



Fall 2021 Capital Improvement Program (CIP) Worksession #2

Capital Improvement Project Updates

October 13, 2021

AGENDA

Item

Public Buildings

- VFA Update
- Project Updates
 - Witter/Wheeler Campus; DASH Facility Expansion; DCHS Colocation; City Hall/Market Square; Minnie Howard HS City Programs; Landmark Fire Station 208
- Energy Management Program/Projects

Transportation

- Project Updates
 - Vision Zero/Complete Streets; Transitways; DASH Electrification; State of Good Repair Programs; Historic Infrastructure Maintenance

Environmental

- Flood Action Alexandria
- Waterfront Small Area Plan Implementation

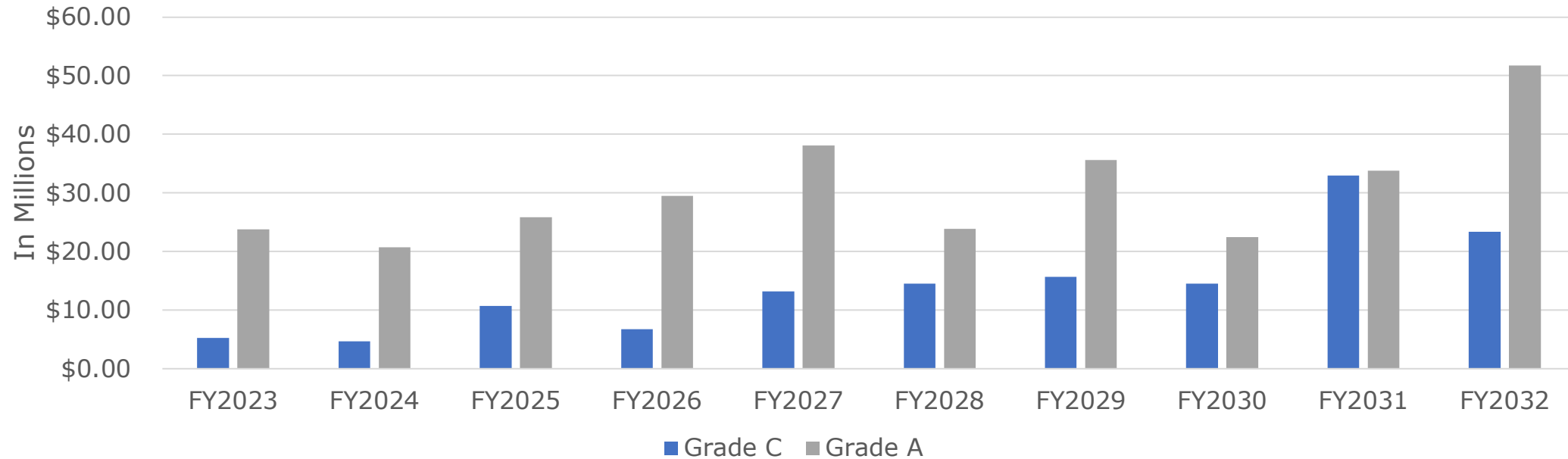


Public Buildings

Jeremy McPike

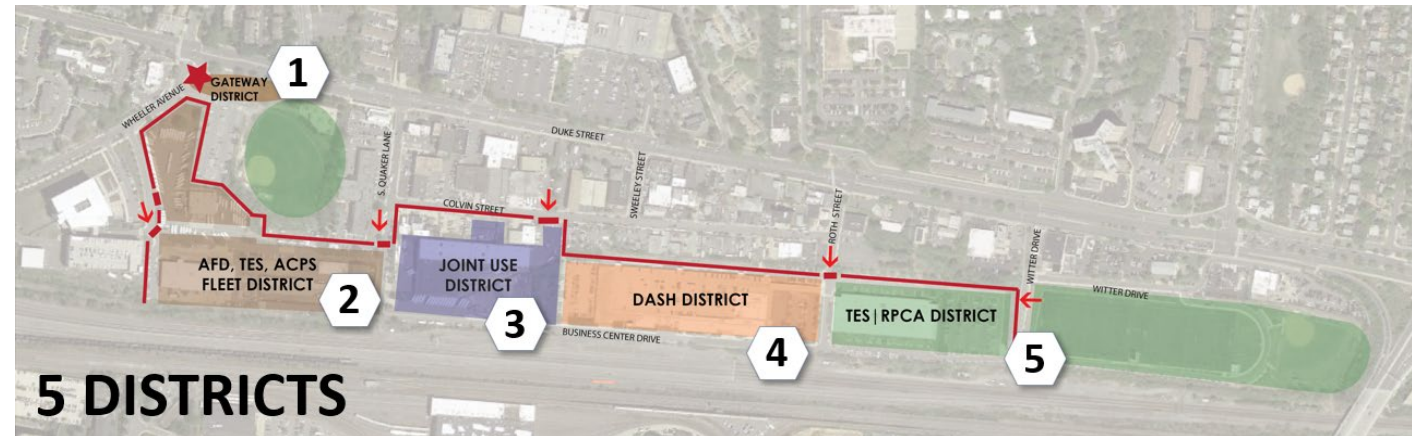
Director of Department of General Services

CFMP/VFA UPDATE



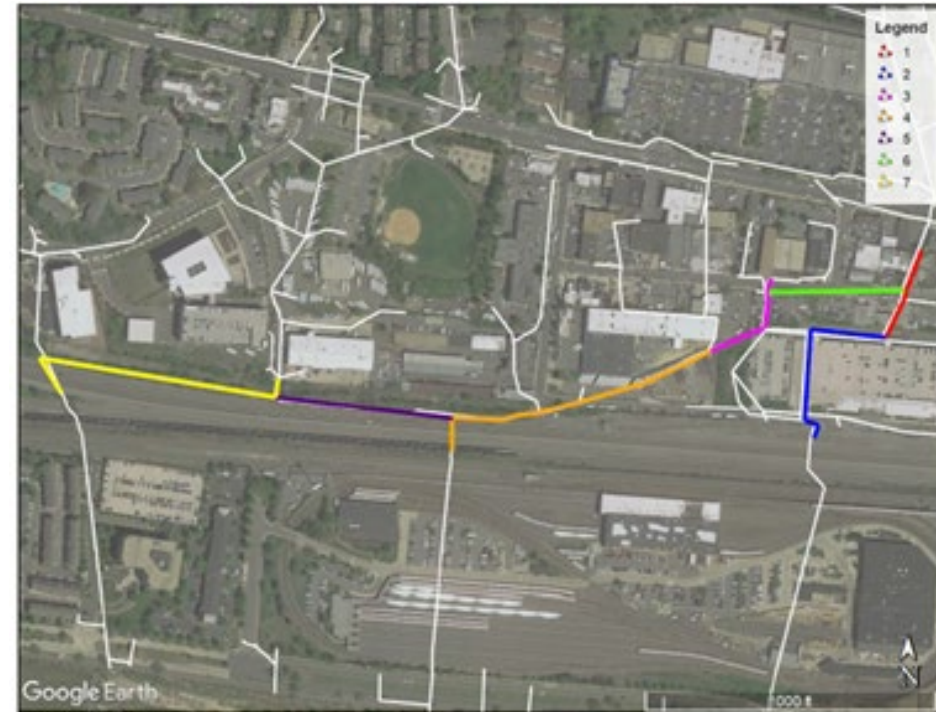
- Grade C funding for 10-Years - \$141.71M
 - Includes an additional 10% on top of "replace in kind cost" to advance Green Building Policy requirements
- Grade A funding for 10-Years - \$305.37M

WITTER WHEELER MASTER PLAN



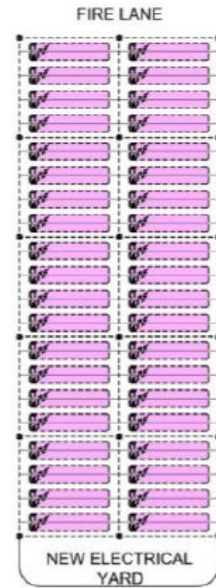
- The Witter Wheeler Master Plan identifies optimal reuse of City-owned property and facilities to meet current and future space needs.
- The Plan also addresses the stormwater and traffic flow issues in and around the 54-acre campus.
- The Master Plan Feasibility Study was budgeted at \$210,000 in FY2018.
- FY22 CIP includes \$960,000 for the design of infrastructure and support facilities needed in the first phase of development.

WITTER WHEELER STORMWATER



- The WW Master Plan was informed by the Stormwater Study prepared in 2019.
- The study looked at three alternatives: storage upstream, directional drilling and re-routing.
- Re-routing will effectively provide relief to the campus by diverting stormwater to higher capacity drainage pipes in the vicinity.

DASH EXPANSION



- DGS is currently evaluating proposals for A/E services to complete concept design work funded by a NVTAG grant.
- In FY23, the City and ATC will proceed with Design-Build delivery of the Phase 1 canopy structure.
- The expansion will accommodate 40 new battery electric buses and charging infrastructure.

DCHS/HEALTH COLOCATION



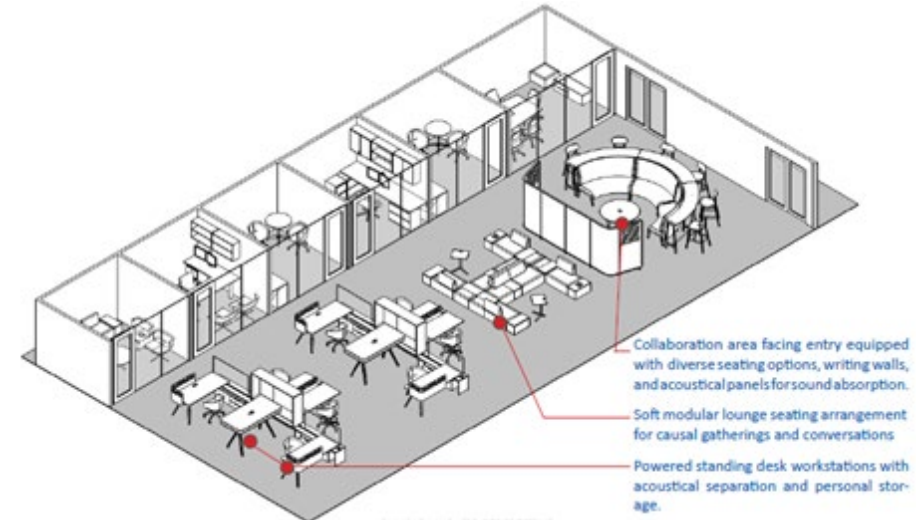
- Consolidation of DCHS, AHD and NH Facilities plus West End Service Center.
- Construction Documents Completed - Oct. 2021
- Final GMP and GC Construction Contract Executed - Jan. 2022
- Construction to be carried out in phases with full occupancy scheduled for Feb. 2023
- City will purchase building in March 2023

MARKET SQUARE



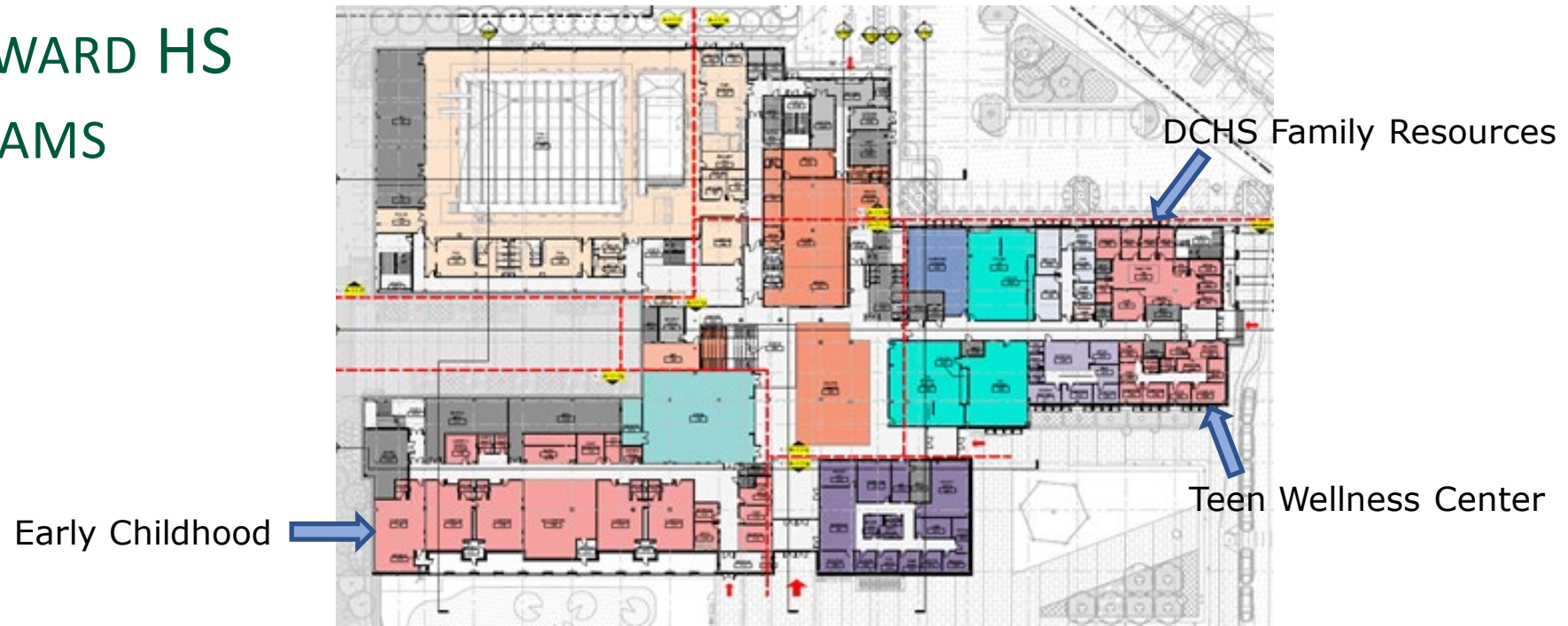
- Extensive public engagement will need to be planned to discuss potential Market Square design/layout/features
- Address extensive deterioration of plaza, landscaping and garage structure

CITY HALL



- Continuation of City Hall structural repairs and includes replacement of additional windows, doors and roof components
- Reprogramming using revised Workplace Standards in FY24 at earliest
- Renovation of interior spaces planned for FY25 at earliest

MINNIE HOWARD HS CITY PROGRAMS



- The Minnie Howard HS project is in design development and three City functions are collocated on campus:
 - DCHS Early Childhood Program - 11,081 sf
 - DCHS Family Resources Suite - 2,149 sf
 - AHD Teen Wellness Center - 2,030 sf
- Current budget estimate for City portion of project is \$9.1M, to be requested in the FY23 budget process

LANDMARK FIRE STATION 208



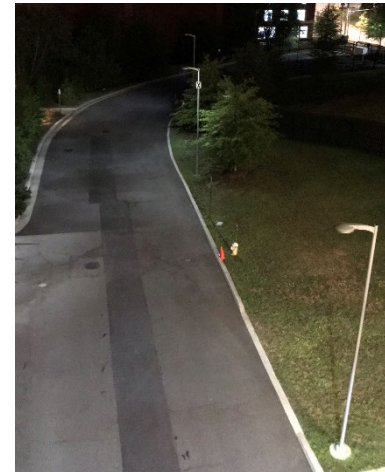
FS 208 Corner Site

- Fire Station 208 to be relocated to Landmark site in conjunction with public-private redevelopment
- Affordable Housing on upper levels is also planned

ENERGY PROJECT UPDATES

- Continue strategic investment in energy performance and greenhouse gas reductions, indoor environmental quality, comfort for City buildings (EAP, ECCAP)
 - Lighting - Interior and Exterior
 - HVAC system & building envelope enhancements
 - Building management systems & commissioning
 - Net-zero energy analysis & planning
 - LED streetlight & park lighting (w TES & RPCA)

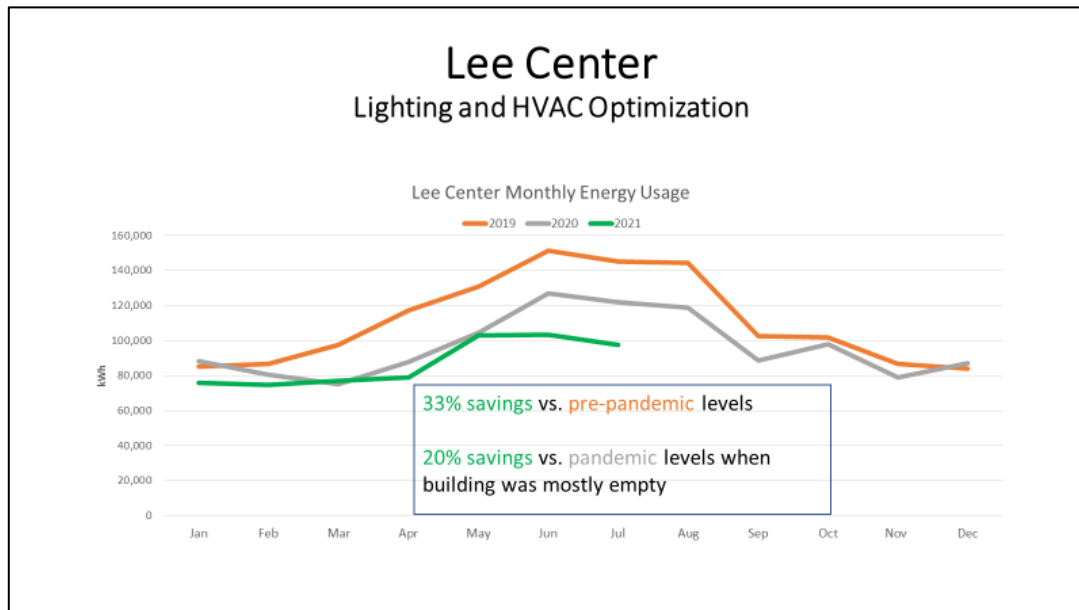
APD Exterior LED Lighting Retrofits



Before



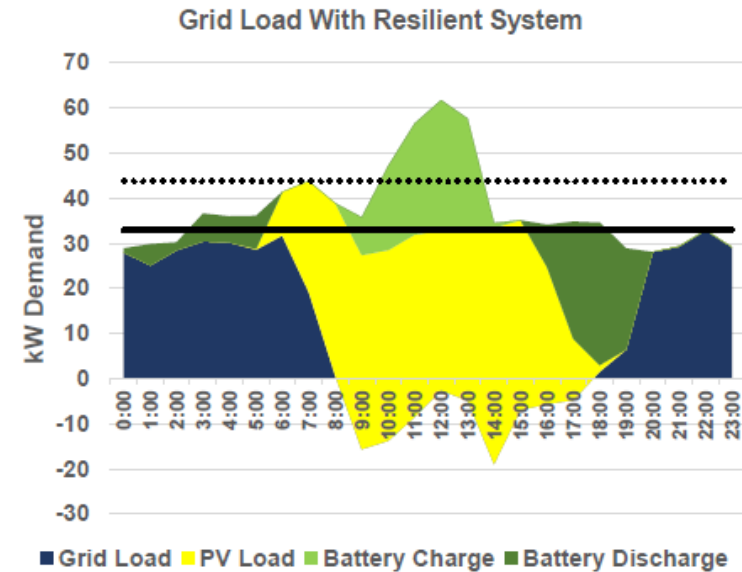
After



SOLAR, BATTERY STORAGE, & MICROGRIDS

(AT EARLY STAGE OF CONSIDERATION)

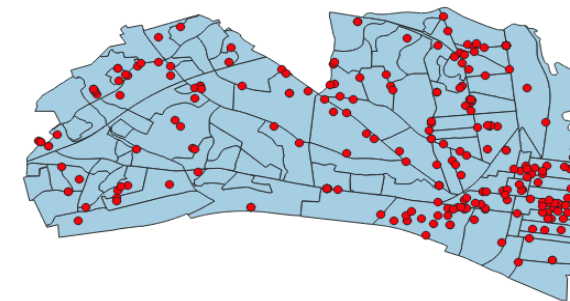
- Feasibility analysis identifying opportunities for critical facility emergency power systems
- Addt. benefits include cost and energy savings, greenhouse gas emission reductions even when not needed for emergency power
- Consideration of P3 opportunities



Resilient Microgrid

ELECTRIC VEHICLE CHARGING

- DASH Zero-emission bus program
 - Feasibility Study
 - Charging infrastructure for pilot
 - Implementation Plan
- Electric Vehicle Charging Station Readiness Strategy
 - Fleet and publicly-accessible



Red points indicate sites of interest in Alexandria that could be considered for electric vehicle charging infrastructure.

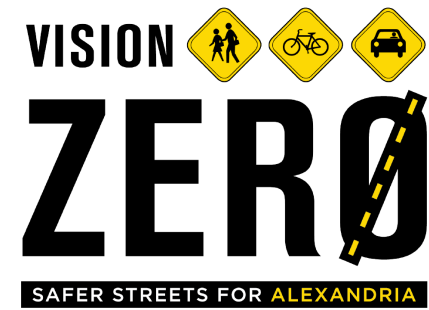


Transportation

Yon Lambert

Director of Transportation and Environmental Services

VISION ZERO/COMPLETE STREETS



- Complete Streets CIP
 - Includes Vision Zero (VZ), Safe Routes to School, pedestrian and bicycle projects, traffic calming, resident requests and capital projects
- Through 2020, 60% of VZ Action Plan items complete or showing significant progress (2028 target)
- Proactive focus on equity areas and data driven decision making
 - Reading/Rayburn FY22
 - Mount Vernon Avenue North FY23



TRANSITWAYS

- City success in funding capital
 - Ongoing operations starting in FY27
- Considering regional connections
 - **Duke Street Corridor "B"**
 - \$87M of NVTa funding for planning, design, and construction
 - FY22: Community visioning and concept planning
 - **West End Transitway "C"**
 - \$74M of NVTa, State and TIP funding
 - Phased project with Phase I currently in design
 - **Route 1 Metroway "A"**
 - Future funding for construction of extension to PY Metro and Arlington



DASH ELECTRIFICATION

- City commitment to electrification of fleet
- Facility and charging infrastructure needs anticipated for 10-year CIP are 58% funded
 - Funding gap to upgrade all infrastructure is \$6.8M (of \$16.3 million program)
- Fleet needs anticipated for 10-year CIP are 57% funded
 - Funding gap to upgrade fleet is \$62 million (of \$143.5 million program)
- Federal and state grants will be pursued for electrification
 - Council consideration of Federalization -- Fall 2021
- DASH Fleet will be 100% electric by FY 2038



STATE OF GOOD REPAIR – STREETS AND BRIDGES

- Street Resurfacing
 - COVID and other impacts to state funding the City has relied on for years
 - +/- 15 fewer lane miles per year for ~5 years
 - FY22 State of Good Repair funding remains intact
- Bridge Maintenance
 - Four Mile Run Bridge projects underway – Glebe and Arlington Ridge Road
 - City's vehicular bridges exceed standard that qualify for funding
 - Continued refinement of bridge program to keep bridges in good repair, with ongoing focus on preventative and proactive maintenance



HISTORIC INFRASTRUCTURE MAINTENANCE



- Opportunities to preserve materials and the aesthetics of historic infrastructure
- 13 public streets & 4 public alleys previously identified
- Preservation-oriented street maintenance is a challenge; costs are significantly higher (work by hand, material challenges)
- Means and methods could mimic original materials and construction, but must be resilient and adapt to modern uses
- Funding options for maintenance of historic streets will be considered in this CIP





Environmental

Yon Lambert, Director of Transportation and Environmental Services

Terry Suehr, Director of Department of Project Implementation

FLOOD ACTION ALEXANDRIA

- Large Capacity Projects: Design Procurement in FY 2022
 - Commonwealth & E. Glebe/Ashby St & E. Glebe (combined #1 & #2 projects)
 - Hooffs Run Culvert / Timber Branch Bypass
- Spot Improvement Projects: 8-11 in 2023
 - Focus on neighborhoods
- Four Mile Run Stream and Channel Maintenance: Dredging FY 23



MANAGING STORMWATER THE GREEN WAY

- Where Flood Action & Eco-City meet
- "Green Infrastructure" commonly incorporated into existing City projects
 - **B**est **M**anagement **P**RACTICES (BMPs) mimic natural processes help soak up water and reduce pollutants
- Numerous examples citywide in private development and public infrastructure including facilities and parks
 - City staff share ideas in City Inter Departmental Review (CIDR) and cross-functional Stormwater Work Group
- Virtual tour online highlights ~20 locations in City



Bioretention Cell in Judy Lowe Park



Four Mile Run Park



Cisterns at FS 206/Seminary Road

VISION FOR THE WATERFRONT

- Waterfront Small Area Plan – Council adopted January 21, 2012
- Core Area Phasing and Implementation – Council adopted January 25, 2015
 - Primary Goals – (which continue to inform project priorities):
 - Address Core Area flooding
 - Mitigate high tide backing-up water onto streets (Backflow)
 - Mitigate storm sewer capacity issues (Inundation)
 - Significantly reduce frequency of flood impacts from Potomac River (Overtopping)
 - Ensure public access to the entire Waterfront
 - Create continuous pedestrian access along the entire Waterfront
 - Create engaging outdoor public amenities and event space

NEW APPROACHES AND OPPORTUNITIES

- Baseline approach developed a decade ago relies entirely on grey infrastructure and is costly.
- Best practices in resiliency have changed, from philosophy of “**evacuating**” to “**embracing**” the water.
- Align project with Green Building Policy and Water Quality Regulations
- Identified Quick Wins to deliver in 12 months or less
- Potential Grant Funding Opportunities
- Developed alternatives to stay within budget
- Emphasize the need to understand and verify community priorities –
Flood Mitigation vs focus on Public Amenity

ALIGNMENT WITH REGULATION AND LOCAL POLICY

- Green Building Policy (Adopted 2019)
 - Requires that public development “will treat 100% of the required stormwater treatment through green infrastructure.”
 - Water quality requirements for nutrient reductions shall be addressed by on-site management of stormwater via green infrastructure.
- Environmental Action Plan 2040 (Adopted 2019)
 - “Green Infrastructure Program Plan to prioritize projects, increase green infrastructure projects on public and private property, and promote green infrastructure as the leading approach for stormwater management in the City.
- Eco-City Charter (2008)
 - Vision and framework to create a sustainable future and City approach to infrastructure

EXTERNAL FUNDING OPPORTUNITIES

Focusing on grant programs:

- Virginia Community Flood Preparedness Fund
 - The Fund's cost share would cover 50% (or up to \$10 million) of planning and design costs.
 - A total of \$17 million is available
 - Anticipate a lower award amount than requested
- Building Resilient Infrastructure and Communities (BRIC) Grant Program
 - Grant up to 75% or a max of \$50 Million per project.
 - FY 2021 funding is \$1 billion.
 - Award notification is expected July 2022

QUICK WIN STRATEGIES

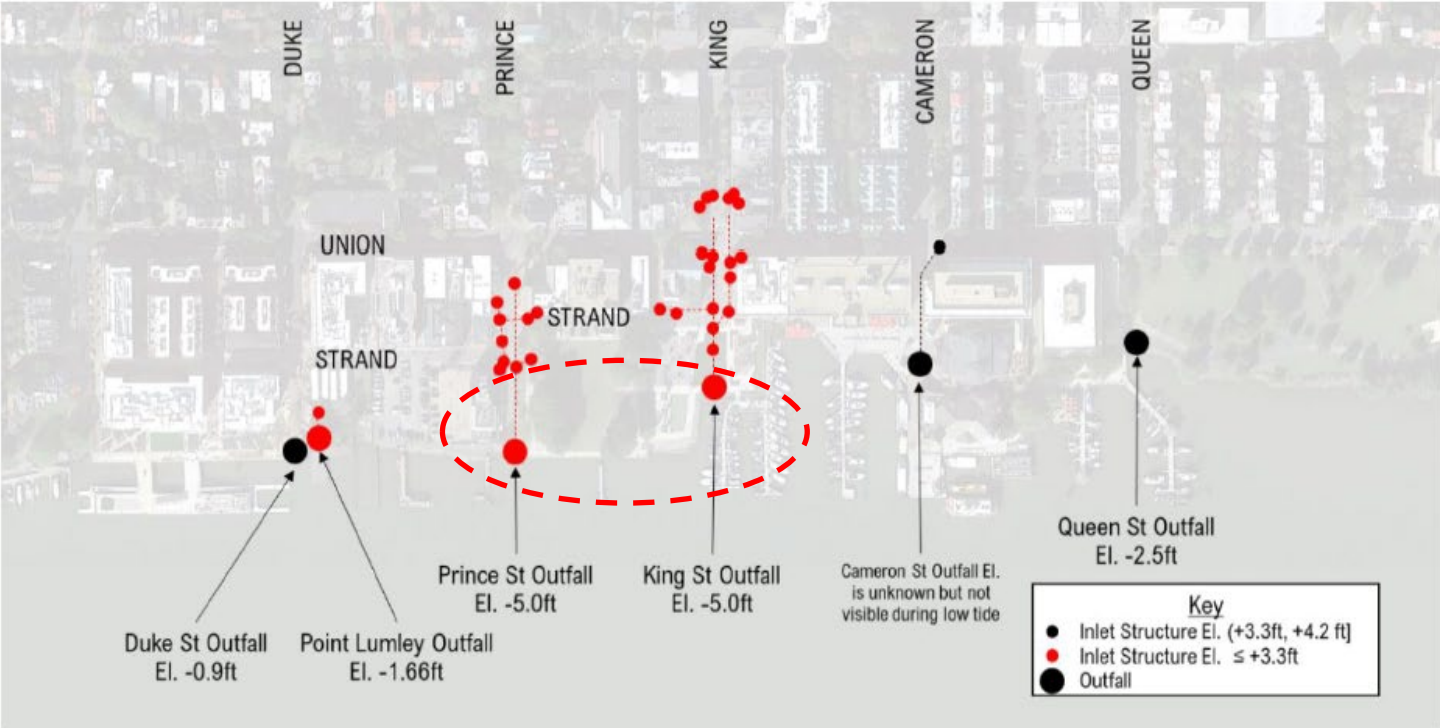
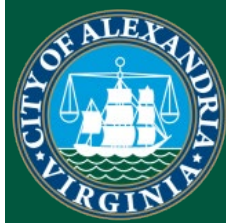
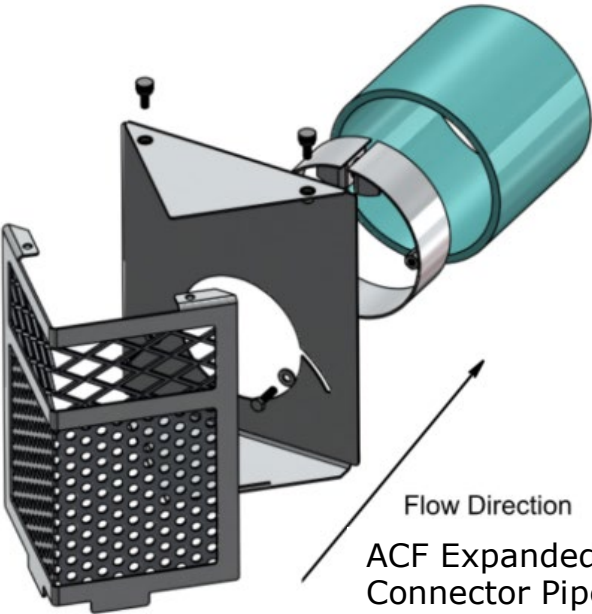


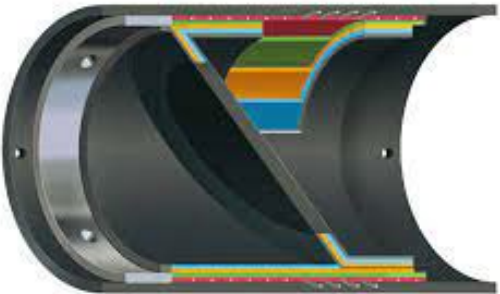
Figure 3 Location of Low-Lying (El. ≤ 3.3 ft) Manholes/Inlet Structures in the “core area”



Flow Direction
ACF Expanded
Connector Pipe
Screen



Red Valve Tideflex Valve



COST ESTIMATE ACCURACY (AACE CLASSIFICATION SYSTEM)

ESTIMATE CLASS	Primary Characteristic	Secondary Characteristic			
	LEVEL OF PROJECT DEFINITION Expressed as % of complete definition	END USAGE Typical purpose of estimate	METHODOLOGY Typical estimating method	EXPECTED ACCURACY RANGE Typical variation in low and high ranges [a]	PREPARATION EFFORT Typical degree of effort relative to least cost index of 1 [b]
Class 5	0% to 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment, or Analogy	L: -20% to -50% H: +30% to +100%	1
Class 4	1% to 15%	Study or Feasibility	Equipment Factored or Parametric Models	L: -15% to -30% H: +20% to +50%	2 to 4
Class 3	10% to 40%	Budget, Authorization, or Control	Semi-Detailed Unit Costs with Assembly Level Line Items	L: -10% to -20% H: +10% to +30%	3 to 10
Class 2	30% to 70%	Control or Bid/Tender	Detailed Unit Cost with Forced Detailed Take-Off	L: -5% to -15% H: +5% to +20%	4 to 20
Class 1	50% to 100%	Check Estimate or Bid/Tender	Detailed Unit Cost with Detailed Take-Off	L: -3% to -10% H: +3% to +15%	5 to 100

- Class 4 Level Estimate by Owner-Advisor Team
- Determine priorities



- Class 3, 2, & 1 Estimates by Engineer of Record / D/B Team
- Will determine costs of priorities & affordability



SCOPING TO BUDGET



ITEMS ESTIMATED TO BE WITHIN BUDGET:	\$		ITEMS ESTIMATED TO BE WITHIN BUDGET:	\$
UTILITIES - PUMP STATION #1	\$\$\$\$\$		UTILITIES - PUMP STATION #1	\$\$\$\$
UTILITIES - PUMP STATION #2	\$\$\$\$\$		UTILITIES - PUMP STATION #2	\$\$\$\$
UTILITIES - STORM SEWER	\$\$\$\$		UTILITIES - STORM SEWER	\$\$\$
UTILITIES - DRY	\$\$\$		UTILITIES - DRY	\$\$\$
UTILITIES - WET	\$\$		UTILITIES - WET	\$\$
RESTORATION OF PARKS	\$\$\$		RESTORATION OF PARKS	\$\$\$
RESTORATION OF ROW	\$\$		RESTORATION OF ROW	\$\$
			STRUCTURAL BULKHEAD	\$\$\$
			PROMENADE	\$\$
			KING STREET SQUARE IMPROVEMENTS	\$\$\$
TOTAL DIRECT COSTS	\$\$\$\$\$\$\$			
PRIORITIZED ITEMS NOT CURRENTLY WITHIN BUDGET:	\$		TOTAL DIRECT COSTS	\$\$\$\$\$\$\$
STRUCTURAL BULKHEAD	\$\$\$\$\$			
PROMENADE	\$\$\$			
KING STREET SQUARE IMPROVEMENTS	\$\$\$		PRIORITIZED ITEMS NOT CURRENTLY WITHIN BUDGET:	\$
WATERFRONT PARK IMPROVEMENTS	\$\$		WATERFRONT PARK IMPROVEMENTS	\$\$
MARINA IMPROVEMENTS	\$\$\$		MARINA IMPROVEMENTS	\$\$\$
POINT LUMLEY IMPROVEMENTS	\$\$		POINT LUMLEY IMPROVEMENTS	\$\$
KING STREET PIER	\$\$\$		KING STREET PIER	\$\$\$
ADDITIONAL PIERS	\$\$\$		ADDITIONAL PIERS	\$\$\$
TOTAL ADDITIONAL COST	\$\$\$\$\$\$\$		TOTAL ADDITIONAL COST	\$\$\$\$\$\$\$

COMPLEX FLOODING REQUIRES AN INTEGRATED SOLUTION.

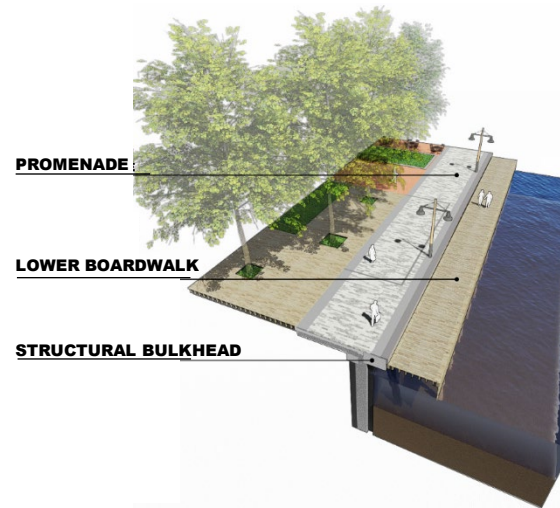
BACKFLOW of River Outfalls



Requires **backflow prevention** on outfalls

Occurs ~60x per year

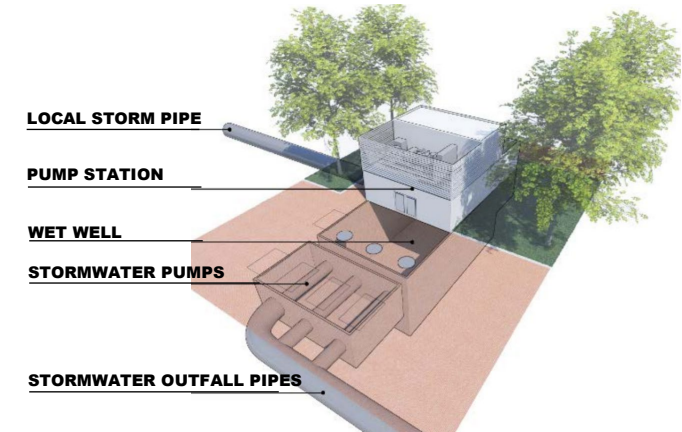
OVERTOPPING of Bulkhead



Requires a higher-elevation **flood barrier**

Occurs ~2-30x per year
depending on location

INUNDATION of Storm Sewers

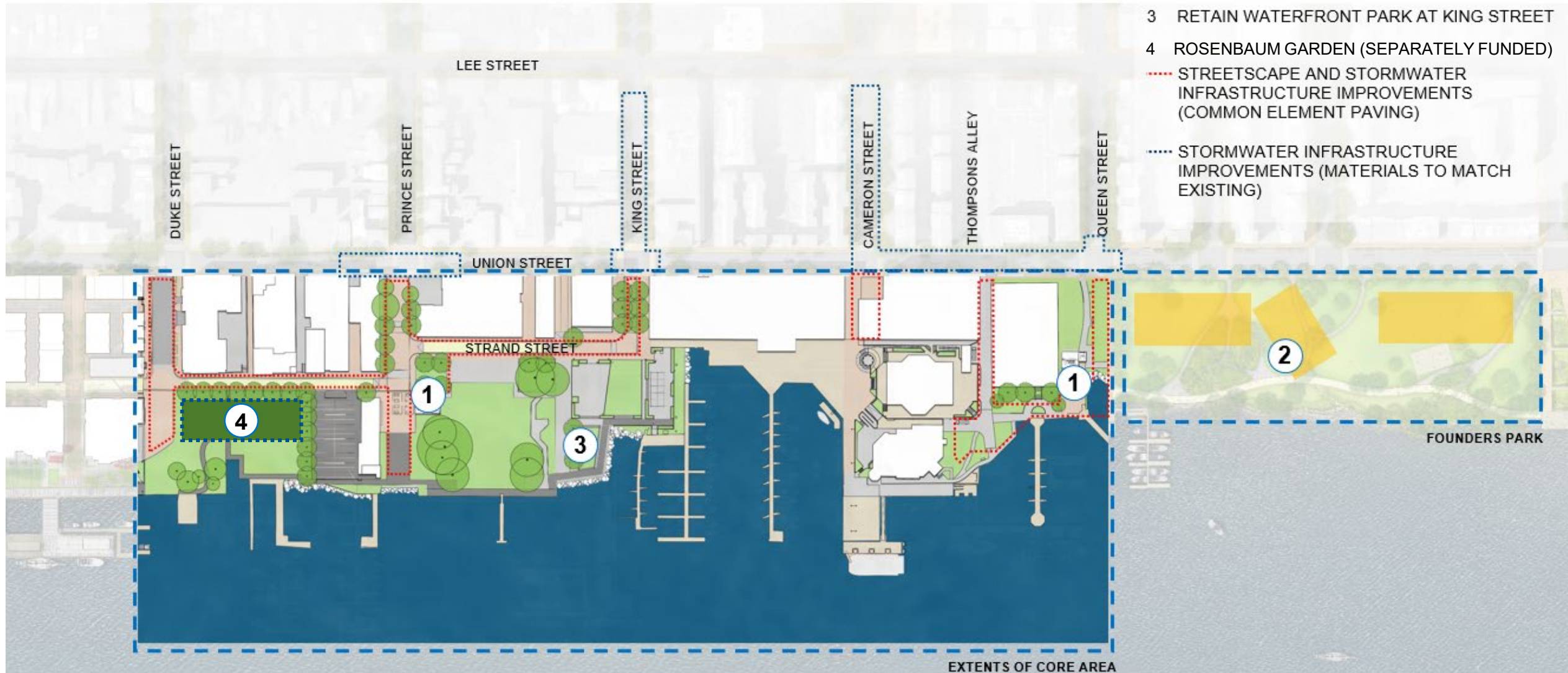


Requires new/larger inlet structures, new/larger storm sewer pipes, and **pumping**

Occurs ~10x per year
(and increasing in frequency)

// Cost Based Option – 1

Mitigates Rainfall Flooding; Defers Shoreline and Park Improvements



// Cost Based Option - 1

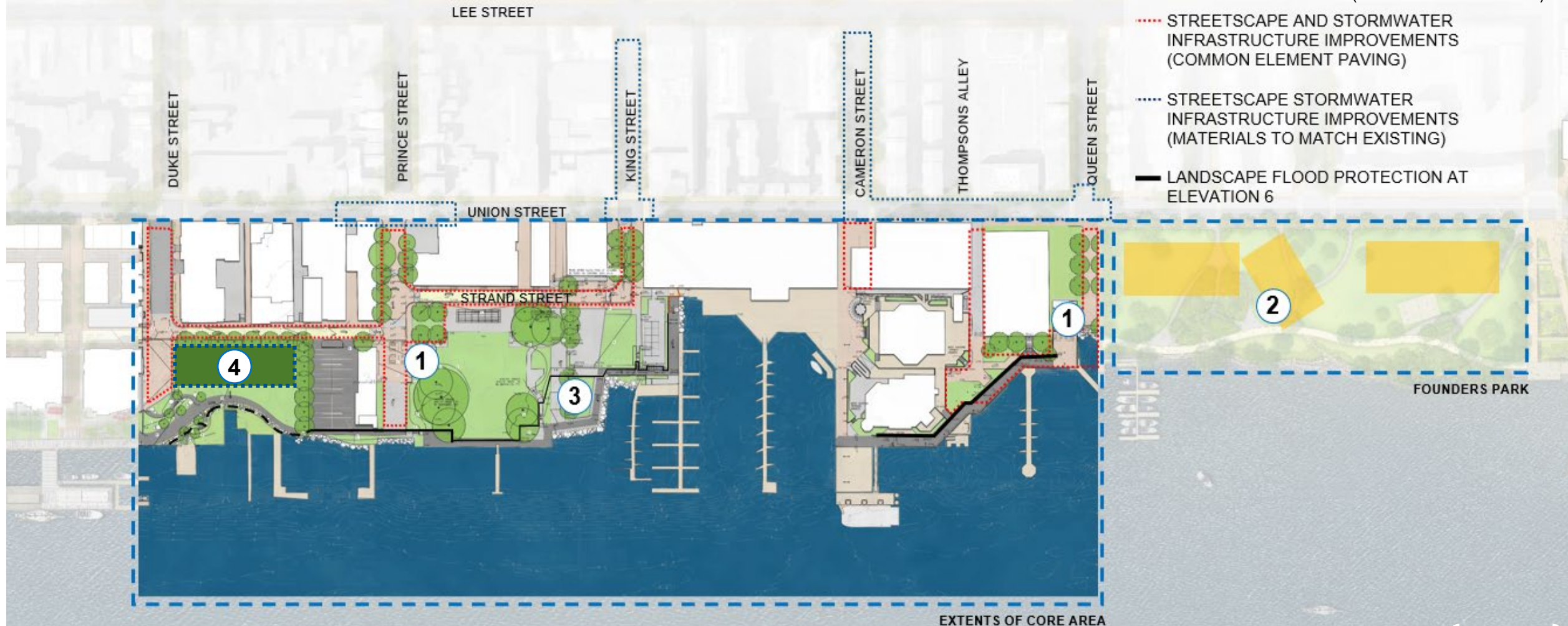
Add-On A: Landscape Based Flood Protection (Strand)



// Cost Based Option - 1

Add-On B: Landscape Based Flood Protection (River)

LANDSCAPE ELEMENTS PROVIDE 6' ELEVATION FLOOD PROTECTION

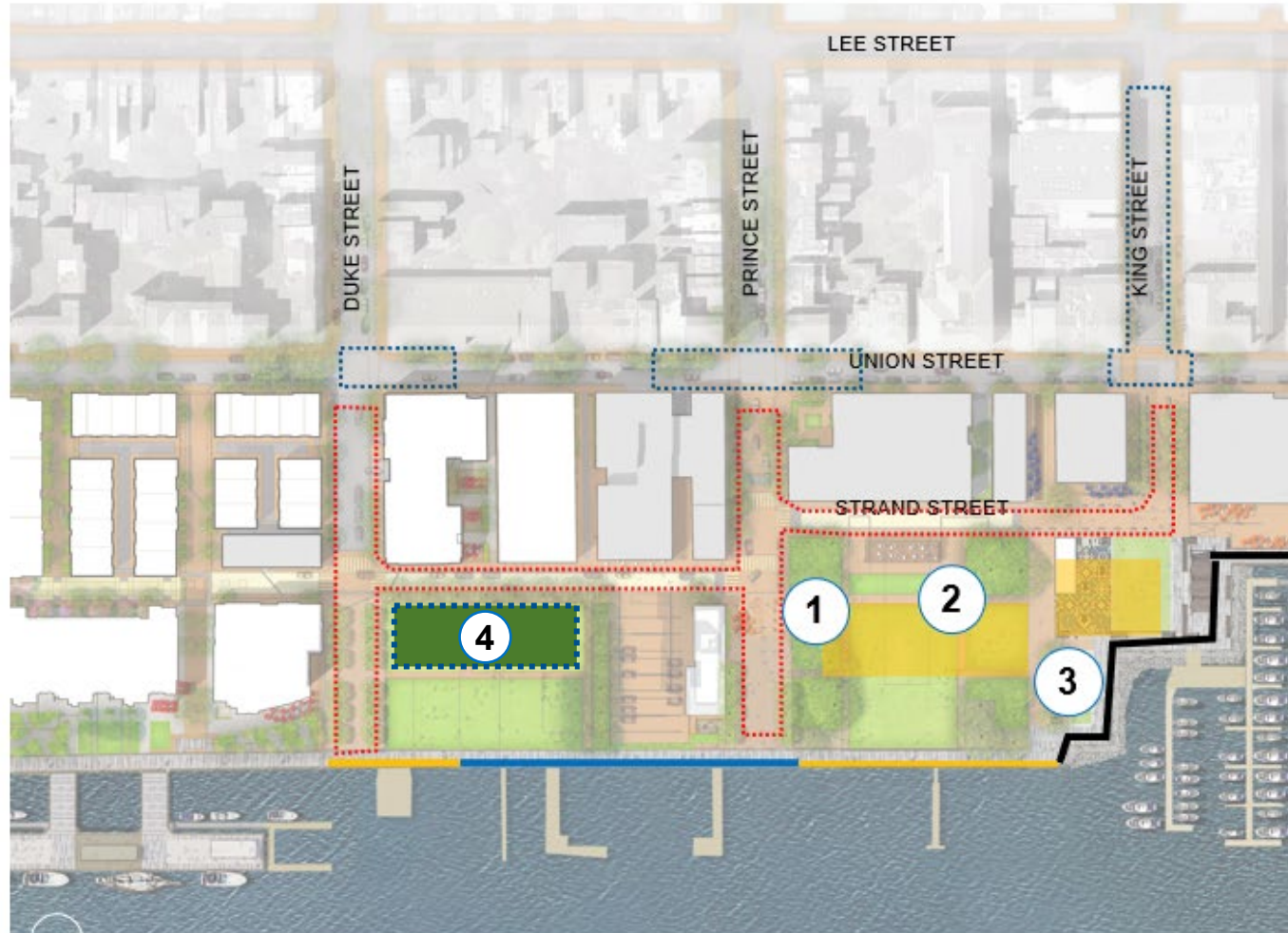


LEGEND

- 1 PUMP STATION
- 2 UNDERGROUND STORMWATER DETENTION CHAMBERS
- 3 RETAIN WATERFRONT PARK AT KING STREET
- 4 ROSENBAUM GARDEN (SEPARATELY FUNDED)
- STREETSCAPE AND STORMWATER INFRASTRUCTURE IMPROVEMENTS (COMMON ELEMENT PAVING)
- STREETSCAPE STORMWATER INFRASTRUCTURE IMPROVEMENTS (MATERIALS TO MATCH EXISTING)
- LANDSCAPE FLOOD PROTECTION AT ELEVATION 6

// Cost-Based Option – 2

Duke to King Improvements; Defers Northern Catchment Improvements



PRELIMINARY HYBRID CONCEPT – FURTHER DEVELOPMENT AND MODELING REQUIRED TO DEMONSTRATE PERFORMANCE AND BENEFIT AND DEVELOP COST ESTIMATE



KEY PLAN

LEGEND

- 1 PUMP STATION
- 2 UNDERGROUND STORMWATER DETENTION CHAMBERS
- 3 RETAIN WATERFRONT PARK AT KING STREET
- STREETScape AND STORMWATER INFRASTRUCTURE IMPROVEMENTS (COMMON ELEMENT PAVING)
- STORMWATER INFRASTRUCTURE IMPROVEMENTS (MATERIALS TO MATCH EXISTING)
- LANDSCAPE FLOOD PROTECTION AT ELEVATION 6
- REUSE EXISTING BULKHEAD TO ACHIEVE ELEVATION 6
- NEW BULKHEAD WITH PROMENADE
- 4 ROSENBAUM GARDEN (SEPARATELY FUNDED)



PROPOSED CIP BUDGET - NO OVERALL CHANGE

Based on project schedule, and anticipated duration of procurement process, recommend deferring most of construction funding from FY23 funding into FY24:

FY22 - \$22M (prior year funding)

- Owner-Advisor Support / Design Oversight
- Planning and Procurement
- Rapid Deployment Control Measures
- Design Services

FY23 - \$11.8M

- Design Services
- Construction Services
- Oversight and Project Administration

FY24 - \$63.4M

- Design Services (continued)
- Construction Services
- Oversight and Project Administration

\$102M Total (no change)

IMMEDIATE NEXT STEPS

- Ongoing field investigations
 - Geotechnical testing, structural analysis, environmental site assessment
 - Survey
- Evaluation and Refinement of Project Alternatives
 - Community feedback
 - Field investigation data reports and engineering design recommendations
- External funding opportunities
 - FEMA – VDEM Building Resilient Infrastructure and Communities (BRIC) Program
 - DCR - Virginia Community Flood Preparedness Fund
- Quick Win Strategy Implementation

NEXT STEPS - MILESTONE LEVEL

- Field Investigations – Completion of all reports
- Funding Timelines – Submission and Notification of award
- Community Engagement Meetings –
 - Parks and Recreation Commission – Sept. 16, 2021
 - Flood Mitigation Sub Committee – Oct. 4, 2021
 - Council 2x2s – Sept.-Oct. 2021
 - Council work session – October 13, 2021
 - Council Legislative Session – October 26, 2021 – Authorization for grant applications
- Draft Recommended Alternative – Nov/Dec 2021
- Final Recommended Alternative – Jan. 2022
- Procurement Planning – Jan–Aug 2022,
 - BODR – May 2022
 - Issuance of RFQU – Aug 2022

NEXT STEPS



★ Construction will commence AFTER City’s 275th birthday celebration



FALL CIP WORKSESSIONS AGENDAS

- **Wednesday, September 29, 2021** COMPLETE
 - CIP Overview
 - Project Updates – ITS and RCPA
- **Wednesday, October 13, 2021** COMPLETE
 - Project Updates – Public Buildings
 - Project Updates – Transportation
 - Project Updates – Environmental (including Waterfront Flood Mitigation)
- **Wednesday, October 27, 2021**
 - Joint City Council & School Board Worksession on School Capital Program

QUESTIONS/DISCUSSION