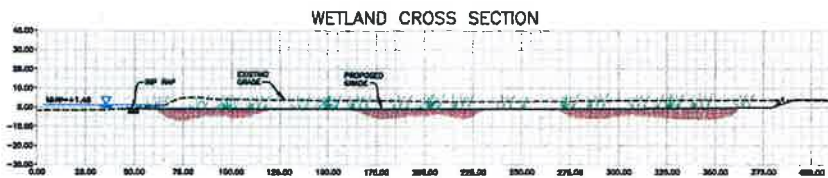
Four Mile Run Tidal Restoration Plan B- Site 3

- Historic Tidal Wetland Restoration- Plan



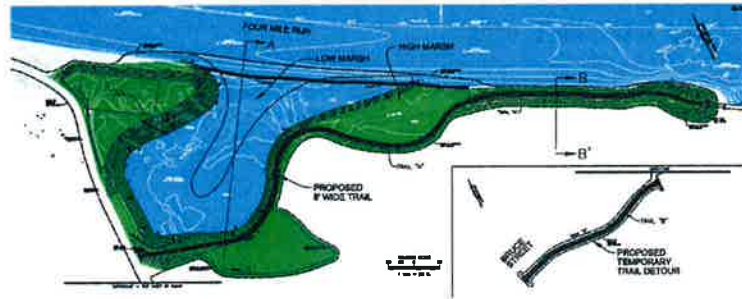
Four Mile Run Tidal Restoration Plan B- Site 3

- Historic Tidal Wetland Restoration- Wetland Typical



Four Mile Run Tidal Restoration Plan B- Site 3

- Historic Tidal Wetland Restoration- Plan
 - Wetland Shape & Size Driven By:
 - Minimize impact to existing wetlands
 - Contaminated Soils found on site



Timeline for STAG project (as of 4/23/14)

July 2013– May 2014: Design of Sites 1, 2, 3

May 2014: Complete 100% Design & Specifications for Sites 1, 2, 3

July 2014: Complete Permitting -Joint Permit Application (JPA-DEQ/USACE/VMRC), Coastal Zone Consistency Certification, Local VSMP, Local WQIA

August 2014: Arlington Site 1 & Site 2 Complete Procurement

July 2014: Alexandria Site 3 Complete Procurement

Late Summer/Early Fall 2014: Construction Advertisement & Award

Fall 2014: Begin construction

September 2015: Project complete and Invoices Paid in Full

