



CITY OF ALEXANDRIA  
Project Implementation



# CITY COUNCIL PROJECT BRIEFING

## Alexandria Waterfront Implementation: Flood Mitigation

March 24, 2026

T&ES - Project Implementation

Draft, Deliberative, Pre-Decisional



# Waterfront Briefing

- ▶ **Key Issues**
  - ▶ **NPS Update**
  - ▶ **Cost Estimate Update**
  - ▶ **Alternate Pump Location: 1 Prince Cost Estimate**
- ▶ **Options & Associated Costs**
- ▶ **Next Steps**



# NPS Update: Deed Modification

## ▶ Interior Department & NPS changed position and intent:

- ▶ Deed modification required to build pump station as planned.
- ▶ NPS has stated support for the flood mitigation project since 2017.
- ▶ Deed modification and NEPA process were underway.

## ▶ Changes in position:

- ▶ Pump station considered an “impermissible use.”
- ▶ Will not change current height restriction (15’).
- ▶ Do not consent to modification.



# Cost Estimate Update

▶ **Based on recent cost estimates, project costs have increased:**

- ▶ Phase 2 estimated cost increased from \$118M to \$189M

▶ **Major Cost Drivers:**

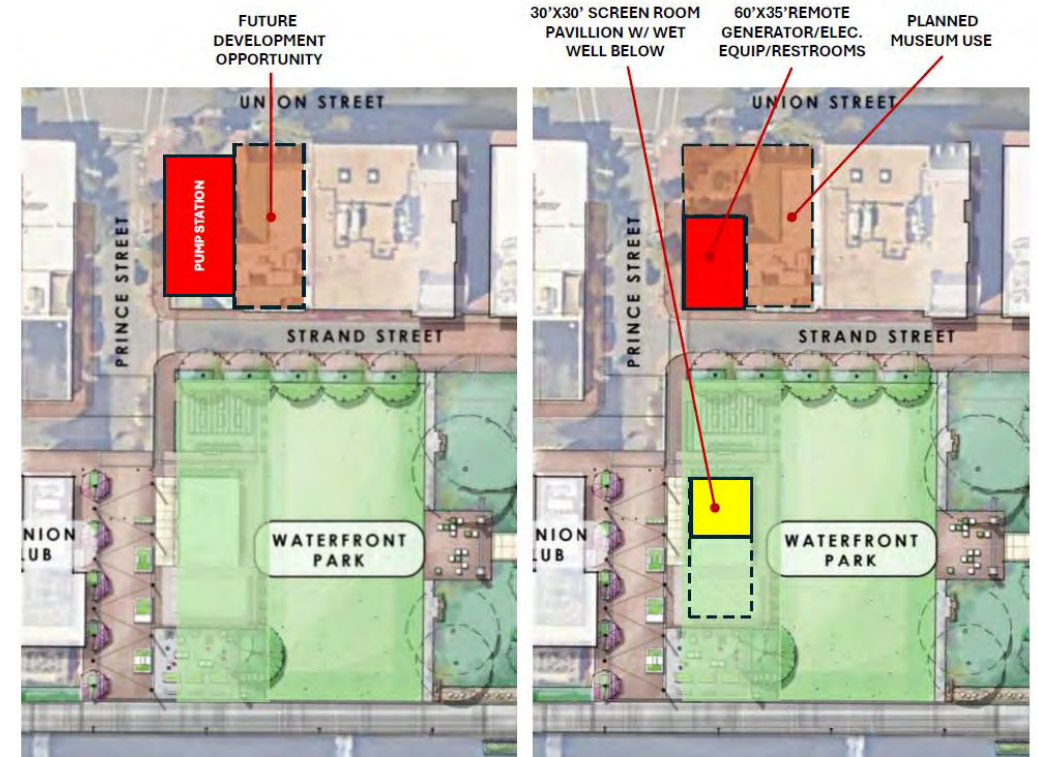
- ▶ Market and price impacts from tariffs and inflation
- ▶ Increasing labor costs over time
- ▶ Delays & added costs associated for alternative analyses
- ▶ Greater understanding of construction risks & environmental conditions

▶ **Total estimated project costs exceed current funding by \$60M - \$80M**

<u>Individual Scopes</u>	<u>30% Estimate Values</u>
Pump Station -	\$ 62,408,175
Pump Station Outlet -	\$ 8,719,852
Bulkhead -	\$ 38,765,062
Promenade -	\$ 5,432,339
Storm Sewer -	\$ 37,955,401
Street Improvements -	\$ 3,621,474
King Street -	\$ 6,044,528
Point Lumley Park -	\$ 7,686,427
Waterfront Park -	\$ 18,846,574
<b><u>30% Estimate Total -</u></b>	<b>\$ 189,470,831</b>

# 1 Prince Street Alternatives

- ▶ Validated City’s initial cost estimate (\$25M - \$46M)
- ▶ Evaluated full relocation and a “split station” concept
- ▶ AWA Stakeholders reviewed draft
- ▶ Final Report anticipated by end of March
- ▶ NPS reversal may preclude split-station concept



**Full Relocation**

**+ \$22.5M - \$53.3M\***

**Split Station**

**+ \$23.3M - \$51.7M\***

**\*DRAFT FIGURES**  
(pending collaboration with AWA)



# Project Design Alternatives

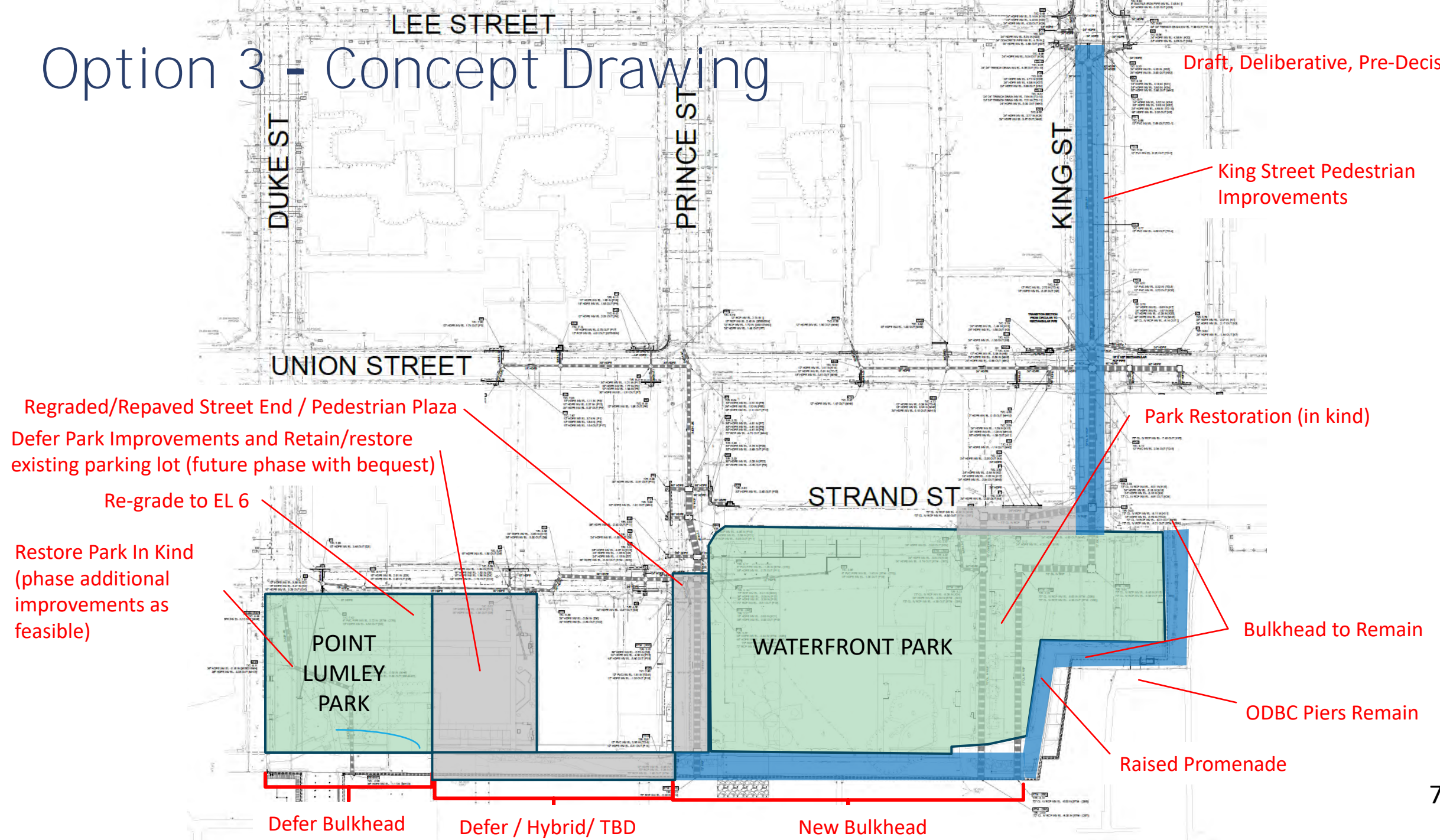
## ▶ **Concept & Additional Cost:**

- ▶ Option 1A – Deliver current project concept. (\$60M - \$80M) – Precluded by NPS
- ▶ **Option 1B – Option 1A plus 1 Prince. (\$100M - \$130M)**
- ▶ Option 2 – Defer bulkhead and park improvements. (\$20M - \$30M) – Precluded by NPS
- ▶ **Option 3 – Enhanced Gravity-storm sewer system (within budget\*)**
  - ▶ Eliminate pump station & defer improvements to Point Lumley Park & Bulkhead
- ▶ **Option 4 – Minimal infrastructure improvements (within budget)**
  - ▶ Repair/replace limited portion of existing system and address sunny day flooding
  - ▶ Limited pipe upsizing
  - ▶ No bulkhead improvements or increase in height

\*Independent cost verification required if option selected.

# Option 3 - Concept Drawing

Draft, Deliberative, Pre-Decisional



Regraded/Repaved Street End / Pedestrian Plaza

Defer Park Improvements and Retain/restore existing parking lot (future phase with bequest)

Re-grade to EL 6

Restore Park In Kind (phase additional improvements as feasible)

POINT LUMLEY PARK

WATERFRONT PARK

King Street Pedestrian Improvements

Park Restoration (in kind)

Bulkhead to Remain

ODBC Piers Remain

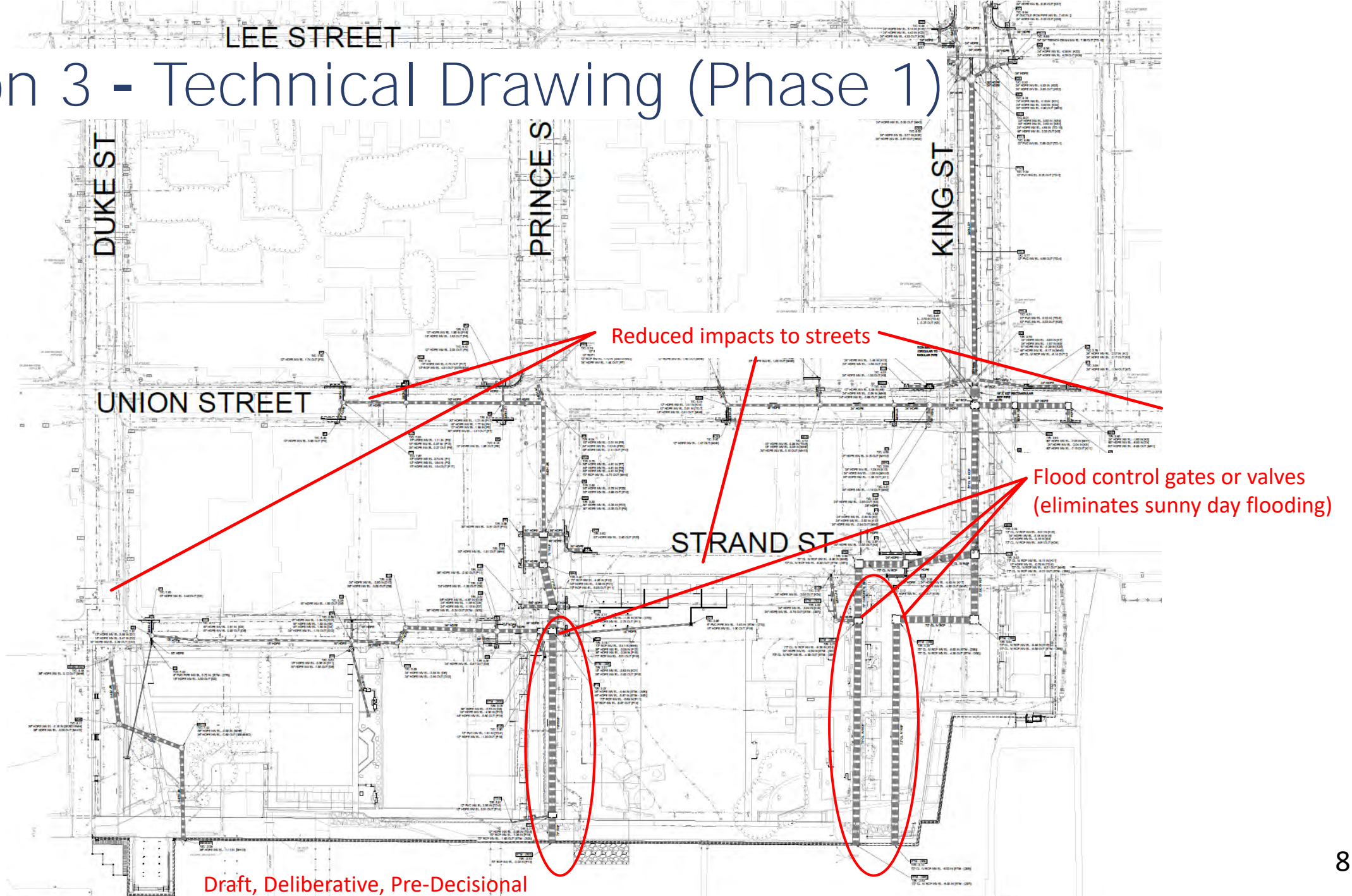
Raised Promenade

Defer Bulkhead

Defer / Hybrid/ TBD

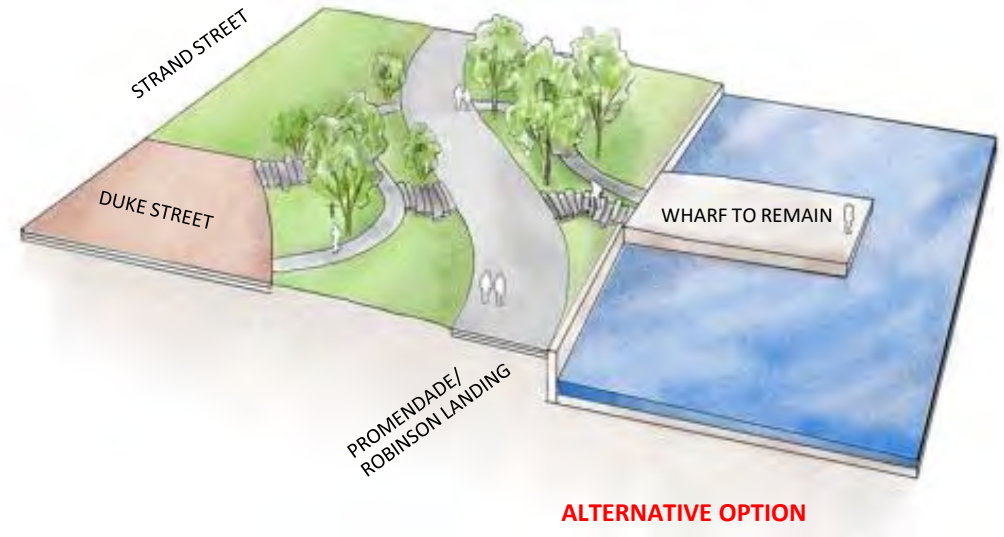
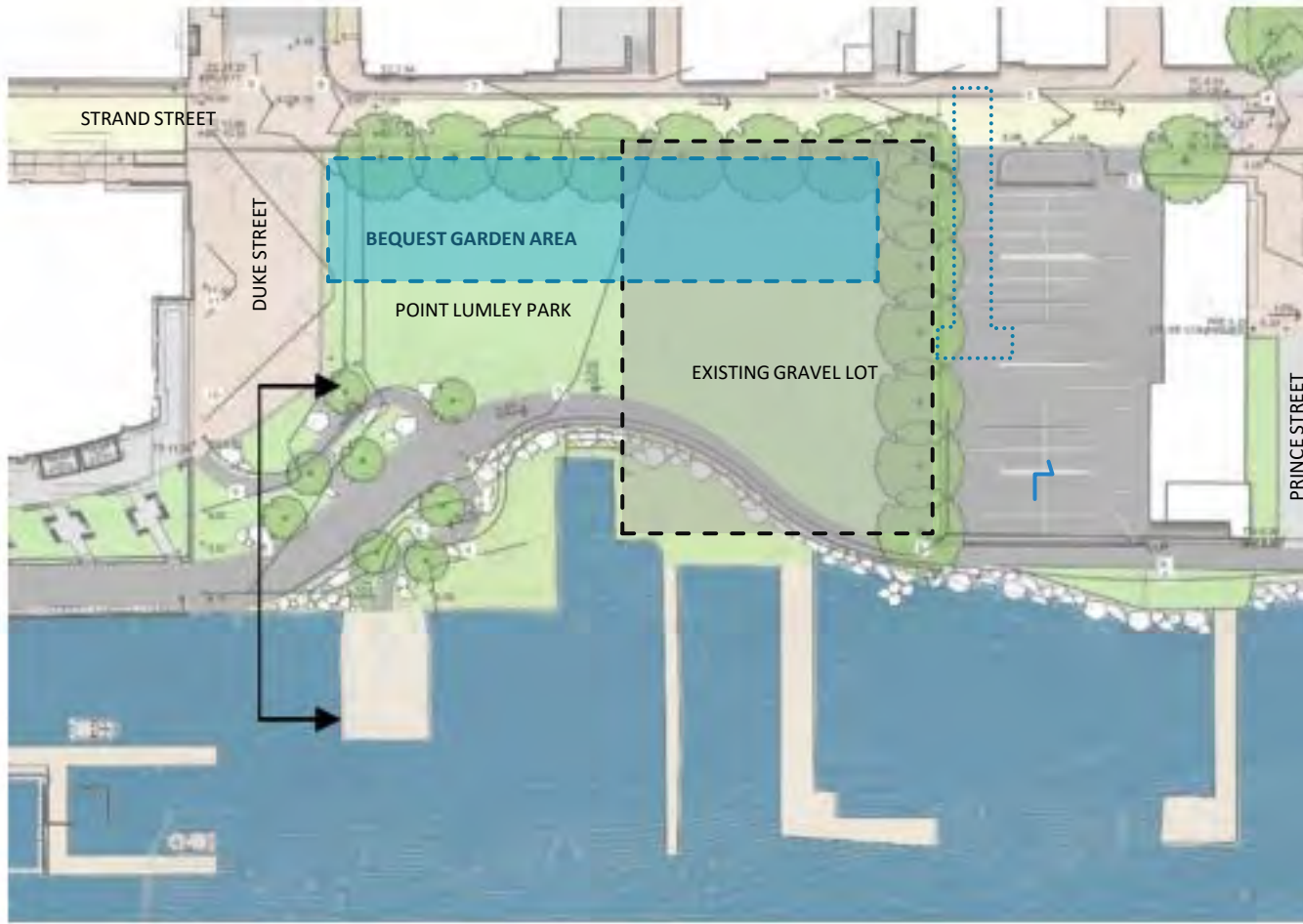
New Bulkhead

# Option 3 - Technical Drawing (Phase 1)



Draft, Deliberative, Pre-Decisional

# Point Lumley Shoreline Alternate



# Performance & Benefits

NPS ELIMINATED OPTION 1A AND 2

	Option 1A & 1B	Option 2	Option 3	Option 4
OPTION'S BENEFITS	CURRENT PROJECT CONCEPT	PUMP STATION ONLY - DEFER PT. LUMLEY (BULKHEAD/PARK)	ENHANCED GRAVITY SYSTEM DEFER PT. LUMLEY (BULKHEAD/PARK)	OUTFALL REPLACEMENT & BACKFLOW PREVENTERS
ELIMINATE SUNNY DAY FLOODING	YES	YES	YES	YES
RIVER FLOOD PROTECTION (TO EL. 6.0)	YES	YES	YES	NO
IMPROVE STREET FLOODING	YES	YES	YES	LIMITED
ELIMINATE TIDAL INFLUENCE ON STORM SEWER	YES*	YES*	NO. Improved.	NO
PREVENTS STORM SEWER IMPACT ( 1-2' SEA LEVEL RISE)	YES	YES	NO. Adaptable with future station.	NO

\*When Potomac River is below proposed bulkhead elevation – no impact.

# Performance & Benefits

	Option 1	Option 3
OPTION'S PERFORMANCE / BENEFITS	CURRENT PROJECT CONCEPT	ENHANCED GRAVITY SYSTEM DEFER LUMLEY BULKHEAD/PARK
<b>OPTION'S PERFORMANCE</b>		
ELIMINATE SUNNY DAY FLOODING	YES - 100%	YES - 100%
RIVERINE FLOOD PROTECT( TO EL. 6.0)	YES	YES - with alternative hybrid shoreline along Pt. Lumley shore
IMPROVE STREET FLOODING/PONDING	YES - Major Improvement -Manages City Standard Design Storm Event: 10yr - 2hr - 2.5inch depth	YES - Major Improvement - Due to Tidal Influence, performance ranges from: 1 yr 1.5" depth to Design Storm
ELIMINATES TIDAL INFLUENCE ON STORM SEWER	YES. As long as river below E.L. 6 - no impact.	Partial - *Yes, when Potomac River is <+1.5' above sea level (EL. 1.5). *No, when Potomac River elevation is > el.1.5, similar to existing. *Pump Station required to prevent tidal influence.
PREVENTS IMPACT TO SWM SYSTEM FUNTION WITH 1-2' SEA LEVEL RISE?	YES. As long as river below E.L. 6 - no impact.	NO. Anticipated 1-2' of sea level rise will significantly impact performance of storm sewer system. *Pump Station will be required in response to sea level rise.



# Aging & Failing Infrastructure



# Riverine Protection and Benefits

**OPTIONS 1-3 ELIMINATE 100% OF SUNNY-DAY FLOODING AND RIVER OVERTOPPING TO ELEVATION 6**

	Sunny-Day Flooding	River Overtopping Bulkhead
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
Between now and Year 2100, we anticipate...	353 events/yr	341 events/yr

## Potomac River Surface Elevation

Flooding Analysis Over Time At Prince Street/Waterfront

# Riverine Overtopping & Flooding

Draft, Deliberative, Pre-Decisional





# Recommendation

- ▶ **Further evaluate Option 3 Enhanced Gravity System:**
  - ▶ Further develop design for improved gravity-system and backflow.
    - ▶ Remove pump station & defer majority of Point Lumley Park/Bulkhead
    - ▶ Determine construction means and methods
  - ▶ Validate construction costs (vs funding).
  - ▶ Stakeholder Outreach and Public Engagement
  - ▶ Update project schedule
  
- ▶ **Benefits:**
  - ▶ Addresses sources of most frequent and severe flooding
    - ▶ “Sunny day flooding” from river backflow
    - ▶ Replaces & raises a critical bulkhead segment
  - ▶ Anticipated to be within existing funding
  - ▶ Construction team can proceed with design & construction with limited further delay
  - ▶ Many stakeholder concerns addressed



# Next Steps

- ▶ **Council Feedback & Guidance on Options**
- ▶ **Stakeholder Outreach & Community Engagement**
- ▶ **Design Development**
  - ▶ **Cost update**
  - ▶ **Schedule update**
- ▶ **Council Concurrence on Scope (~June)**
- ▶ **Advance Design & Development Review Process**
- ▶ **Development of Guaranteed Maximum Price (GMP)**



# Stakeholder Outreach & Community Engagement

- ▶ **1 Prince Stakeholder Representatives**
- ▶ **Commission Updates – Waterfront, Parks and Recreation, Environmental Policy**
- ▶ **Community Meeting**
- ▶ **Alexandria Waterfront Alliance & Old Dominion Boat Club**
- ▶ **Old Town Civic Association**
- ▶ **Neighboring Business Stakeholders Meeting**