

CITY OF ALEXANDRIA
Project Implementation

Waterfront Flood Mitigation Park & Recreation Commission Update

September 18, 2025

Draft, Deliberative, Pre-Decisional



Project Updates

- ▶ Outreach Update
- ▶ Restate Project Goals & Objectives
- ▶ Project Design Updates & Response to Feedback to Date
- ▶ Constructive Feedback Requested:
 - ▶ Specific Landscape Features
 - ▶ Pump Station Design & Materials
- ▶ Consideration During Construction
 - ▶ Avoidance, Minimization, and Mitigation
- ▶ Share your Questions and Concerns!



Outreach Opportunities

▶ Outreach Events – September

- ▶ Old Dominion Boat Club
- ▶ Alexandria Waterfront Alliance
- ▶ Old Town Civic
- ▶ Waterfront/Parks and Recreation Commissions
- ▶ Individual Stakeholders

▶ Outreach Events – October

- ▶ Waterfront/Parks and Recreation Commissions
- ▶ Stakeholder Groups
- ▶ Individual Stakeholders

▶ Door-to-Door Outreach and Survey (Business/Residential)

▶ Business/General Stakeholder Newsletters

▶ Public Event Pop-Ups – Fall

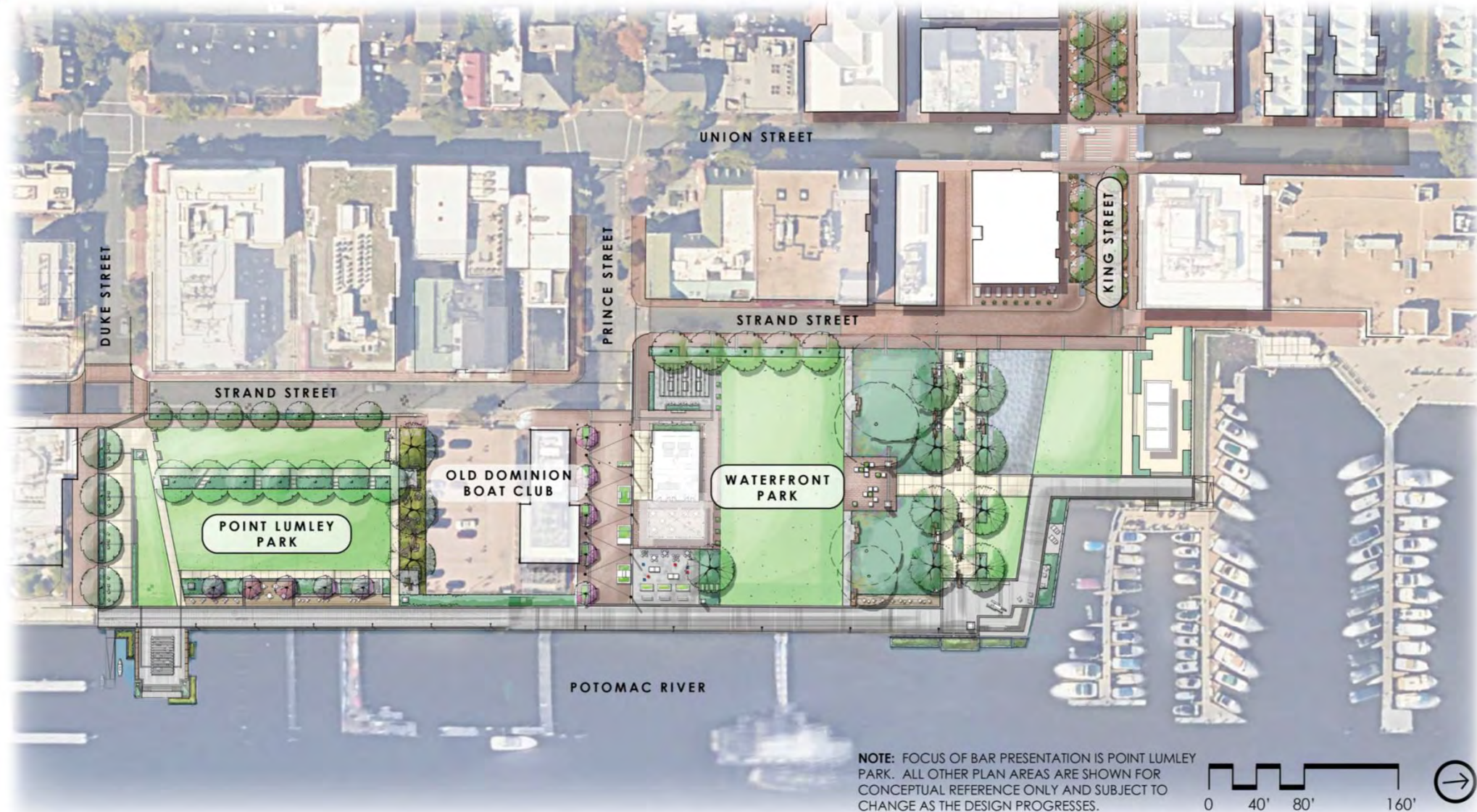
- ▶ Old Town Farmers Markets
- ▶ Arts Festival

▶ Construction Impact Mitigation Meetings – October/November

- ▶ Average Duration of Construction Phases / Closures
- ▶ Maintenance of Access
- ▶ Potential for Trolley and Bus Routing to Strand Street / Businesses
- ▶ Activation of Spaces

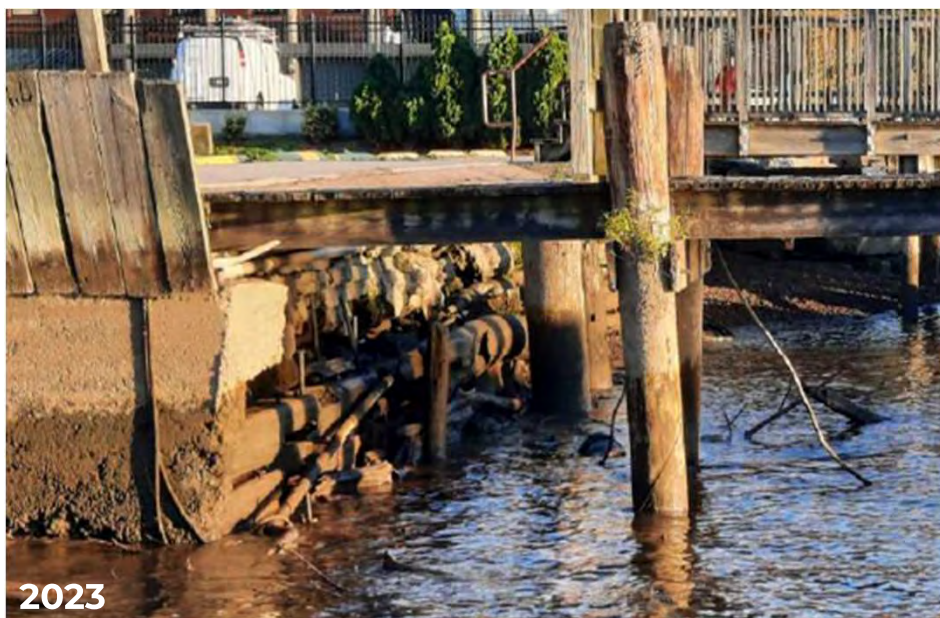
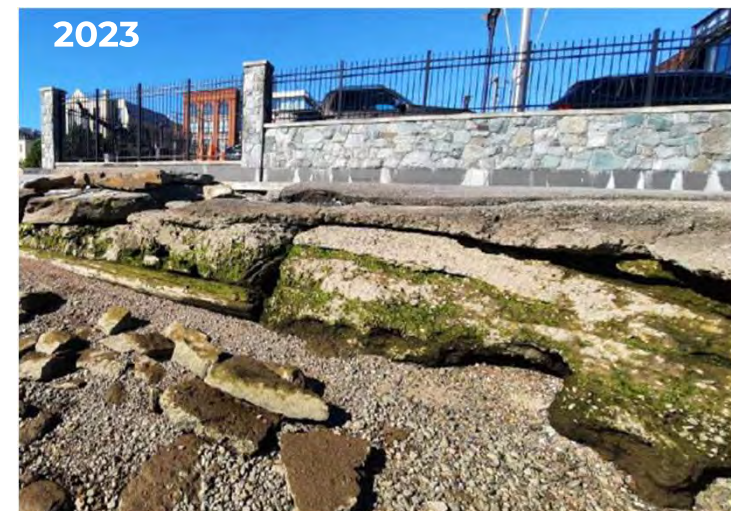


Public Space and Amenities





Aging & Failing Infrastructure





Flooding Sources & City Impacts

OVERTOPPING

of Bulkhead

Solution:

Raised bulkhead/flood barrier(s)
& pump station.

Ranges of Cost*/City Impacts:

*\$20,000 - \$50,000 annually for major debris

*~\$300k-500k – sandbag mobilization (annual)

*\$500k-\$1M – Inlet & Street Cleanup (annual)

*Events and Festivals Impacted = Lost Revenue

*Tourism Impacted

BACKFLOW

into River Outfalls

Solution:

New outfall structure and
pump station.

Ranges of Cost*/City Impacts:

*Increased sewer inspection required

*\$500k-\$1M/yr river sediments removal

*Street Closures

*Pedestrian safety/closed crosswalks

*Businesses impacted = lost revenue

INUNDATION

of Storm Sewers

Solution:

Replace aging (50+ years old)
and undersized storm pipes.

Ranges of Cost*/City Impacts:

*~\$300k-\$500k – sandbag mobilization (annual)

*\$100K-\$250K– Street Cleanup (annual)

Riverine Overtopping & Flooding

Draft, Deliberative, Pre-Decisional



The Number of Overtopping Events Continues to Increase

<u>Potomac River Surface Elevation</u> Flooding Analysis Over Time At Prince Street/Waterfront	<u>Prince Street-End</u> (<u>Elev. 2.4</u>)	<u>Bulkhead at Waterfront</u> (<u>Elev. 3.0</u>)
In the Last 20 Years, we've seen an average of	145 events/yr	37 events/yr
In the Last 5 Years, we've seen an average of	185 events/yr	48 events/yr
In the Last 2 Years, we've seen an average of	194 events/yr	54 events/yr
In the Last 1 Year, we've seen...	227 events/yr	93 events/yr
By Year 2100, we anticipate...	353 events/yr	341 events/yr

Pump Station Design Progression:

Initial Concept of Single Station: (Presented in summary/fall 2024)



Revised Concept: (Presented spring 2025):

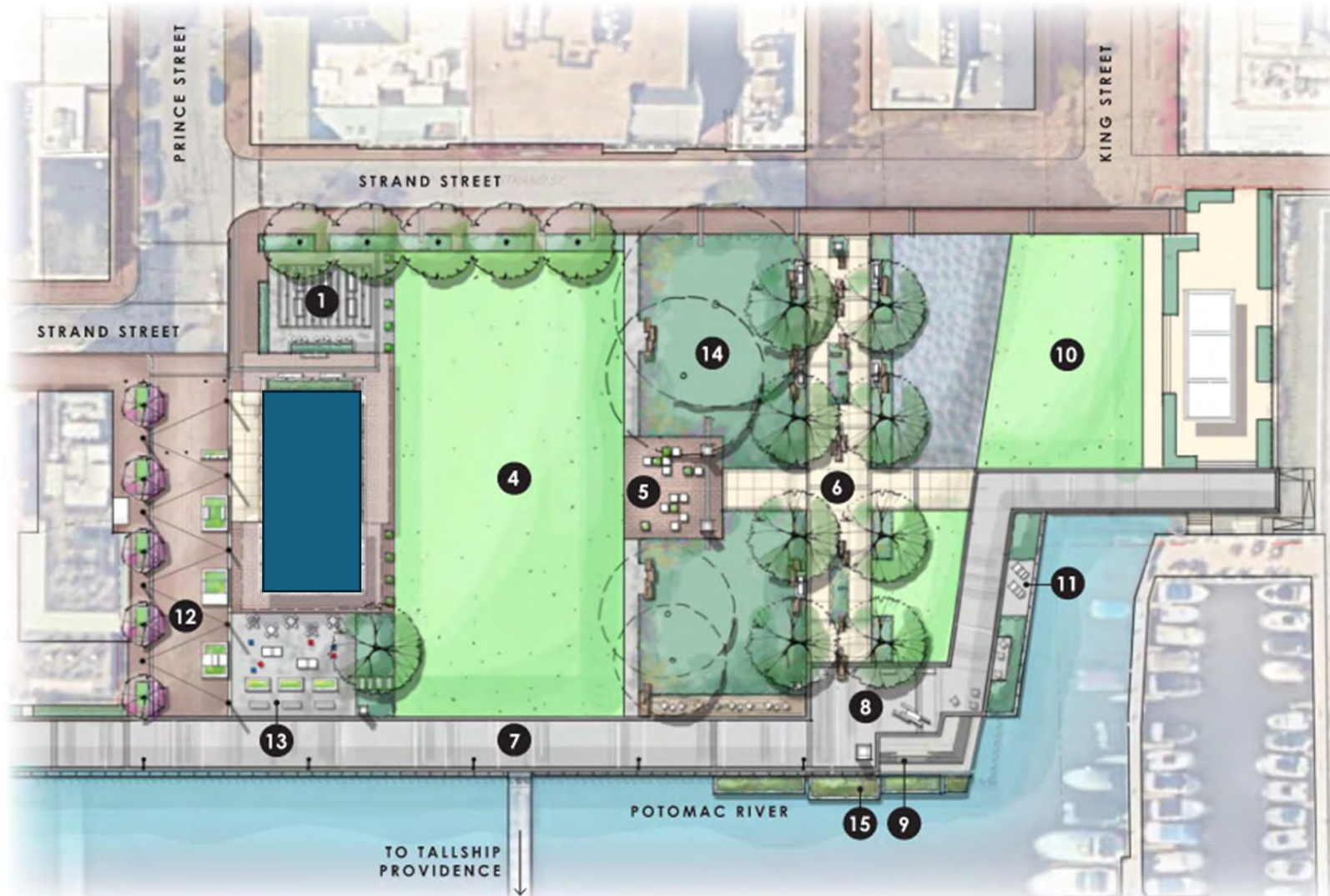


- Smaller footprint, elevated design & increased public amenities

Draft, Deliberative, Pre-Decisional



Site Plan: Prior Building Footprint



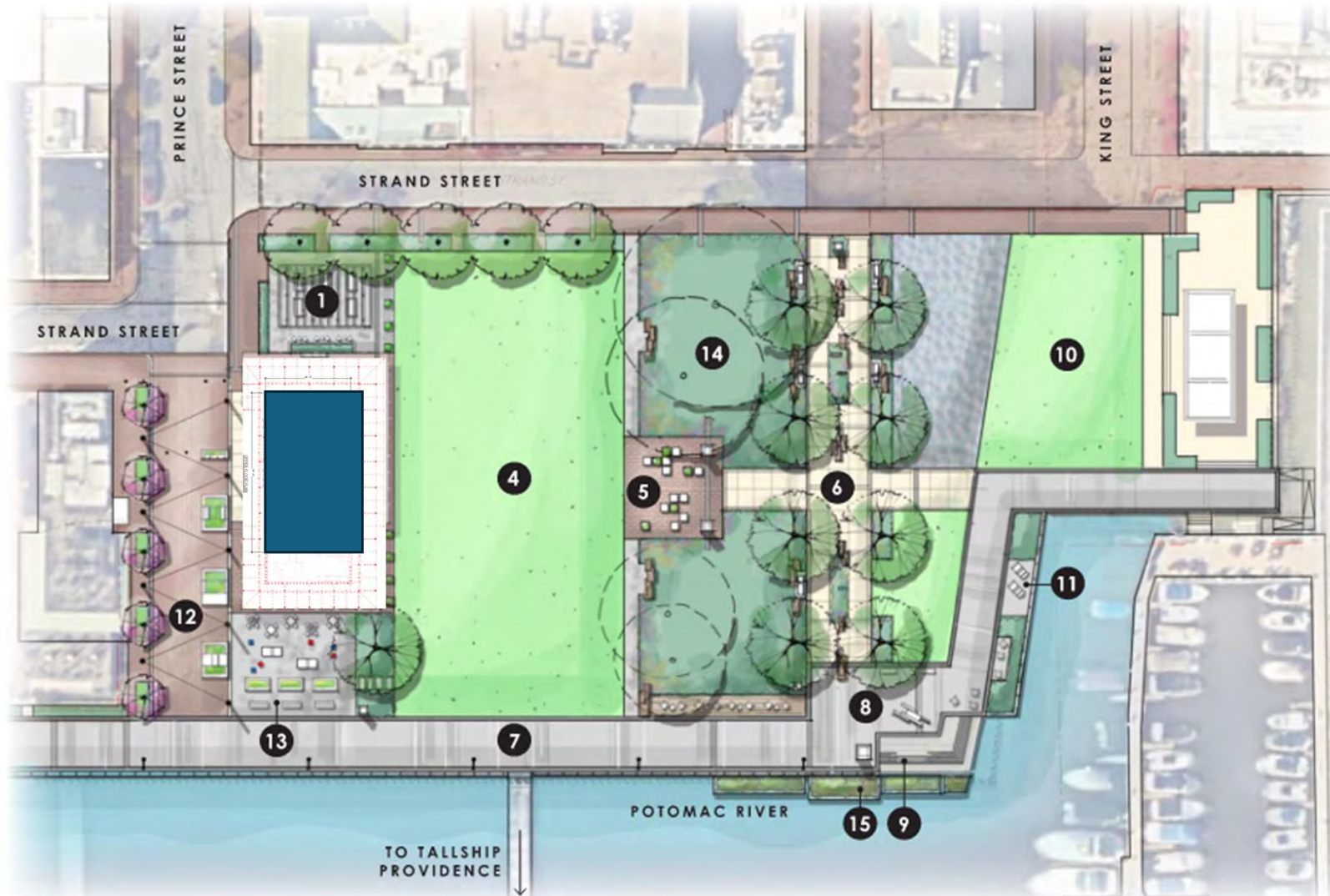
The proposed site plan uses a rectilinear framework as an homage to the historic wharfs and 1845 shoreline layout. This simple framework also aims to maximize programmable space, integrate the existing context, and create direct connections to the Potomac River that engage the waterfront and reinforce views.

LEGEND:

- 1 Trellis structure with picnic tables and catenary lighting
- 2 Pump station
- 3 Covered plaza / venue space
- 4 Multi-use lawn
- 5 Arrival plaza with crate-inspired seating
- 6 Wales Alley River Gateway
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- 10 N. Waterfront area - to be replaced in kind
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- 14 Preserved existing trees (understory to be determined with arborist)
- 15 Floating wetlands attached to bulkhead



Site Plan: Reduced Station Size



The proposed site plan uses a rectilinear framework as an homage to the historic wharfs and 1845 shoreline layout. This simple framework also aims to maximize programmable space, integrate the existing context, and create direct connections to the Potomac River that engage the waterfront and reinforce views.

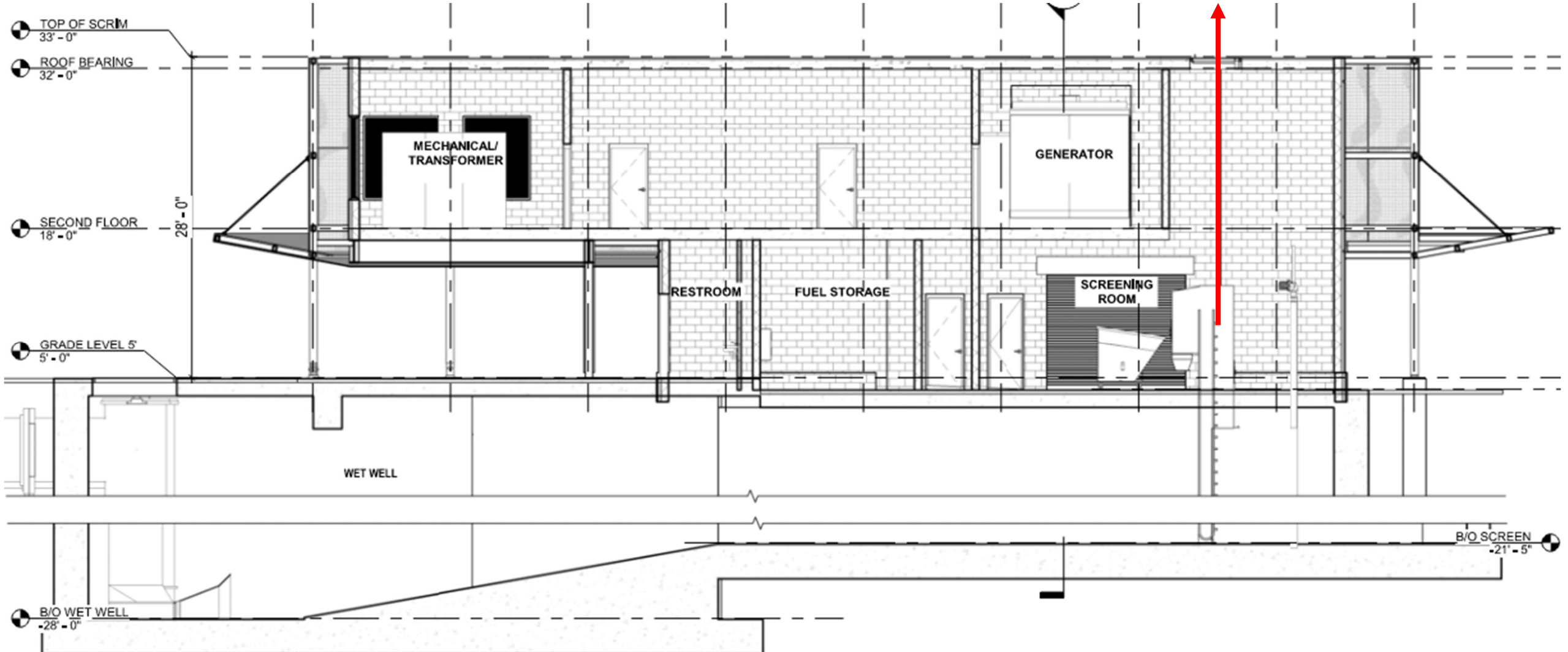
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(Building length reduced 18-22' (55' total if canopy eliminated))

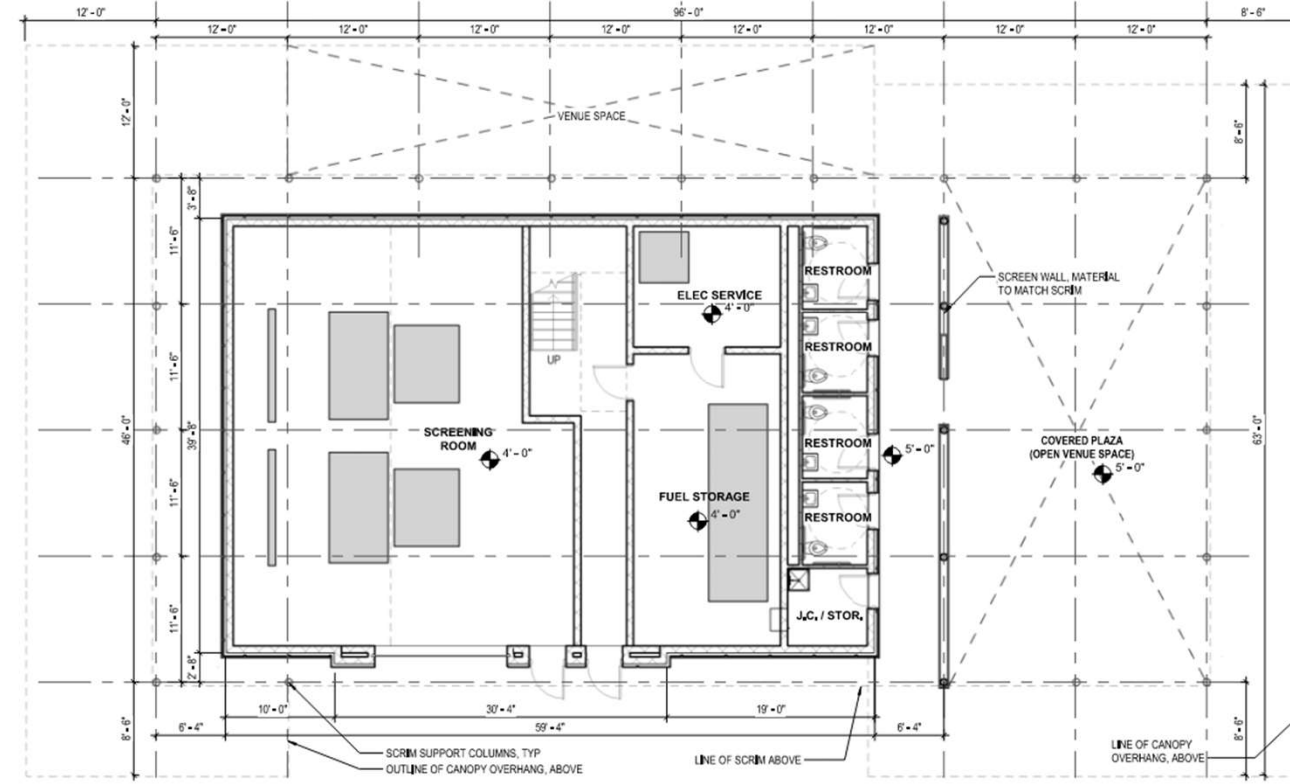
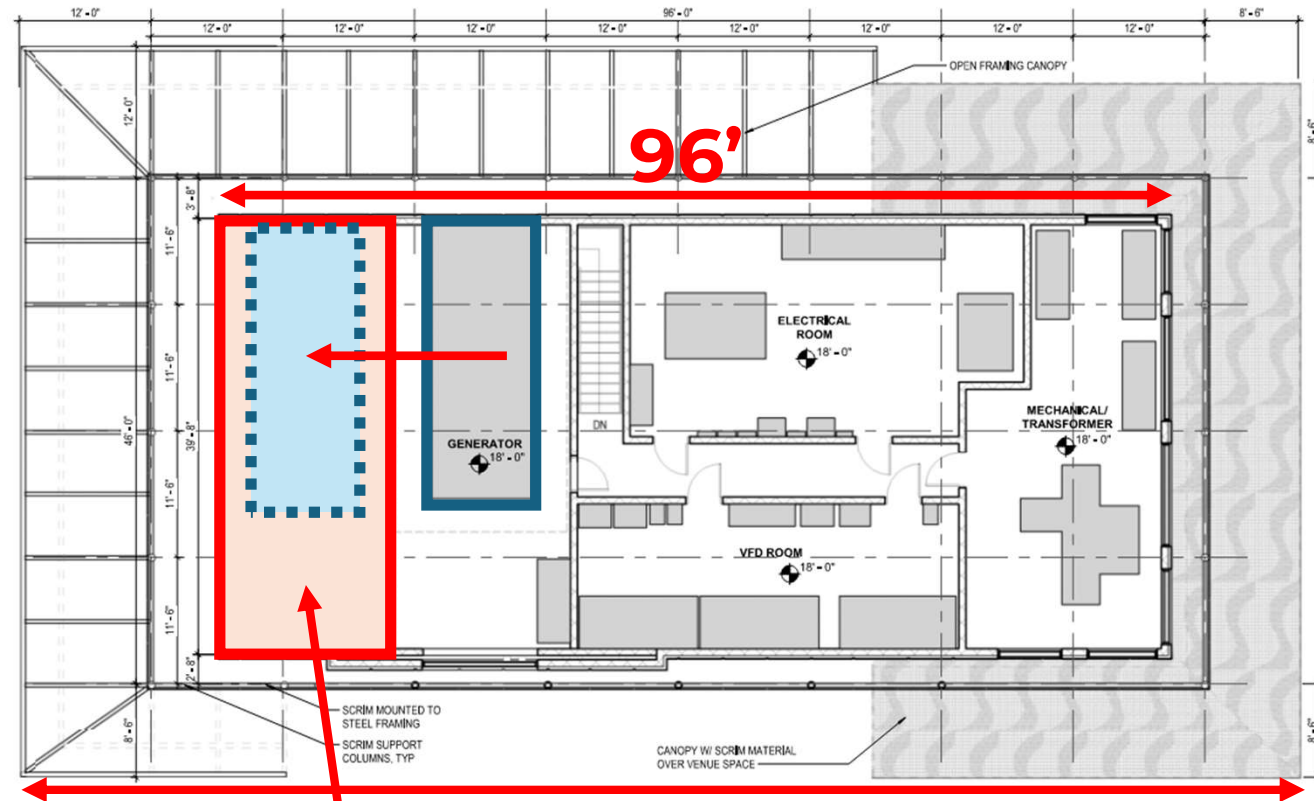


Prior Pump Station Cross Section





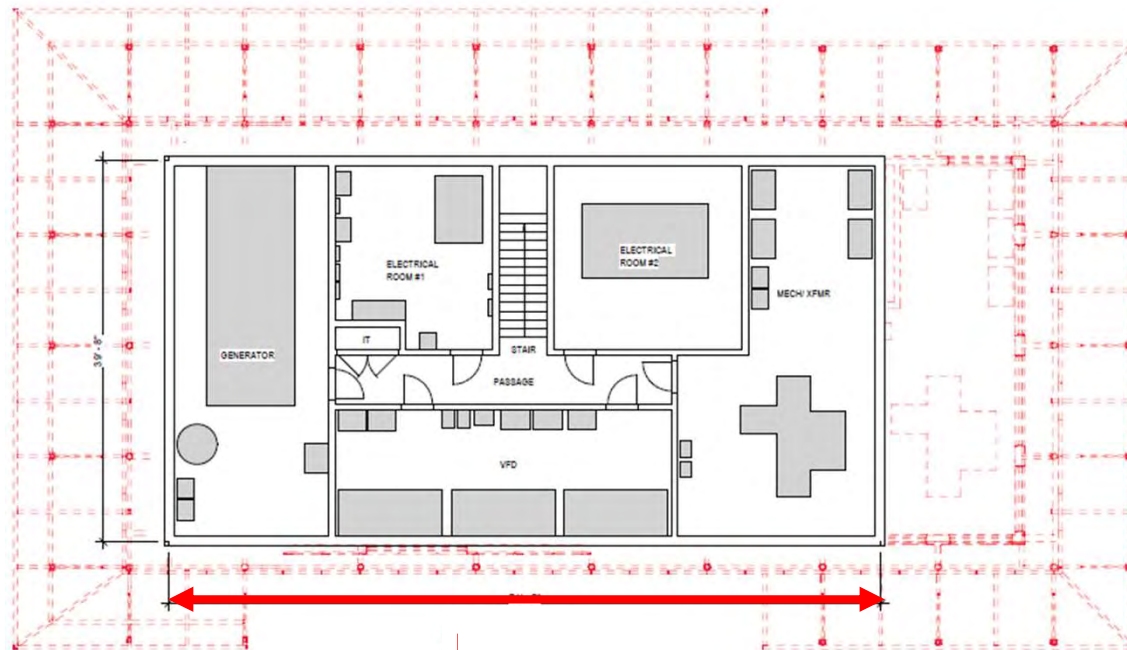
Prior Pump Station Floor Plan



2nd Floor area previously open to lower level

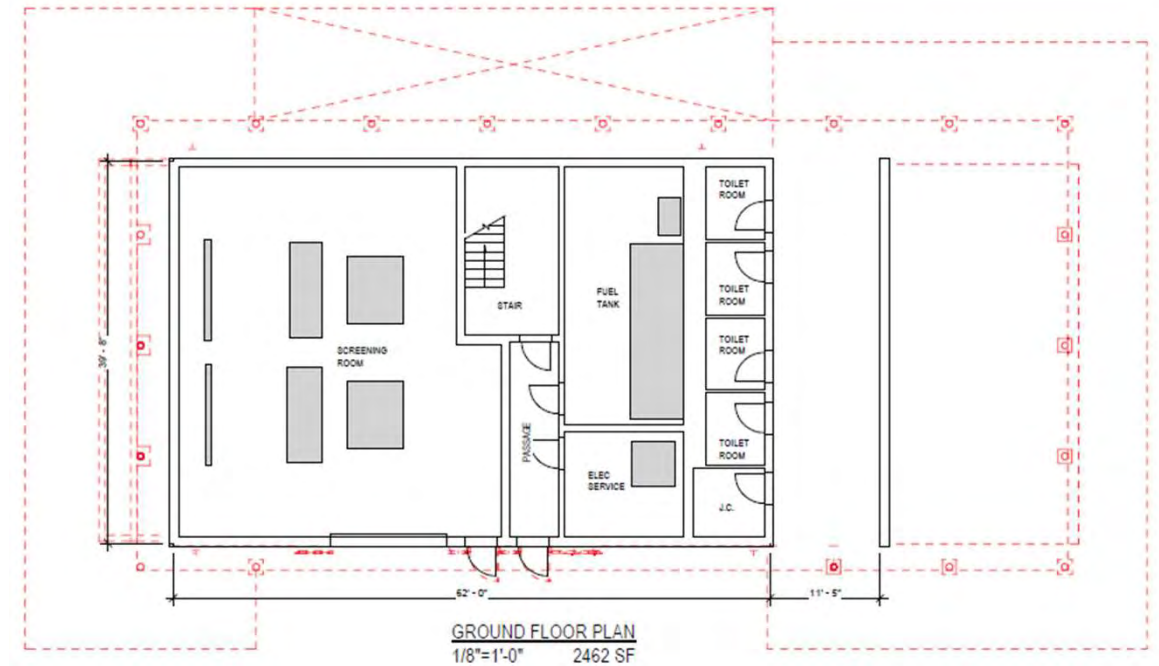


Pump Station Floorplan Reduced



74'

Building length reduced ~18-22'
(~55' total if canopy eliminated)





Draft, Deliberative, Pre-Decisional

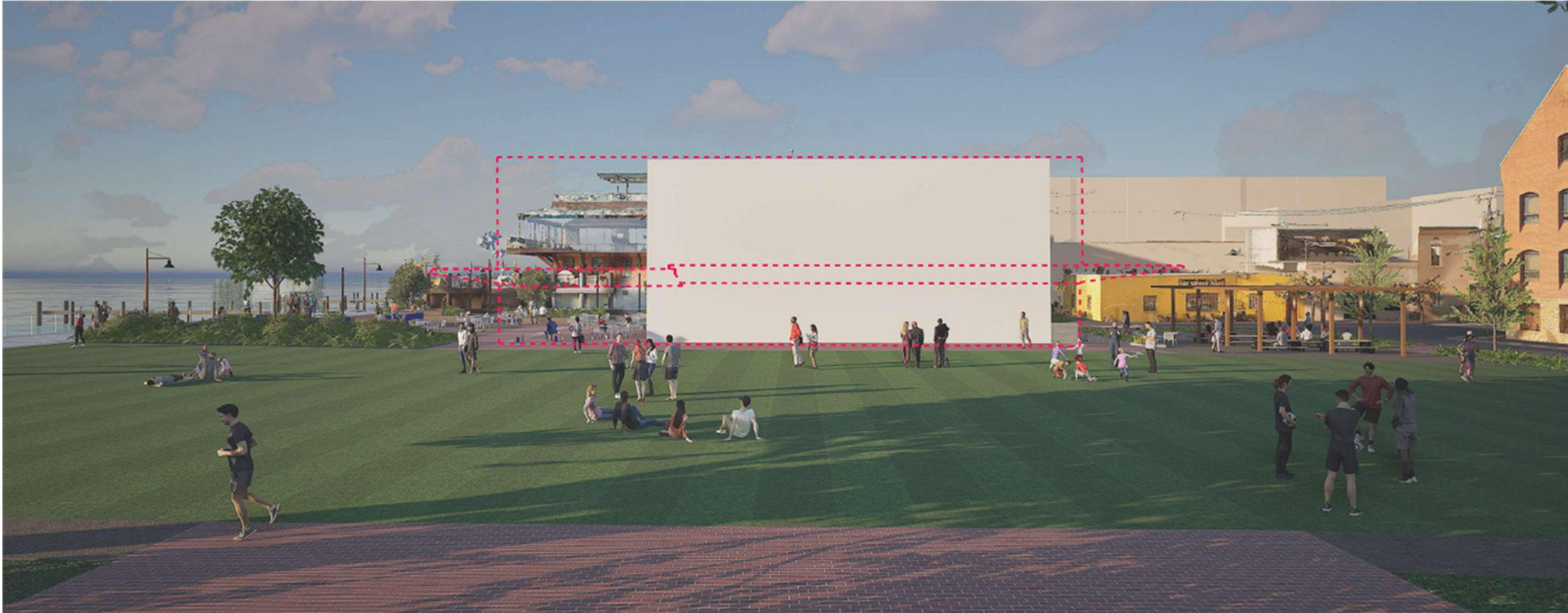
Pump Station Prior Design





Draft, Deliberative, Pre-Decisional

Pump Station Reduced





Draft, Deliberative, Pre-Decisional

Pump Station Prior Design





Pump Station Reduced





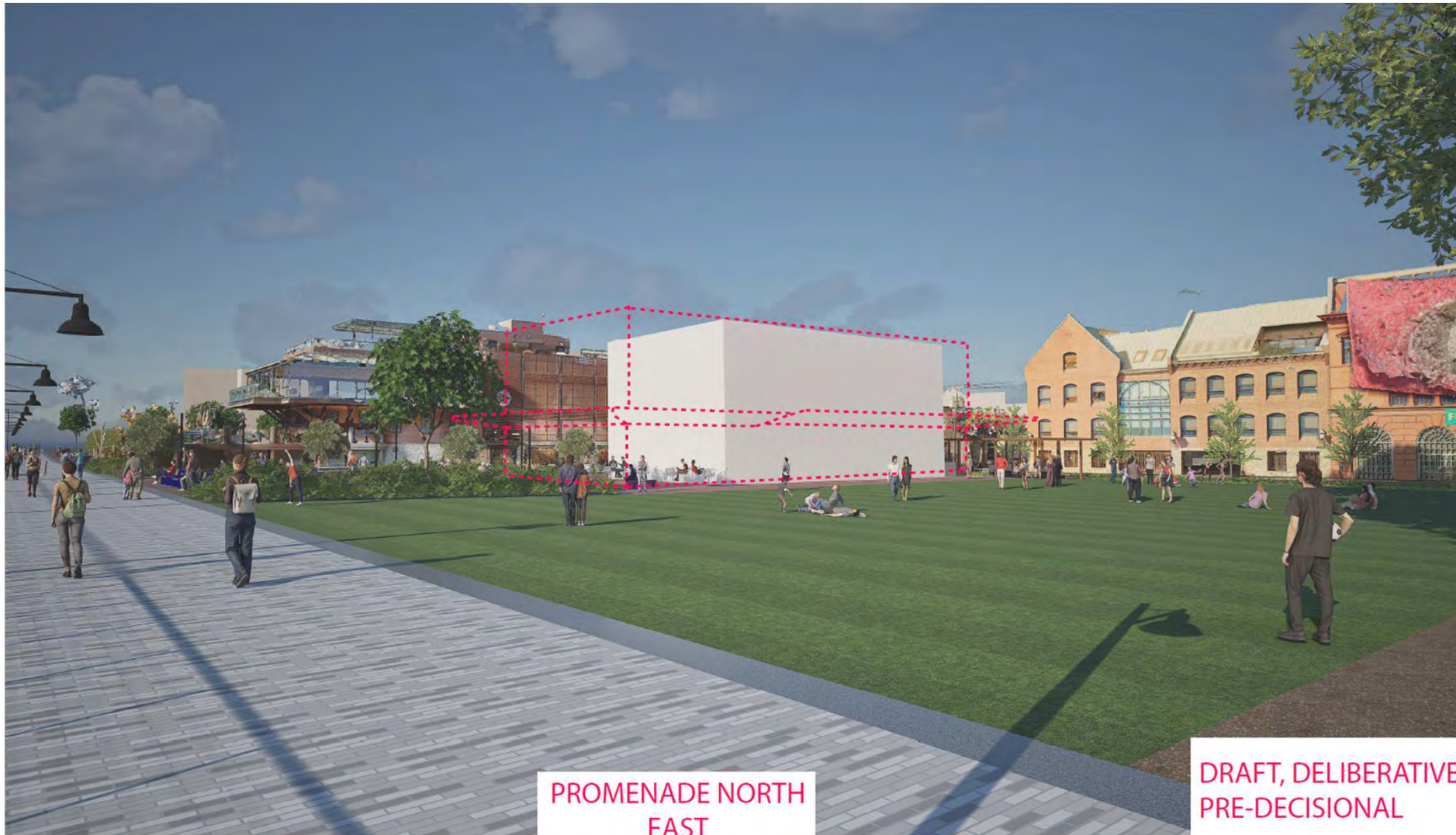
Draft, Deliberative, Pre-Decisional

Pump Station Prior Design





Pump Station Reduced



PROMENADE NORTH
EAST

DRAFT, DELIBERATIVE,
PRE-DECISIONAL



Current Pump Station Materials



COLUMNS AS A DEVICE TO REPRESENT NAUTICAL SURROUNDS



STRUCTURAL TECHTONICS AND RELATIONSHIP TO SAIL BOATS



VIEW FROM BASE OF KING STREET



SCRIM MATERIAL INSPIRATION



BOARD-FORMED CONCRETE PANEL TO REFERENCE HISTORIC CRIBBING

Architecture: Feedback Requested!



Open to Revisit
Architecture



Draft, Deliberative, Pre-Decisional

WATERFRONT FLOOD MITIGATION PROJECT

Alternative Architectural Concepts

**Maintain Current Approach:
Modern Architecture /
References to History**



**Classical Architecture /
Direct Reference to Old
Town**



**Landscape & Park
Integration to
Architecture
(Planters, Green
Walls, etc.)**

Green Walls



Adjacent trees and sky are reflected in the scrim to blend building and environment.



Green walls integrate planting into the facade, softening building massing while offering environmental benefits such as insulation, air filtration, and stormwater management. They can be adapted to complement both modern and historic architectural contexts.

Alternative to planter walls, a reflective material can be used to create a 'green' facade reflecting the adjacent canopy trees. (Image #2)

- 1 **Vertical Living Gallery** | Bangkok, Thailand
- 2 **Hayes Primary School** | Kenley, UK
- 3 **17 Glen Avenue** | Cape Town, South Africa
- 4 **Musée du Quai Branly** | Paris, France
- 5 **Park Plaza** | Santa Fe, Mexico City
- 6 **New Street Square** | London, UK
- 7 **Ion Orchard Residences** | Singapore

Vines



Vine-covered trellises add texture and seasonal interest to building walls, reducing visual impact and increasing air filtration and shade as a flexible, low-profile green infrastructure strategy.

- 1 MFO Park | Zürich, Switzerland
- 2 Swiss RE Headquarters | Munich, Germany
- 3 Tan's Garden Villa | Singapore
- 4 The Base | Bangkok, Thailand
- 5 Biomedical Research Center | Granada, Spain
- 6 Freiburg Office Complex | Munich, Germany

Integral Planters

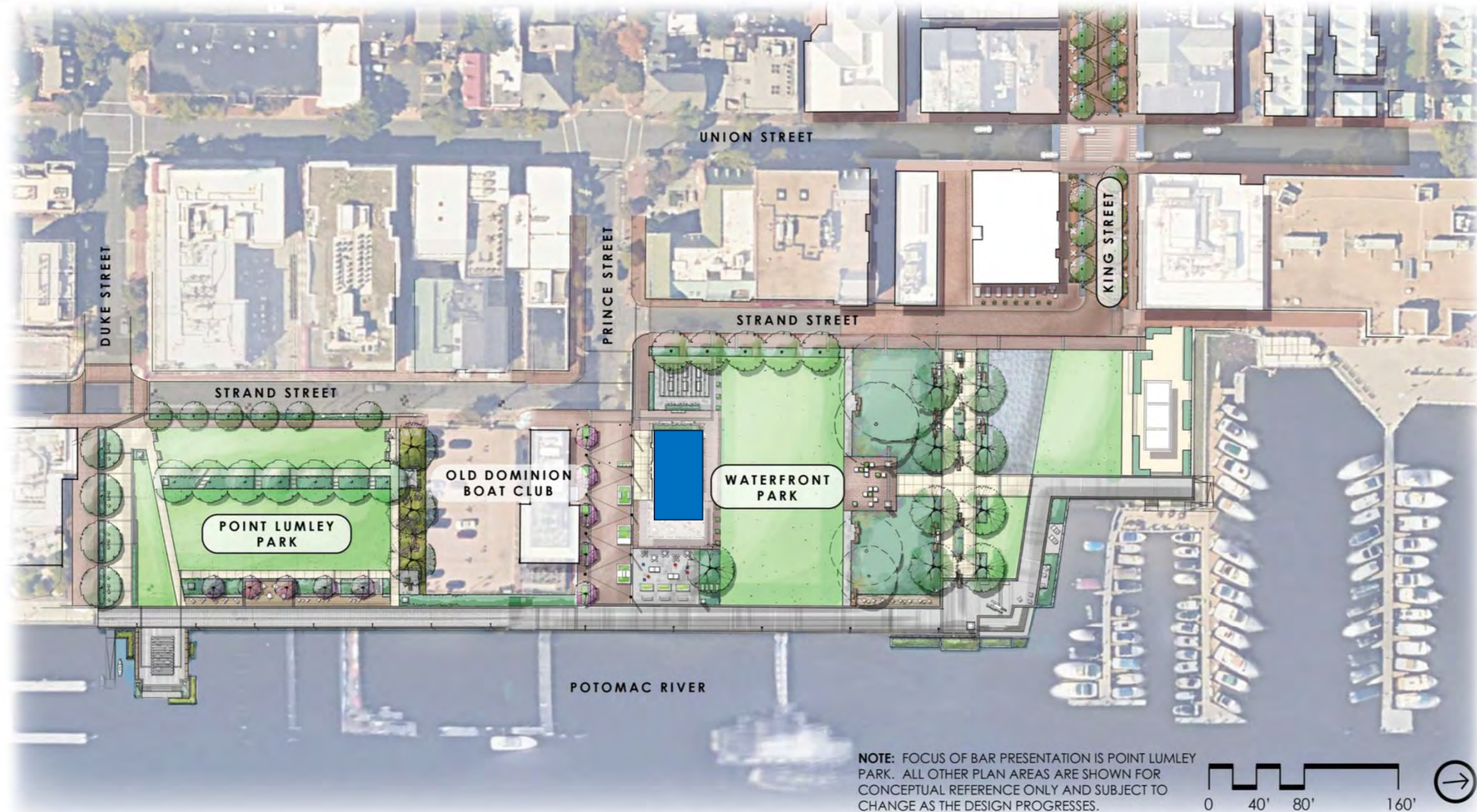


Integral planters can enhance architectural storytelling, incorporate seating, and offer environmental benefits such as rainwater collection, conveyance, and filtration opportunities.

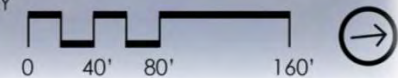
- 1 **Coulée verte René-Dumont** | Paris, France
- 2 **The Highline Spur** | New York, NY
- 3 **Ecological Living Module** | New York City
- 4 **Hooper Street** | San Francisco, CA
- 5 **Hilgard Garden** | Berkley, CA
- 6 **Townhouse** | West London, UK



Site Plan: Feedback Requested

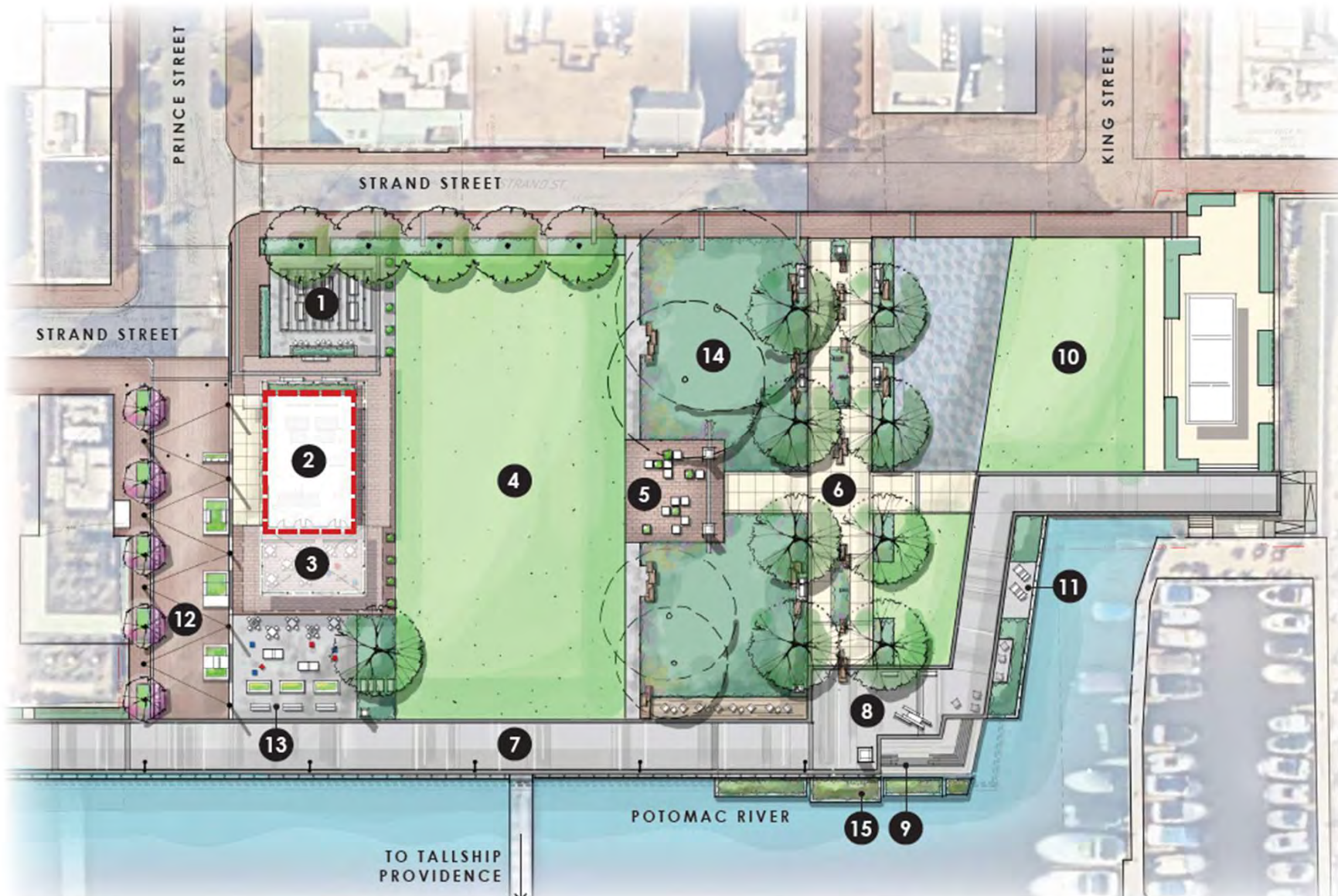


NOTE: FOCUS OF BAR PRESENTATION IS POINT LUMLEY PARK. ALL OTHER PLAN AREAS ARE SHOWN FOR CONCEPTUAL REFERENCE ONLY AND SUBJECT TO CHANGE AS THE DESIGN PROGRESSES.





Revisit Concept Plan?



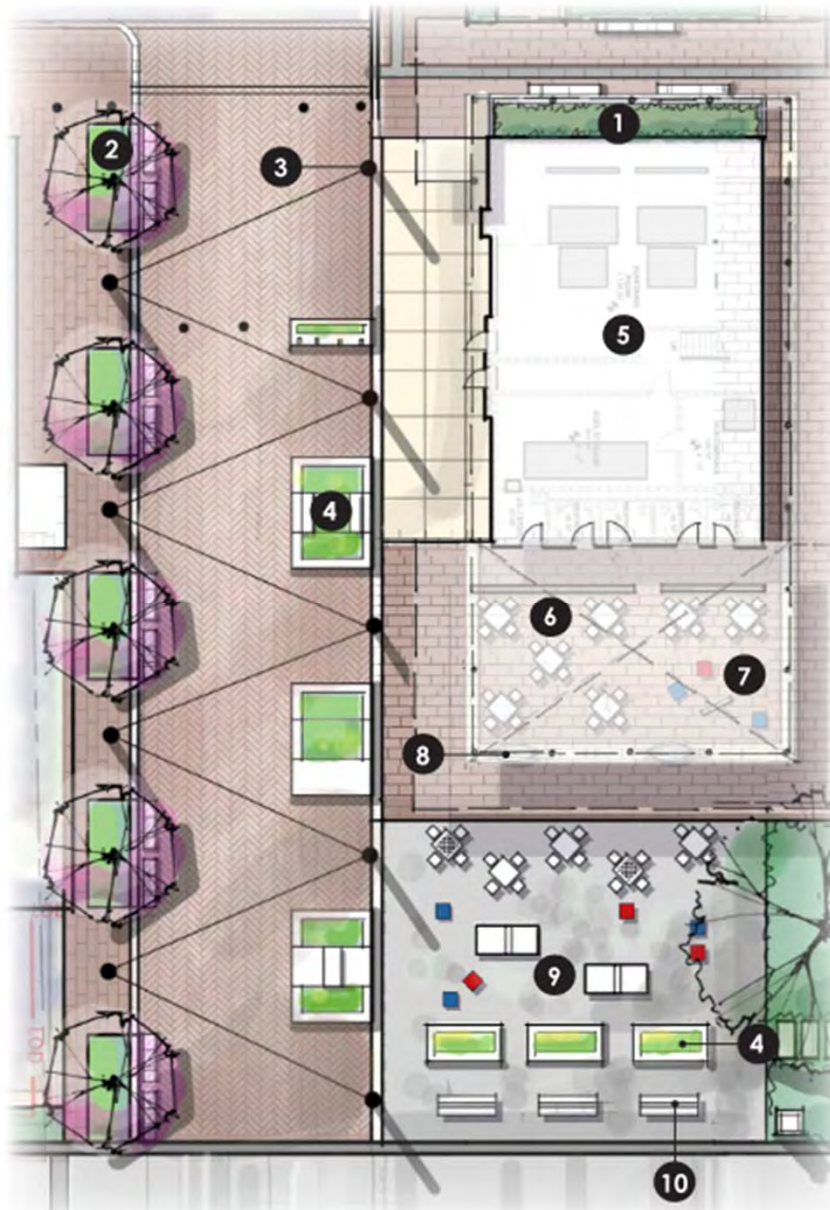
The plan on the left shows the revised pump station footprint boundary in dashed red overlaid on the current site plan.

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Prince Street and East Plaza



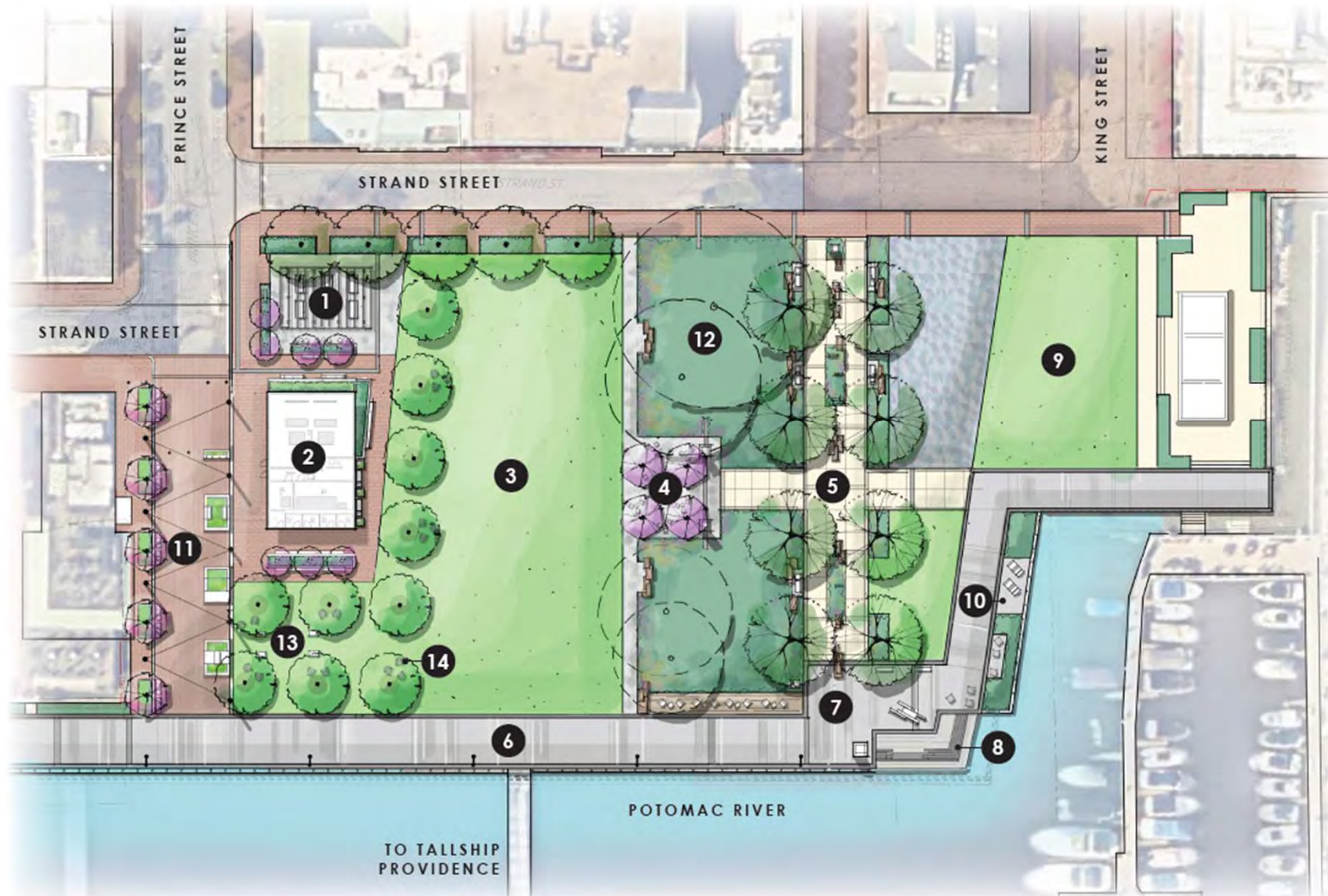
LEGEND:

- 1 Raised bioretention planter
- 2 In-ground planters + benches
- 3 Poles with catenary lighting
- 4 Movable planters with seating
- 5 Pump Station
- 6 Covered plaza / venue space with movable tables and chairs
- 7 Movable Connect Four game or similar with movable cube seating
- 8 Hammocks / swing attached to canopy (removable for events)
- 9 Ping pong tables
- 10 Specialty double-sided promenade seating





Alternate 1 – Remove East Plaza



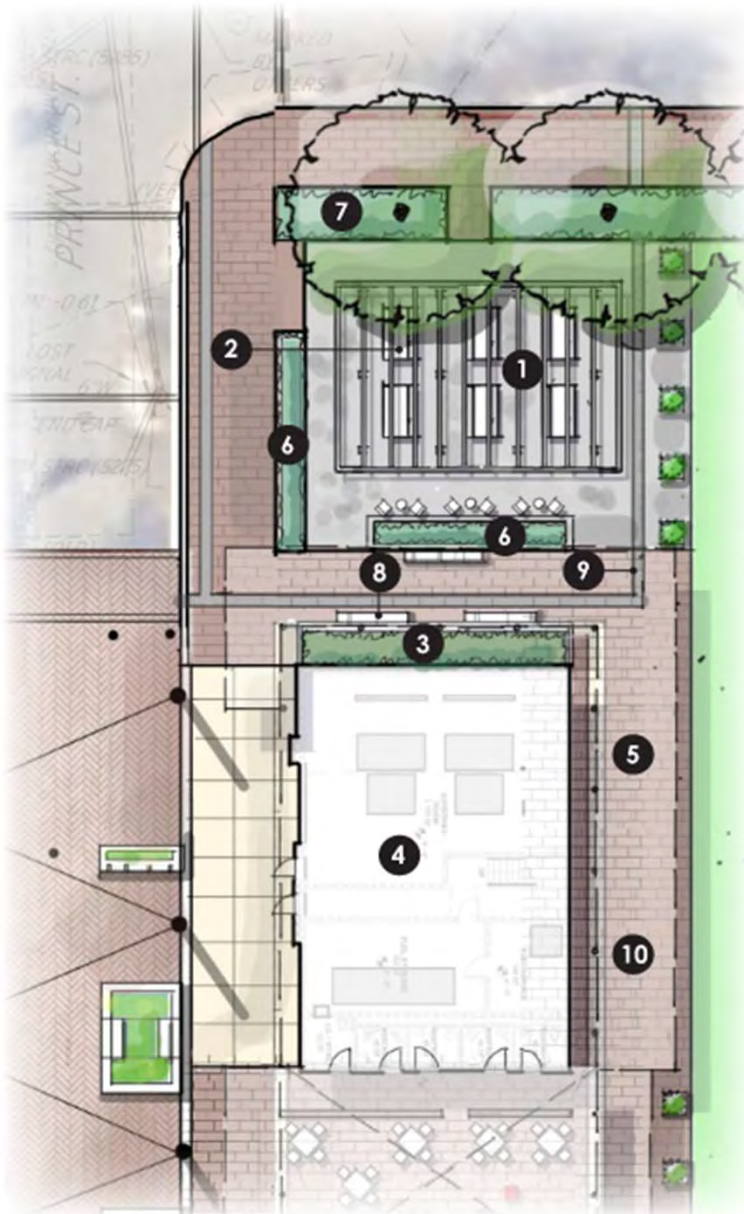
The new site plan leverages the pump station's smaller footprint to maximize landscape, lawn, and canopy. The pump station recedes to the background behind a grid of trees. Adirondack chairs, cornholes, and other movable games can be integrated under the tree canopy if desired.

LEGEND:

- 1 Trellis structure with picnic tables and catenary lighting
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- 4 Arrival plaza with movable seating
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- 12 Preserved existing trees (understory to be determined with arborist)
- 13 Optional cornholes and/or other movable games
- 14 Optional Adirondack chairs

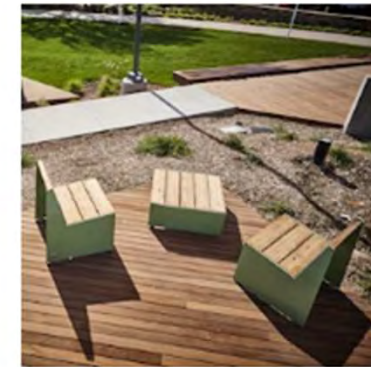


Strand Street West Plaza



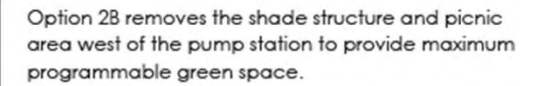
LEGEND:

- 1 Trellis with catenary lighting: columns to align with pump station building canopy grid
- 2 Picnic tables
- 3 Raised bioretention planter
- 4 Pump station
- 5 Pump station canopy
- 6 Raised planting areas
- 7 Planting areas at grade
- 8 Seating along planter walls
- 9 Historic 1845 shoreline banding
- 10 Stage / performance area





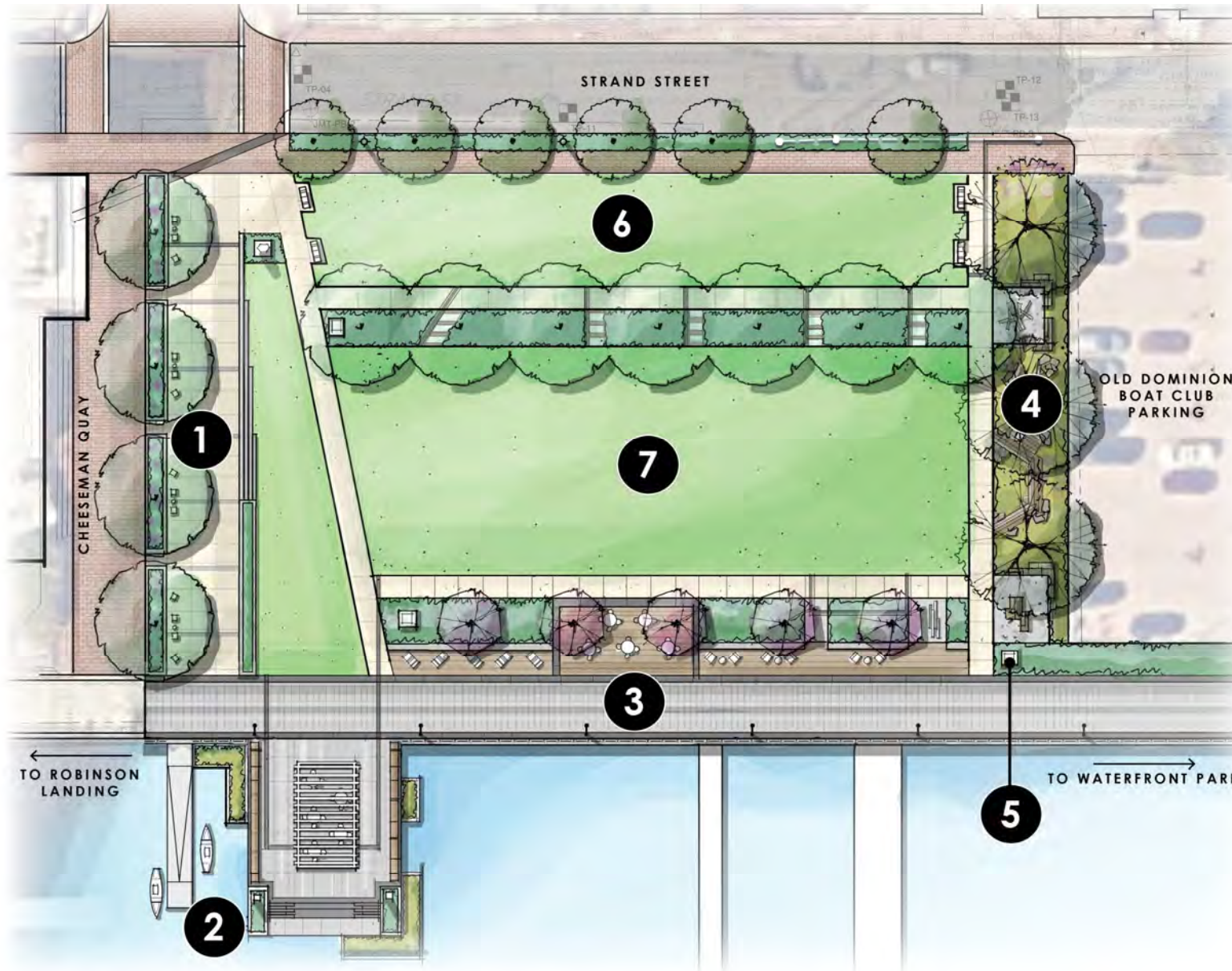
Alternate 2 – Remove West Plaza Max Lawn Space



- 1 Passive green space or programmable game lawn with cornholes, seat walls, and sliding wood crate seating
- 2 Pump station
- 3 Multi-use lawn
- 4 Arrival plaza with movable seating
- 5 Wales Alley River Gateway
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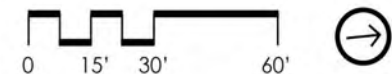
Site Plan: Feedback Requested



In keeping with the **Alexandria Small Area Waterfront Plan**, art, history, and storytelling will be woven throughout the park's function zones to create **unique and memorable experiences** unique to Alexandria, Virginia.

LEGEND:

- 1** Shipbuilding/River Gateway walk and lawn with feature stairs and relocated Shipbuilder statue
- 2** Wharf with signature shade structure, waterfront steps, floating wetlands, and kayak launch
- 3** 20' Promenade with seating and plaza
- 4** Bioretention with boardwalk and children's play/learning nodes
- 5** African American Heritage Trail signage
- 6** Future Rosenbaum bequest garden location
- 7** Grand event lawn





Construction Considerations and Planning

- ▶ Avoid & Minimize Impacts (where feasible)
 - ▶ Sidewalks remain open
 - ▶ Thoughtful phasing of work
 - ▶ Maximum Pedestrian & Delivery Access
 - ▶ Parking Mitigation
 - ▶ Reduce construction duration (multi-shift work)
- ▶ Direct Collaboration & Communication:
 - ▶ Business-Focused Stakeholder Group
 - ▶ Business Survey and Data Collection
 - ▶ Direct outreach to individual businesses
 - ▶ Clear communication as planning continues
- ▶ Evaluate options for phased park closure/opening
- ▶ Transit Planning/Rerouting Options
 - ▶ Before / During / Post Construction

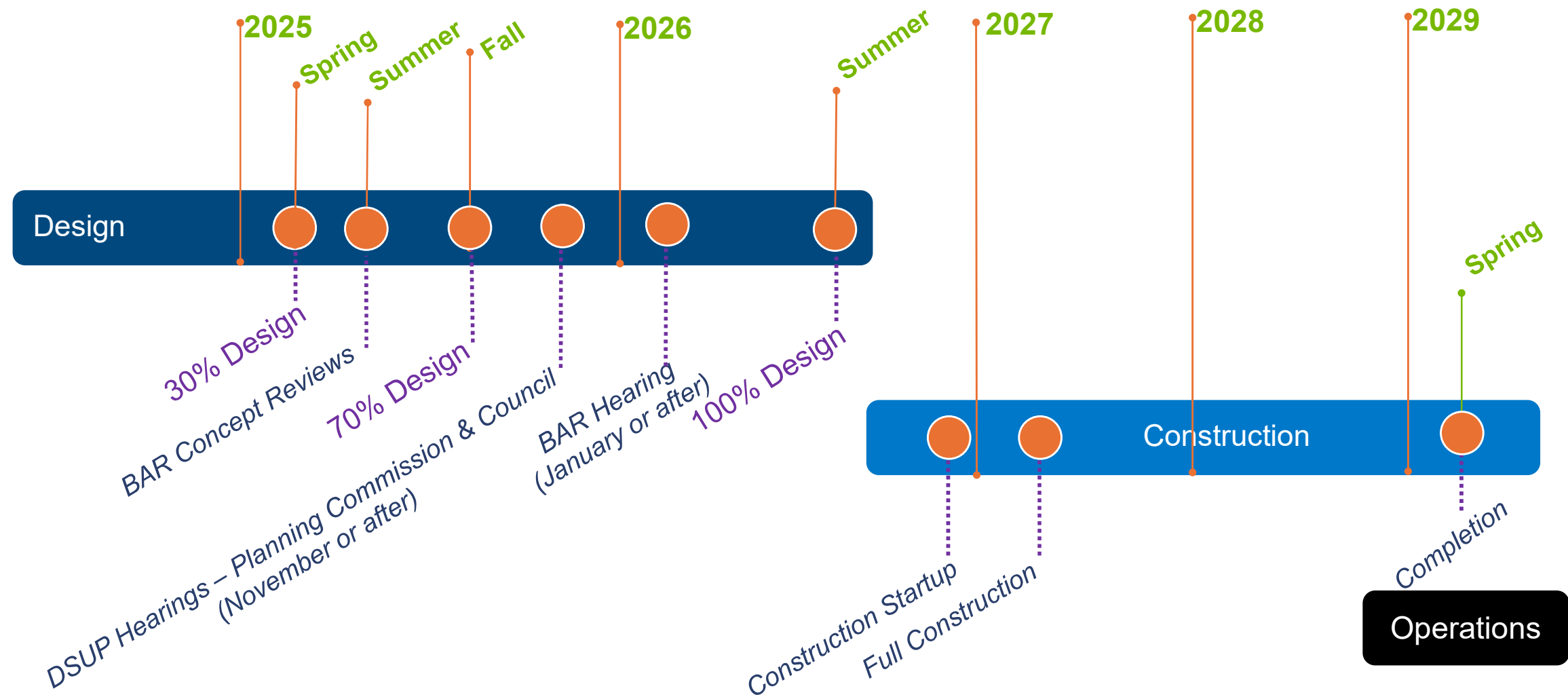


Other ideas considered?

- ▶ Green Infrastructure
- ▶ Pervious Pavement (brick pavers – streets and sidewalks)
- ▶ Bioretention & Raingardens
- ▶ Stormwater Ponds in Parks
- ▶ Underground Storage (stormwater)
- ▶ Multiple pump stations
- ▶ Allow parks & streets to flood / Floodproof Buildings
- ▶ Deep dredging of Potomac River
- ▶ Flood barriers without a pump station
- ▶ Levee system (Army Corps)



Anticipated Schedule





Project Information & Updates

▶ Participate in upcoming Business-Owner Stakeholder Meetings

▶ <https://www.alexandriava.gov/Waterfront>

▶ Email Project Manager: Matthew.Landes@AlexandriaVA.gov

▶ Signup for Updates and Newsletter:



▶ Signup for Alexandria eNews:



▶ Go To Planning & Zoning category

▶ Select “Waterfront Planning”

Reference Slides



Alternative Pump Station Location Evaluation

- 1 110 S Union
- 2 1 Prince Street
- 3 2&6 Prince Street
- 4 Point Lumley Park
- 5 Foot of Prince Street



(locations suggested for evaluation by stakeholders)



1 Prince Street Considerations

▶ **Additional \$25M – \$45M of new funding.**

- ▶ Estimated initial range of costs & risks associated with acquisition, design/re-permitting.
- ▶ Factors increased costs of construction and inflation due to delay.
- ▶ More in-depth assessment would be warranted to establish a formal and specific budget request.

▶ **Acceptance of Longer Implementation Schedule: 2 – 4 years**

- ▶ For obtaining new funding, acquisition, redesign, environmental/NEPA compliance, re-permitting
- ▶ Potential to increase construction duration.

▶ **Acceptance of increased community and business impacts:**

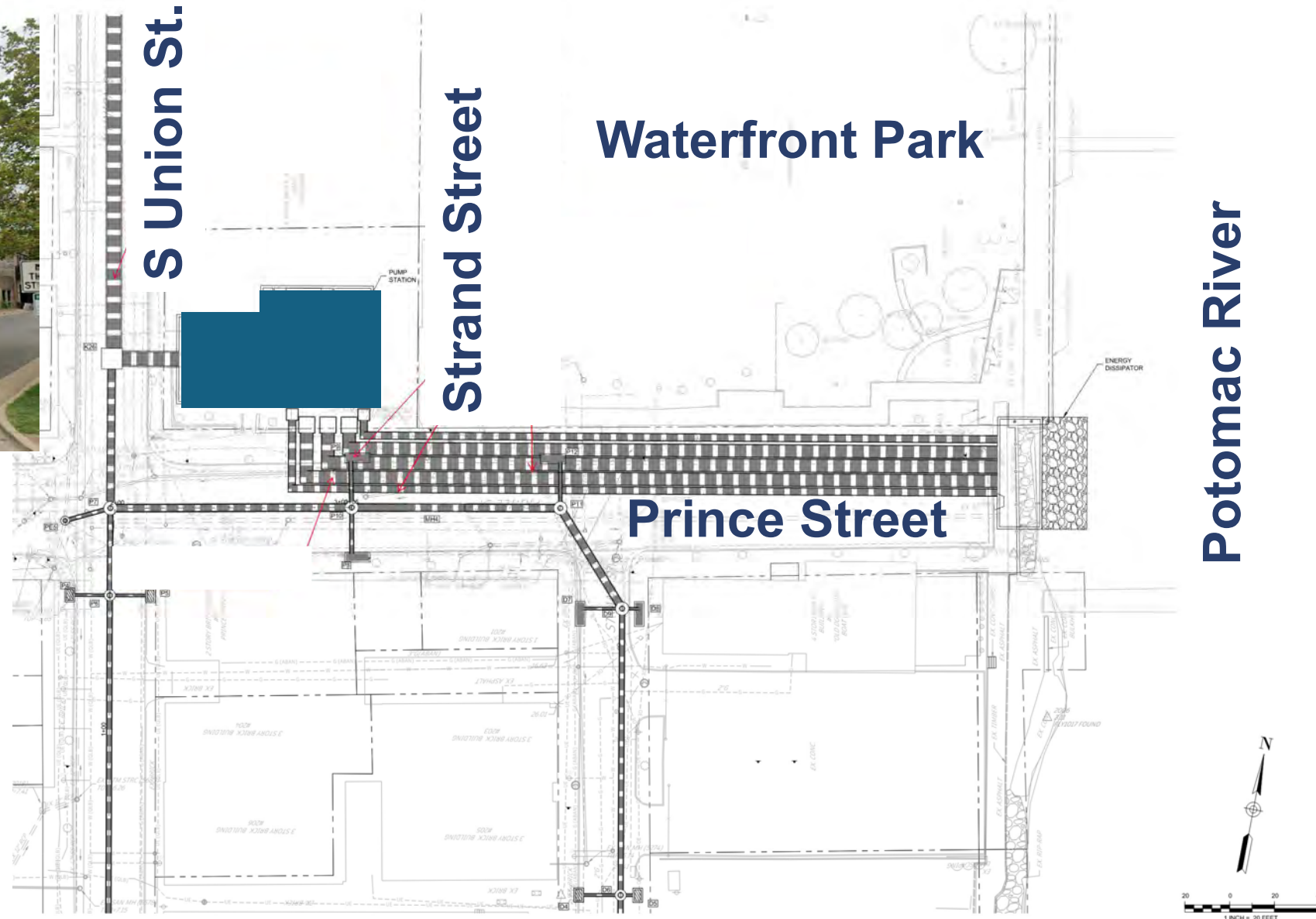
- ▶ Increased construction footprint anticipated in Right of Way
- ▶ Longer duration of community impacts
 - ▶ S. Union Street from King to Prince (5-8 months). This segment is not currently impacted by current design.
 - ▶ Closures on Strand Street and unit block of Prince Street (8-18 months) for safe construction of the station and project.

Alternative Site – 1 Prince

Conceptual Draft, Deliberative, Pre-Decisional



- Likely technically Feasible:
 - Constraints / Increased Costs & Risks-
 - Restricted laydown & staging
 - Risks to adjacent structures
 - Limited crane swing/access space
 - Potential damage / foundation risks
 - Sewer conflicts Union and Strand
 - Increased community impacts:
 - Longer closure of S Union and Prince



Stormwater Infrastructure Plan

