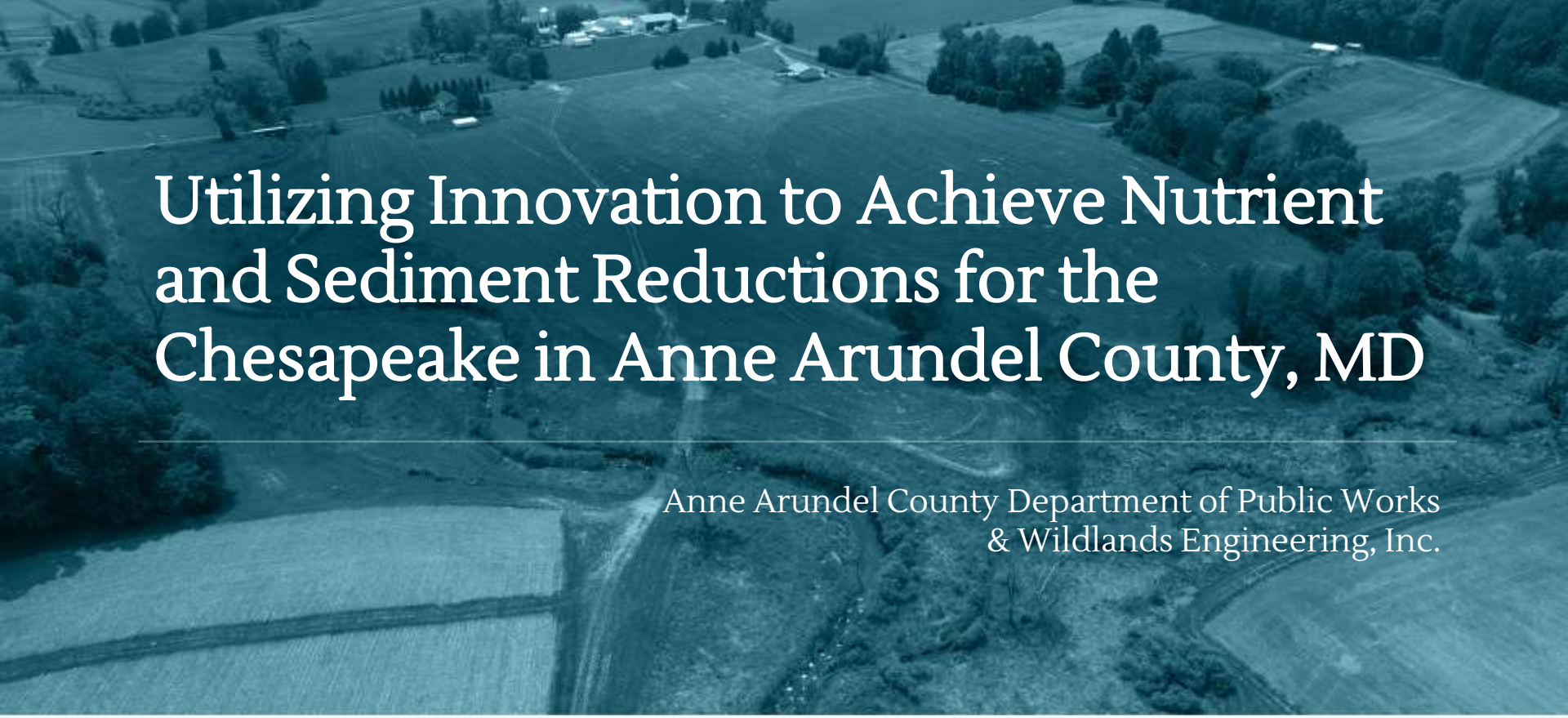

Utilizing Innovation to Achieve Nutrient and Sediment Reductions for the Chesapeake in Anne Arundel County, MD

Anne Arundel County Department of Public Works
& Wildlands Engineering, Inc.

ANNE ARUNDEL COUNTY MARYLAND

WILDLANDS ENGINEERING

DPW & YOU

Anne Arundel County Bureau of Watershed Protection & Restoration

Pay for Performance Contract Mechanisms for Stormwater Management

Fishing Creek Farms Living Shoreline

Before Construction – December 2018

Immediately After Construction – October 2020

197 – Septic to Sewer

Heritage Harbor Stream & Wetland

Holly Beach Farm Living Shoreline

Kyle Point Living Shoreline

Costs Per Acre Treated

Practice	Cost per Acre Treated
Bioretention retrofits	~$200k
Stormwater pond retrofits	~$75k
Stream restoration	~$50k
Full-Delivery award, Cycle 1	~$16k
Full-Delivery award, Cycle 2	~$15k
Full-Delivery award, Cycle 3	~$21k
Full-Delivery award, Cycle 4	~$26k
Full-Delivery award, Cycle 5	~$12k
Full-Delivery award, Cycle 6	~$9k
Full-Delivery award, Cycle 7	<$5k

Treated acres provided through the Full-Delivery award:

Cycle 1: ~131 for $2.1M
Cycle 2: ~113 for $1.7M
Cycle 3: ~255 for $5.4M
Cycle 4: ~115 for $3M
Cycle 5: ~137 for $1.6M
Cycle 6: ~219 for $2M
Cycle 7: ~412 for $2M

Pros of the Full-Delivery Approach

- The ability to engage manageable components of a program at a time (as opposed to committing all program resources in a single direction at one point in time).
- Scalable based on success (or failure).
- Outsources virtually all risk to the bidder (loss of time is primary risk to solicitor).
- A viable strategy to drive down costs - if credit generating activity is sufficiently broad - and deliver projects much more quickly.
- Shakes up markets which may have otherwise become complacent.

Wildland Engineering's Marylea Farm Full-Delivery Stream Restoration Project, Harford, MD

Cons of the Full-Delivery Approach

- Potential loss of design control.
- Crediting “looseness” can result in “lowest common denominator” work unless technical review is sufficiently rigorous.
- May take multiple iterations to identify a very refined solicitation (but you can learn from others!)

Wildland Engineering’s
Marylea Farm Full-Delivery Stream Restoration Project, Harford, MD

Hall Creek Stream Restoration Site

- Full-delivery contract
- Provide pollutant (nitrogen, phosphorus, and sediment) reductions and equivalent impervious acres treated

Hall Creek Stream Restoration Site

Existing Site Conditions

Hall Creek Stream Restoration Site

Credits Generated

- The Site provided 137 equivalent impervious acres treated through the following measures:
  - 1,832 LF of stream restoration
  - 702 LF of zero-order stream restoration
  - 133 LF of stream enhancement
  - 318 LF of stream preservation

Hall Creek Stream Restoration Site

Project Timeline

Project Milestone	Completion Date
Project Contracted	March 2021
Existing Conditions Assessment	May 2021
Permits Obtained	November 2022
Construction Completed	April 2023
As-Built Drawings and Report	July 2023

Questions?

Erik Michelsen

Deputy Director, Bureau of Watershed Protection & Restoration & Senior Environmental Policy Advisor

pwmich20@aacounty.org
aarivers.org

ANNE ARUNDEL COUNTY
MARYLAND

Abigail Vieira, PE

Water Resources Engineer

avieira@wildlandseng.com
wildlandseng.com

WILDLANDS
ENGINEERING