



Windmill Hill Park Shoreline Rehabilitation

Environmental Policy Commission May 18, 2015

Waterfront Commission May 19, 2015

Park & Recreation Commission May 21, 2015

Project Location



Project Area





Why We Are Here

- Changes in Best Practices
- Evolving permitting environment
- **Recommended Concept Plan**

Project Phases & Work Scopes

WE ARE HERE NOW

- Concept Development
- Public Engagement
- 30% Design

Phase I
(2014/15)

- Construction Plans, Specifications, and Estimates

Phase II
(2015/16)

- Construction

Phase III
(2016/17)



Community Meeting 1 & 2

SUMMARY

Summary of Meetings

- Meeting #1
- Project Overview, Review of Approved 2003 Concept and Replacement Opportunities, Community Input

- Meeting #2
- Presentation of Three Concepts, Community Input

Overview of Feedback

- Safety important
- Move the project forward now
- Create a safe, stable, and manageable shoreline
- Respond to the changed environment of the basin
- Provide access along and to the water
- Be mindful of cost



CURRENT CONDITIONS





PERMITTING CONSIDERATIONS

Permitting Considerations

- Two principle agencies in permitting discussions – NOAA & Army Corps of Engineers
- Both interested in habitat creation
 - NOAA more interested in fishery – support for SAV
 - ACOE focus on living shoreline
- Both agencies significantly concerned with structural bulkhead
- Neither agency supports filling the basin

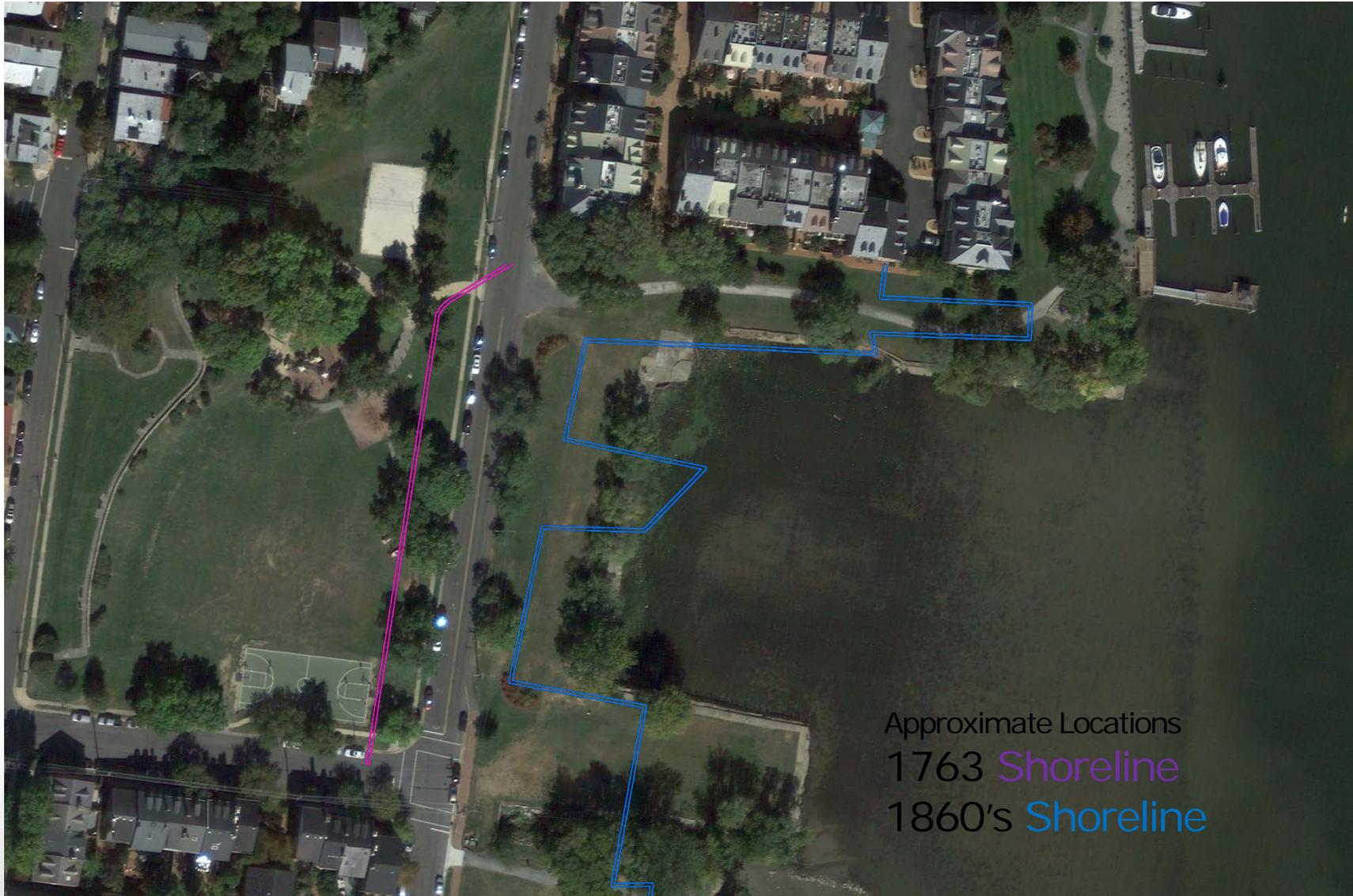
Sub Aquatic Vegetation (SAV)

Site Location Map and Permitting Constraints

- SAV Bed (Source: VIMS)
- Park
- Stream



Historic Shoreline



Approximate Locations
1763 Shoreline
1860's Shoreline



Windmill Hill Park Shoreline Rehabilitation

CONCEPTS

Proposed Budget

- \$5.5 million for shoreline improvements (design & construction)
- \$500,000 for other planned park elements

Design Options - Examples



Structural Bulkhead



Living Shoreline



Rip-Rap/Armored Shoreline

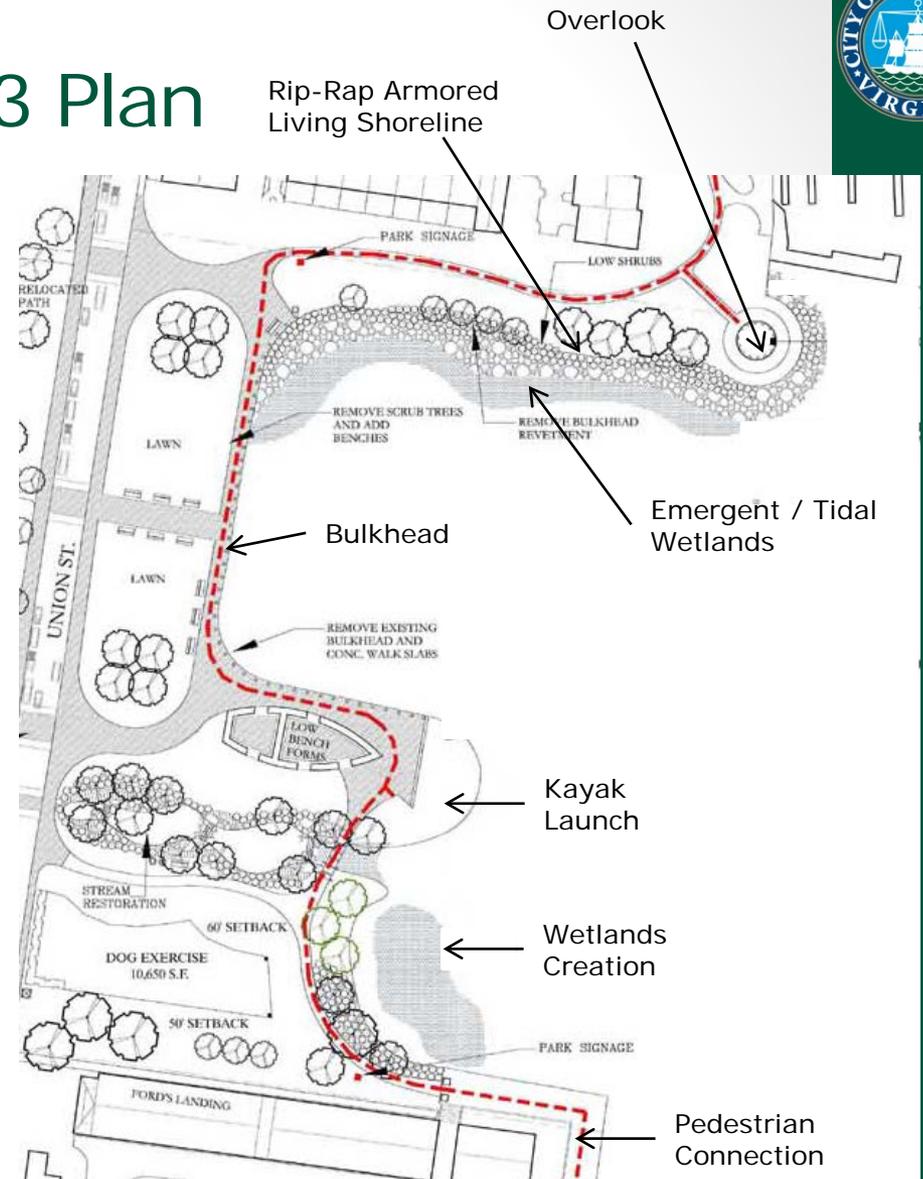


Bulkhead/Living Shoreline Hybrid

History: Approved 2003 Plan

City Council Approved Concept Plan (2003)

- Recommended combination approach
- Accommodation for canoes/kayaks and dogs
- Included overlook accommodation



Shoreline Rehabilitation Concepts

- Concept 1: Modernized 2003 Plan
- Concept 2: Hybrid/Living Shoreline Plan
- Concept 3: Living Shoreline Plan

Modernized 2003 Plan



Hybrid/Living Shoreline Plan



Living Shoreline Plan



- \$4.9 million
- Longer permitting timeline
- Greater construction complexity
- Most need for mitigation

- \$5.9 million
- Moderate permitting timeline
- Complex construction
- Some need for mitigation

- \$3.8 million
- Shortest permitting timeline
- Least complex construction
- Least need for mitigation

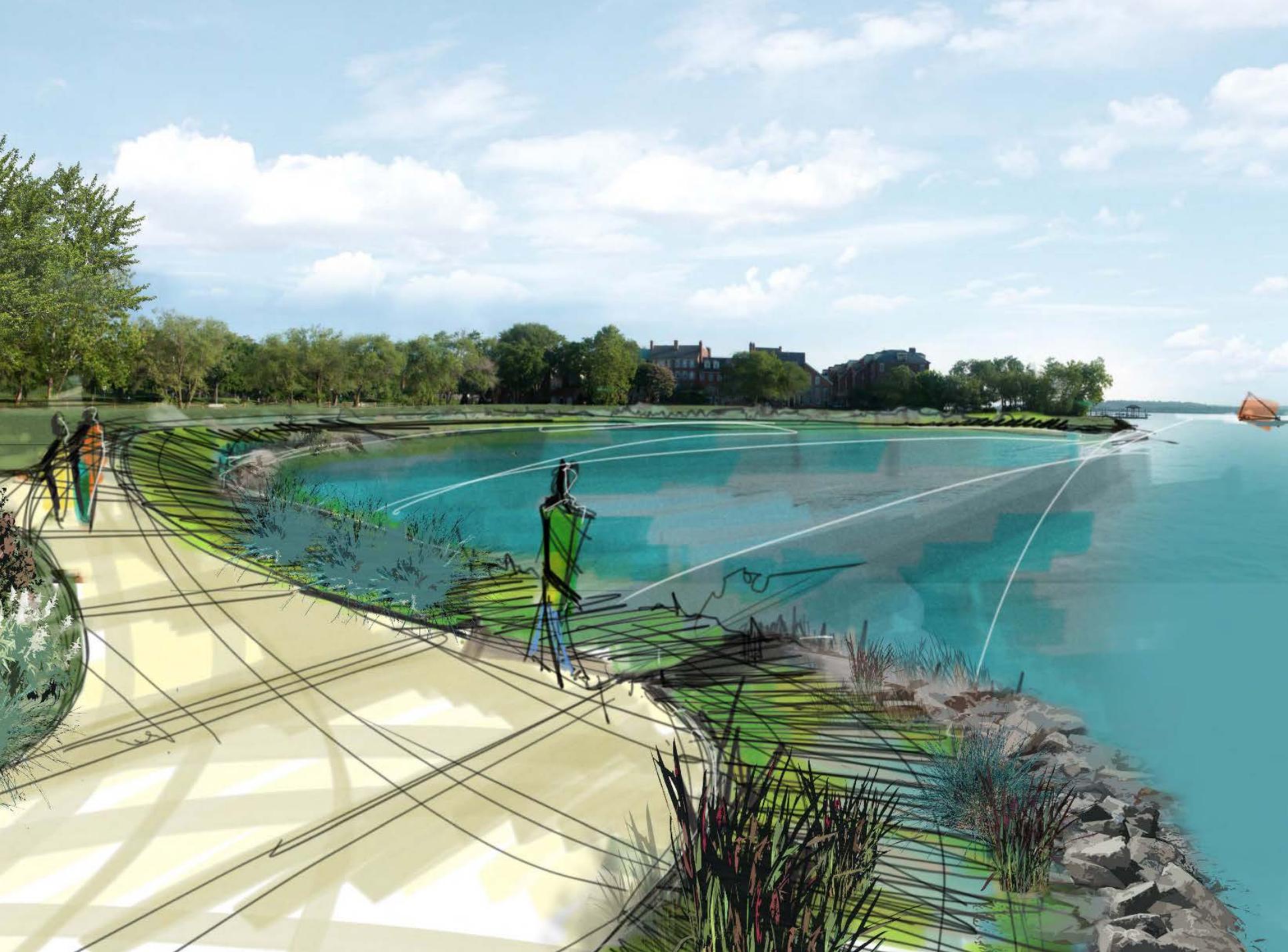
Recommended Concept

- Concept 3: Living shoreline
 - Best meets community expressed priorities
 - Lowest capital cost
 - Shortest permitting timeline
 - Least complex construction

Concept 3 Living Shoreline



- \$3.8 million
- Shortest permitting timeline
- Least complex construction
- Least need for mitigation



Concept 3 Living Shoreline



Shoreline Design Options

Additional design options based on budget:

- Pier
- Boardwalk
- Boardwalk + Pier

Additional Design Options

Pier



Boardwalk

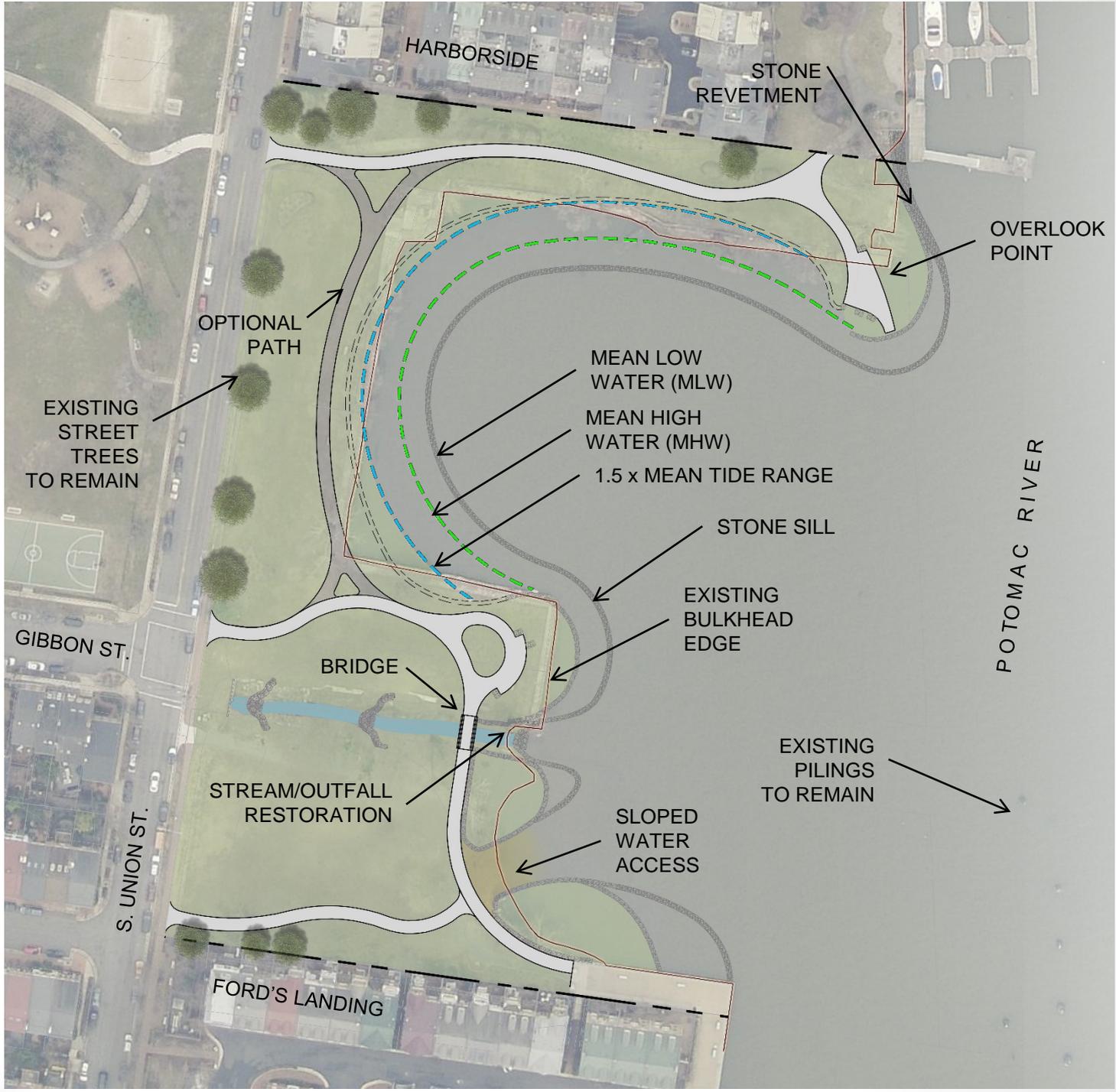


Both



- Varied interest was expressed resulting in an a split of opinion in favor of either a pier component or none at all.
- The Pier and Boardwalk combination option was not supported as an additional component to the project.
- Other water access options were discussed including stepping stones, natural path, and boardwalk over stone sill.











POTOMAC RIVER

HARBORSIDE

GIBBON ST.

S. UNION ST.

FORD'S LANDING

ADDITIONAL RIPARIAN PLANTINGS

STREAM RESTORATION

BUFFER





HARBORSIDE

FORD'S LANDING

GIBBON ST.

S. UNION ST.

POTOMAC RIVER

OPTIONAL BOARDWALK OVER SILL



HARBORSIDE

GIBBON ST.

S. UNION ST.

FORD'S LANDING

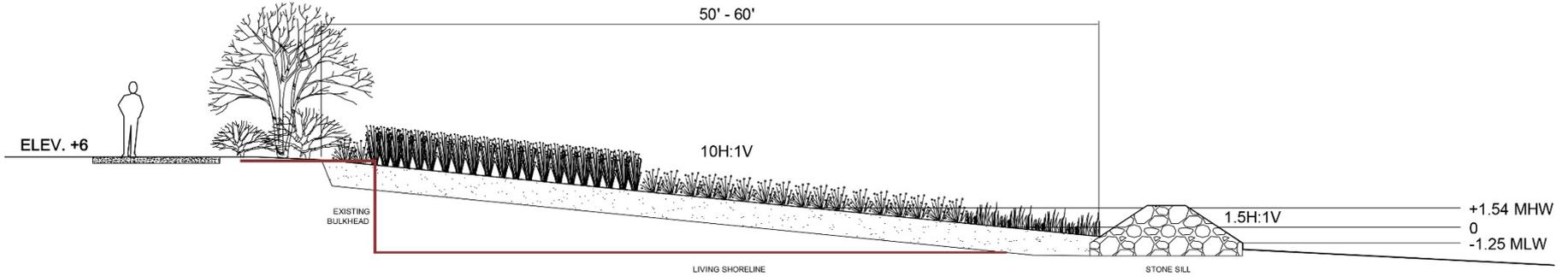
POTOMAC RIVER

OPTIONAL
OVERLOOKS

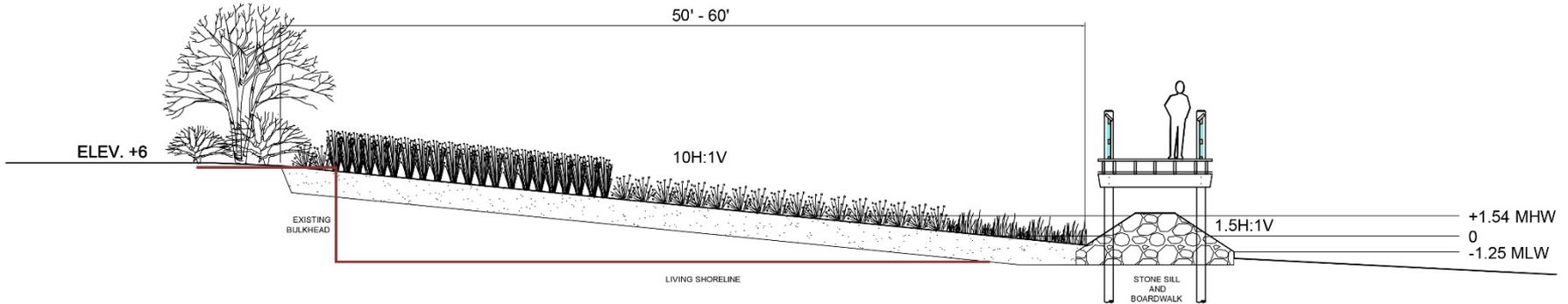




Concept 3 Sections

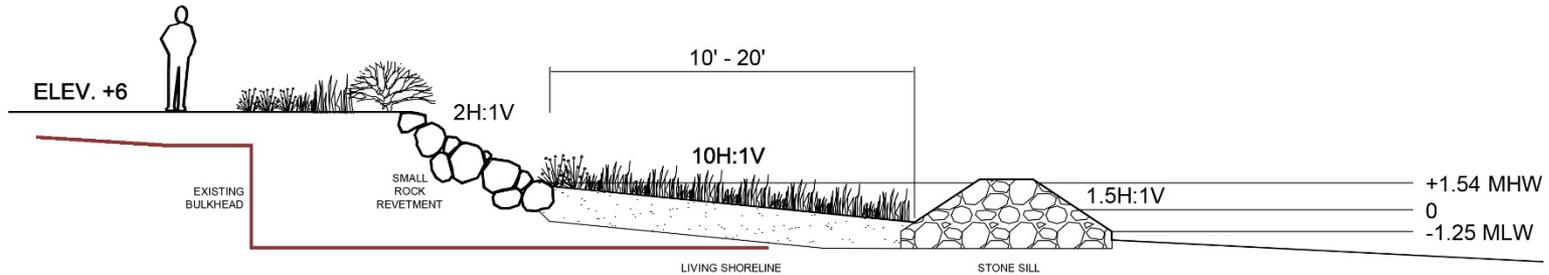


Section 1: Living Shoreline Typical – Path Option

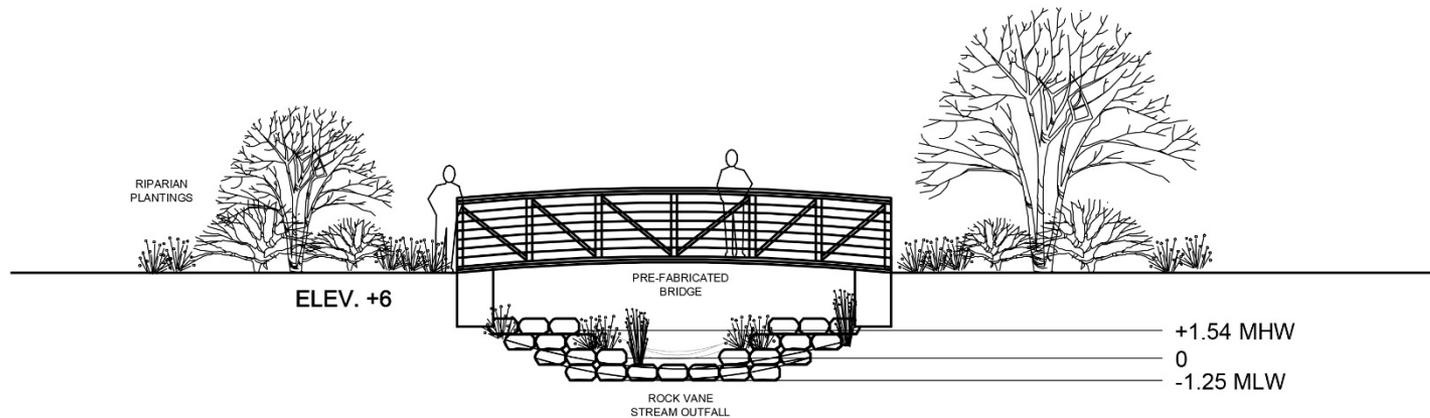


Section 2: Living Shoreline Typical – Boardwalk Option

Concept 3 Sections



Section 3: Living Shoreline w/ Boulder Revetment



Section 4: Pedestrian Bridge and Stream Outfall

Riparian and Tidal Plantings



Lower tidal grass:
Spartina alterniflora



Upper tidal grass:
Spartina patens

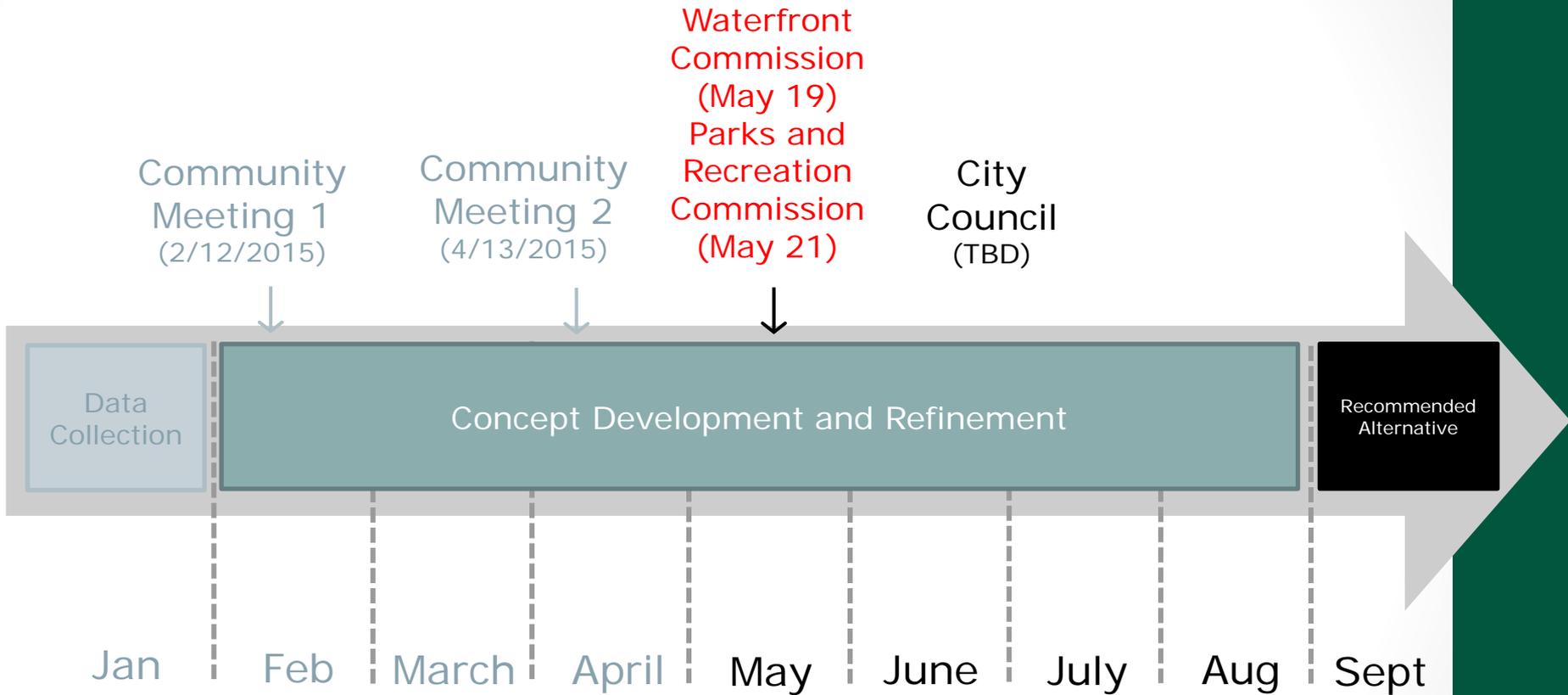


Typical Riparian plantings

Pre-fabricated Bridges



Current Project Phase: Schedule





Questions? Contact Us

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