Windmill Hill Park Shoreline Rehabilitation

Waterfront Commission

May 19, 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

Phase I (2014/15)

- Concept Development
- Public Engagement
- 30% Design

Phase II (2015/16)

- Construction Plans, Specifications, and Estimates

Phase III (2016/17)

- Construction

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)

Stream

Park

Historic 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

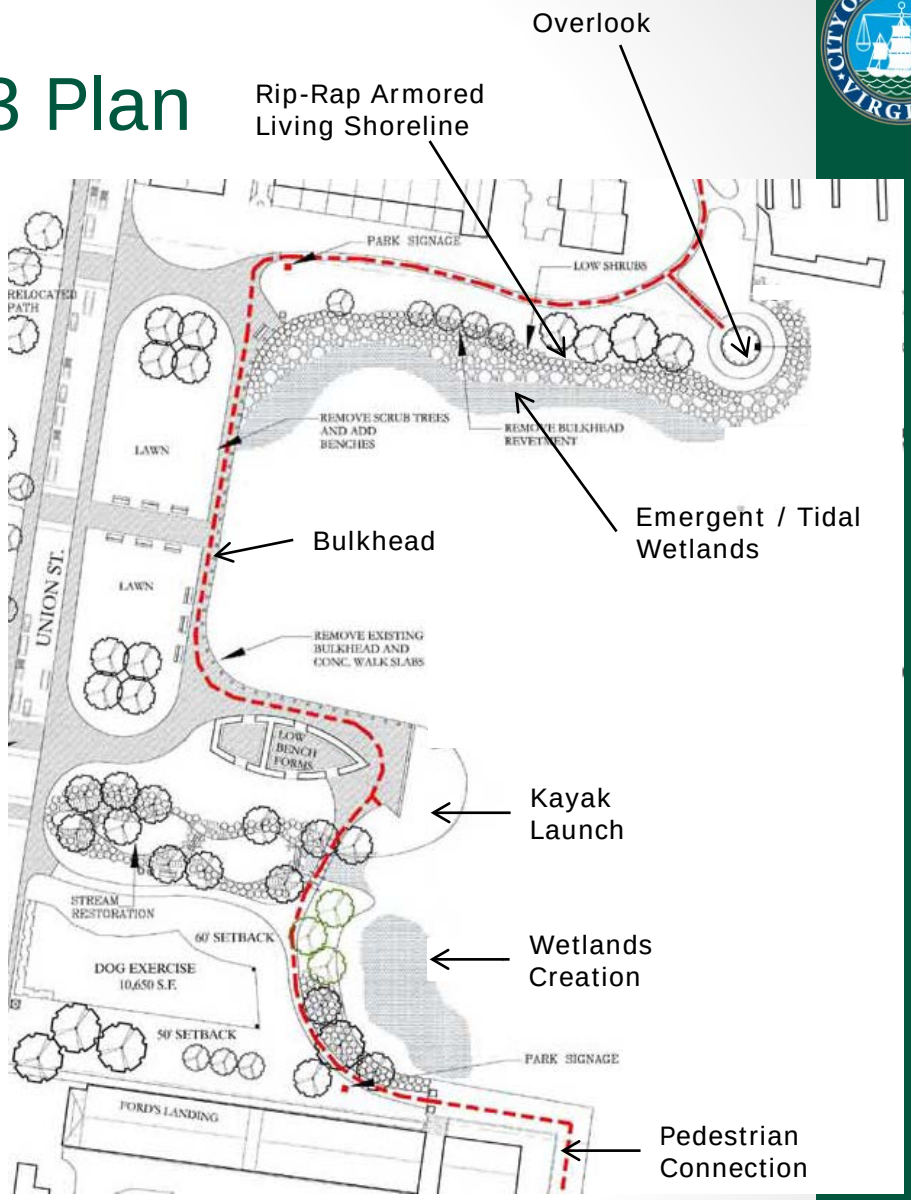
Rip-Rap/Armored Shoreline

Bulkhead/Living Shoreline Hybrid

History: Approved 2003 Plan

City Council Approved
<u>Concept Plan (2003)</u>

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



NORTH

Shoreline Rehabilitation Concepts

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

Modernized 2003 Plan

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

Hybrid / Living Shoreline Plan

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

Living Shoreline Plan

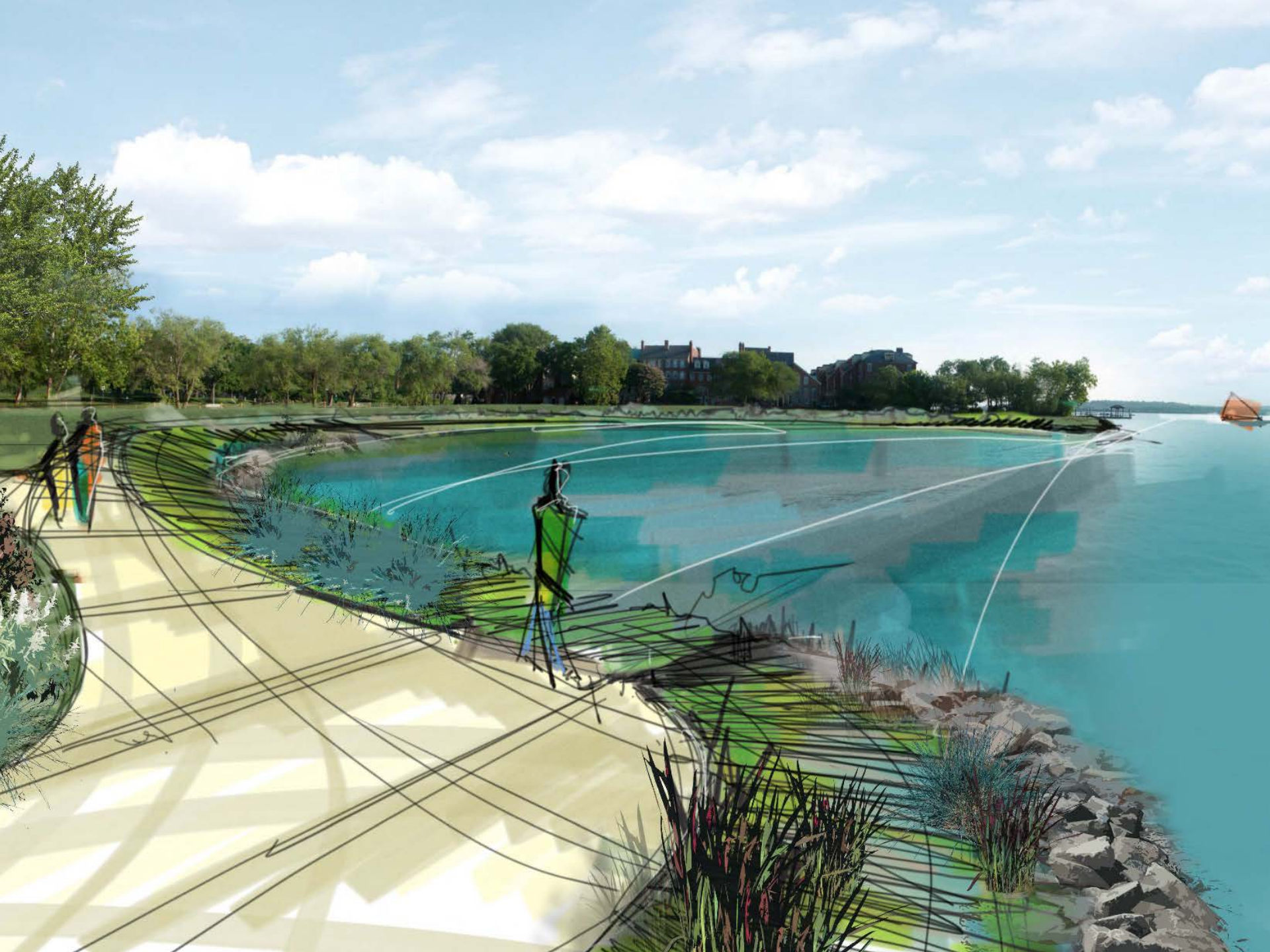
- $3.8 million
- Shortest permitting timeline
- Least complex construction
- Least need for mitigation

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.*

HARBORSIDE
GIBBON ST.
S. UNION ST.
FORD'S LANDING
POTOMAC RIVER

HARBORSIDE
STONE REVETMENT
OVERLOOK POINT
OPTIONAL PATH
EXISTING STREET TREES TO REMAIN
MEAN LOW WATER (MLW)
MEAN HIGH WATER (MHW)
1.5 x MEAN TIDE RANGE
STONE SILL
EXISTING BULKHEAD EDGE
POTOMAC RIVER
GIBBON ST.
BRIDGE
EXISTING PILINGS TO REMAIN
STREAM/OUTFALL RESTORATION
SLOPED WATER ACCESS
S. UNION ST.
FORD'S LANDING

HARBORSIDE
UPPER TIDAL PLANTINGS
LOWER TIDAL PLANTINGS
POTOMAC RIVER
GIBBON ST.
S. UNION ST.
FORD'S LANDING

HARBORSIDE
TIDAL RIPARIAN
PLANTINGS
POTOMAC RIVER
GIBBON ST.
S. UNION ST.
FORD'S LANDING

HARBORSIDE
ADDITIONAL RIPARIAN PLANTINGS
STREAM RESTORATION
BUFFER
POTOMAC RIVER
GIBBON ST.
S. UNION ST.
FORD'S LANDING

HARBORSIDE
MEAN LOW WATER (MLW)
POTOMAC RIVER
GIBBON ST.
S. UNION ST.
FORD'S LANDING

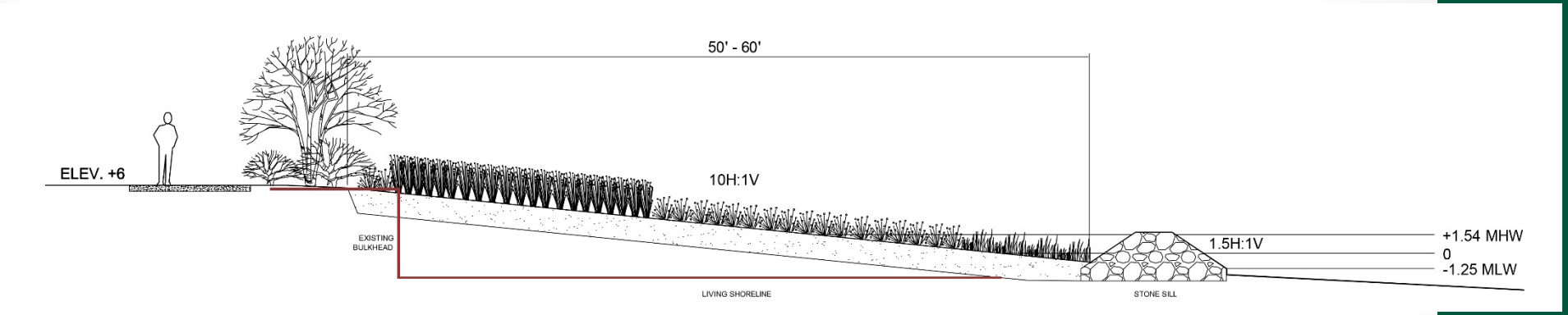
HARBORSIDE
OPTIONAL
BOARDWALK OVER SILL
POTOMAC RIVER
GIBBON ST.
S. UNION ST.
FORD'S LANDING

HARBORSIDE
OPTIONAL
OVERLOOKS
POTOMAC RIVER
GIBBON ST.
S. UNION ST.
FORD'S LANDING

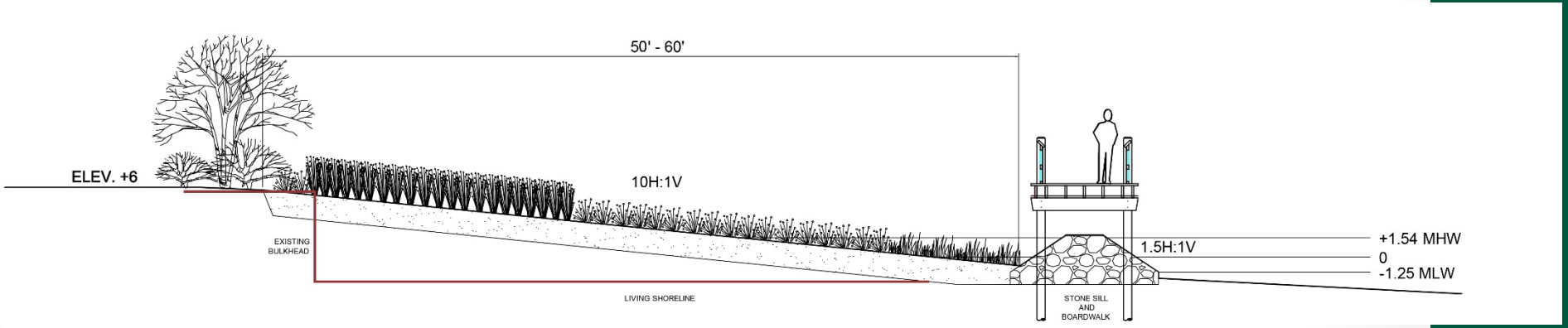
HARBORSIDE
OPTIONAL PIER
POTOMAC RIVER
GIBBON ST.
S. UNION ST.
FORD'S LANDING

HARBORSIDE
1&2
3
4
GIBBON ST.
S. UNION ST.
FORD'S LANDING
POTOMAC RIVER

Concept 3 Sections

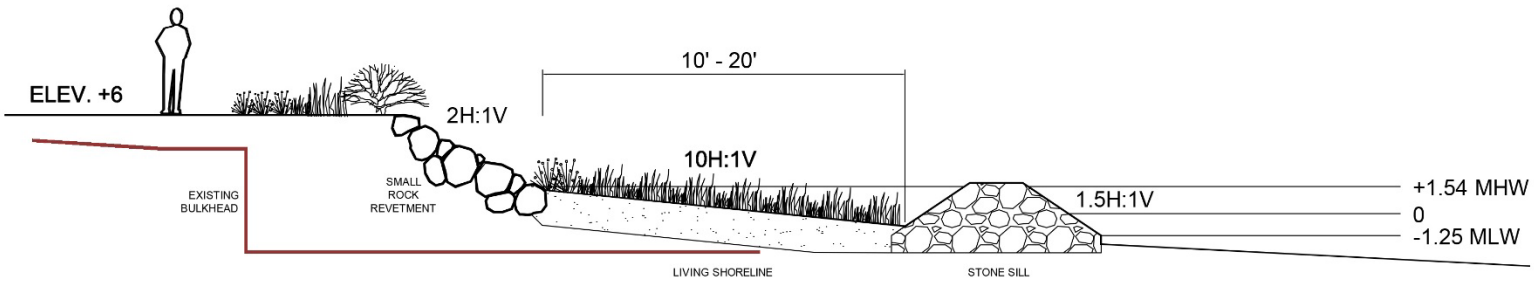


Section 1: Living Shoreline Typical – Path Option

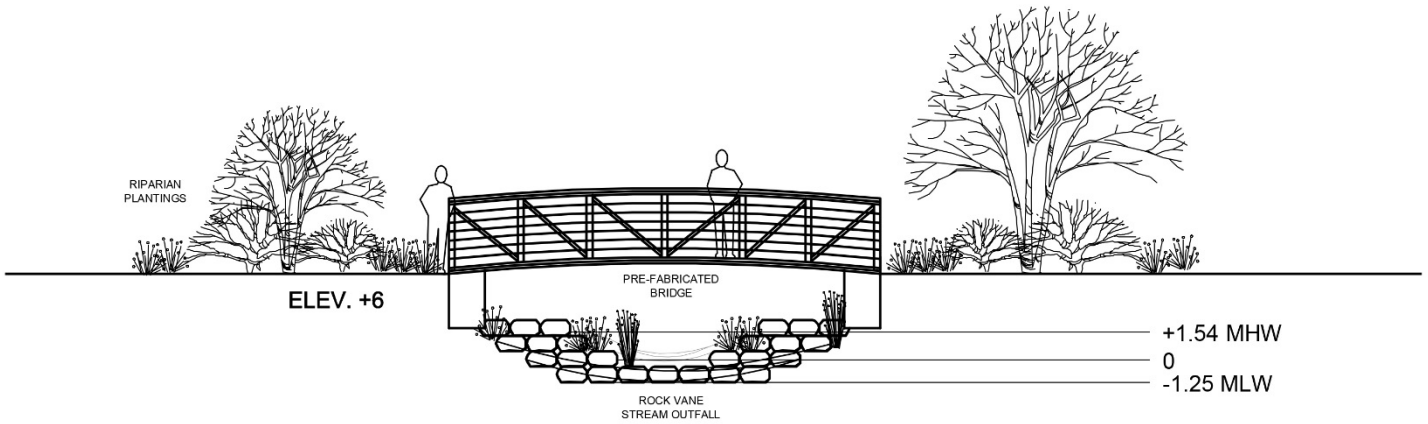


Section 2: Living Shoreline Typical – Boardwalk Option

Concept 3 Sections



Section 3: Living Shoreline w/ Boulder Revetment



Section 4: Pedestrian Bridge and Stream Outfall

Riparian and Tidal Plantings

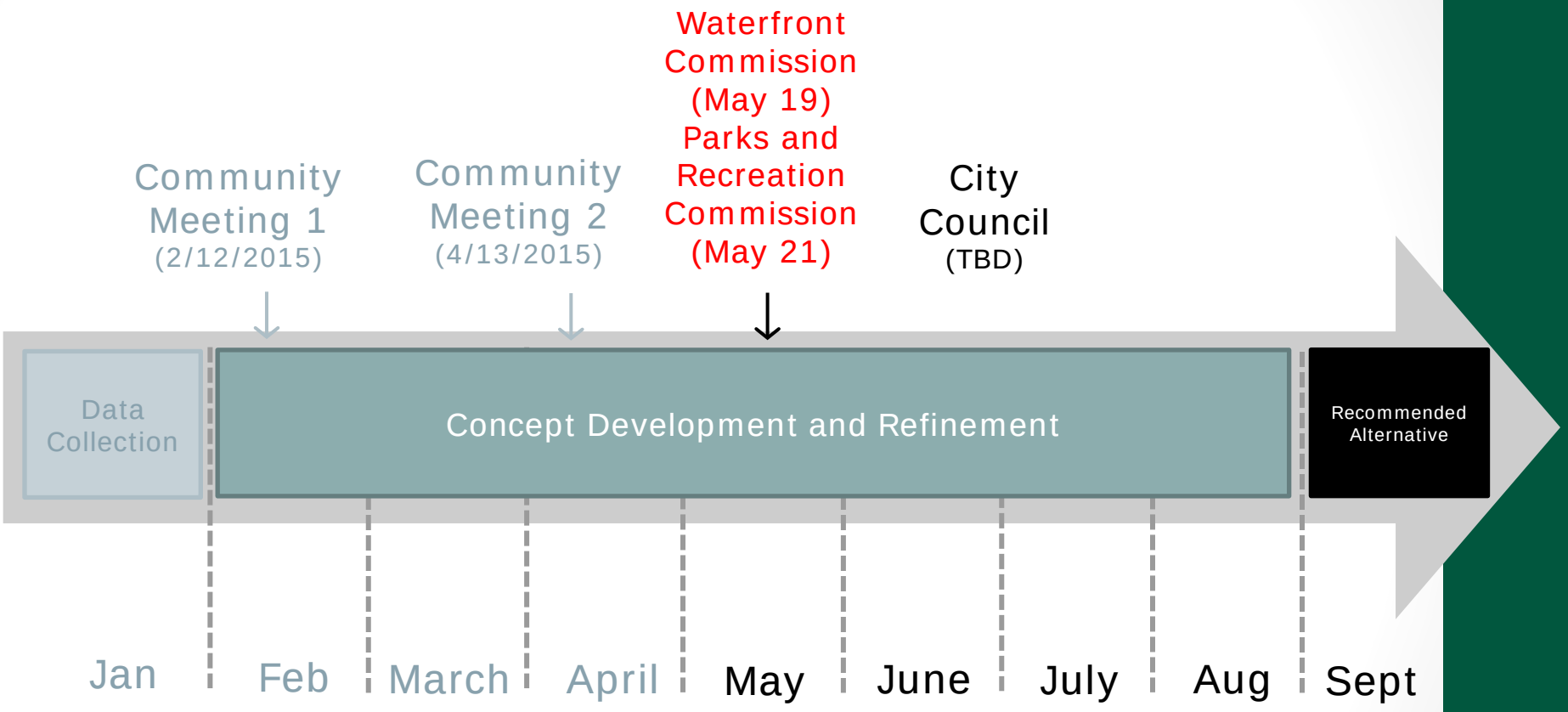
Lower tidal grass:
Spartina alternifolia

Upper tidal grass:
Spartina patens

Typical Riparian plantings

Pre-fabricated Bridges

Current Project Phase: Schedule



Questions? Contact Us

- **Tony Gammon, P.E.**
  Project Manager
  City of Alexandria
  Department of Project Implementation

- **Address**
  301 King Street
  Room 3200
  Alexandria, VA 22314

- **Contact**
  Phone: 703.746.4155
  Email: anthony.gammon@alexandriava.gov