

# POTOMAC RIVER GENERATING STATION

ENVIRONMENTAL POLICY COMMISSION

NOVEMBER 21, 2022



 **Hilco**<sup>TM</sup>  
Redevelopment Partners

 WIRE GILL

**Gensler**

HANDEL  
ARCHITECTS

 SCB

**OJB**

 christopher  
consultants

**Thornton  
Tomasetti**

**BURO HAPOLD**

**GOROVE SLADE**  
Transportation Planners and Engineers

**CLARK**  
CONSTRUCTION

**ARUP**

 WALKER  
CONSULTANTS

 Michael Blades & Associates  
Elevator and Escalator Consulting

 LERCH BATES  
Building Insight



# AGENDA



**1. PROJECT HISTORY & VISION**

**2. ARUP SUSTAINABILITY PRACTICE**

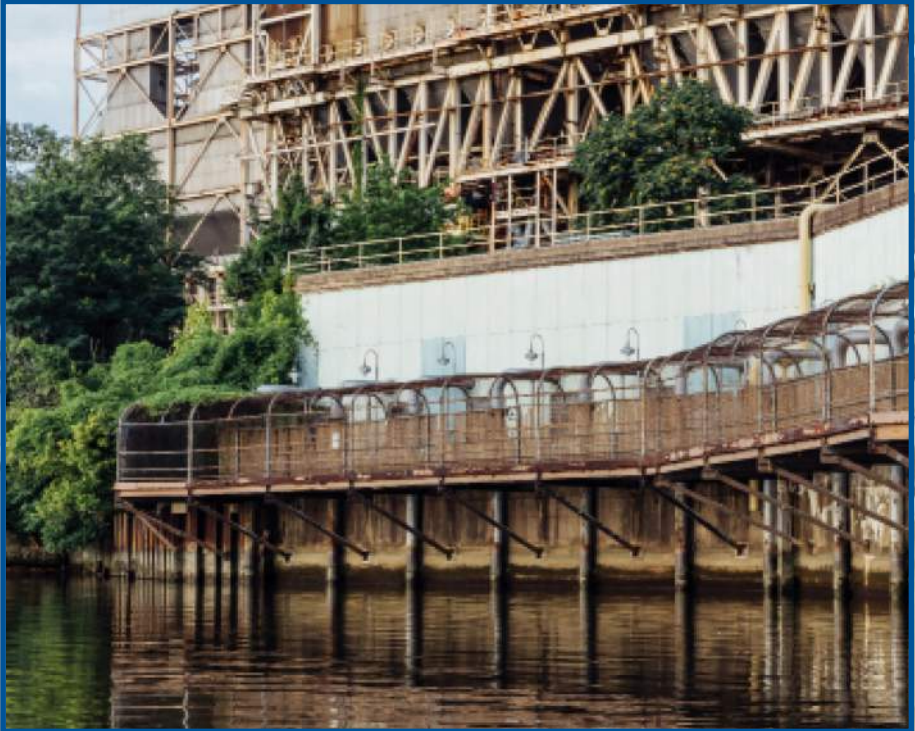
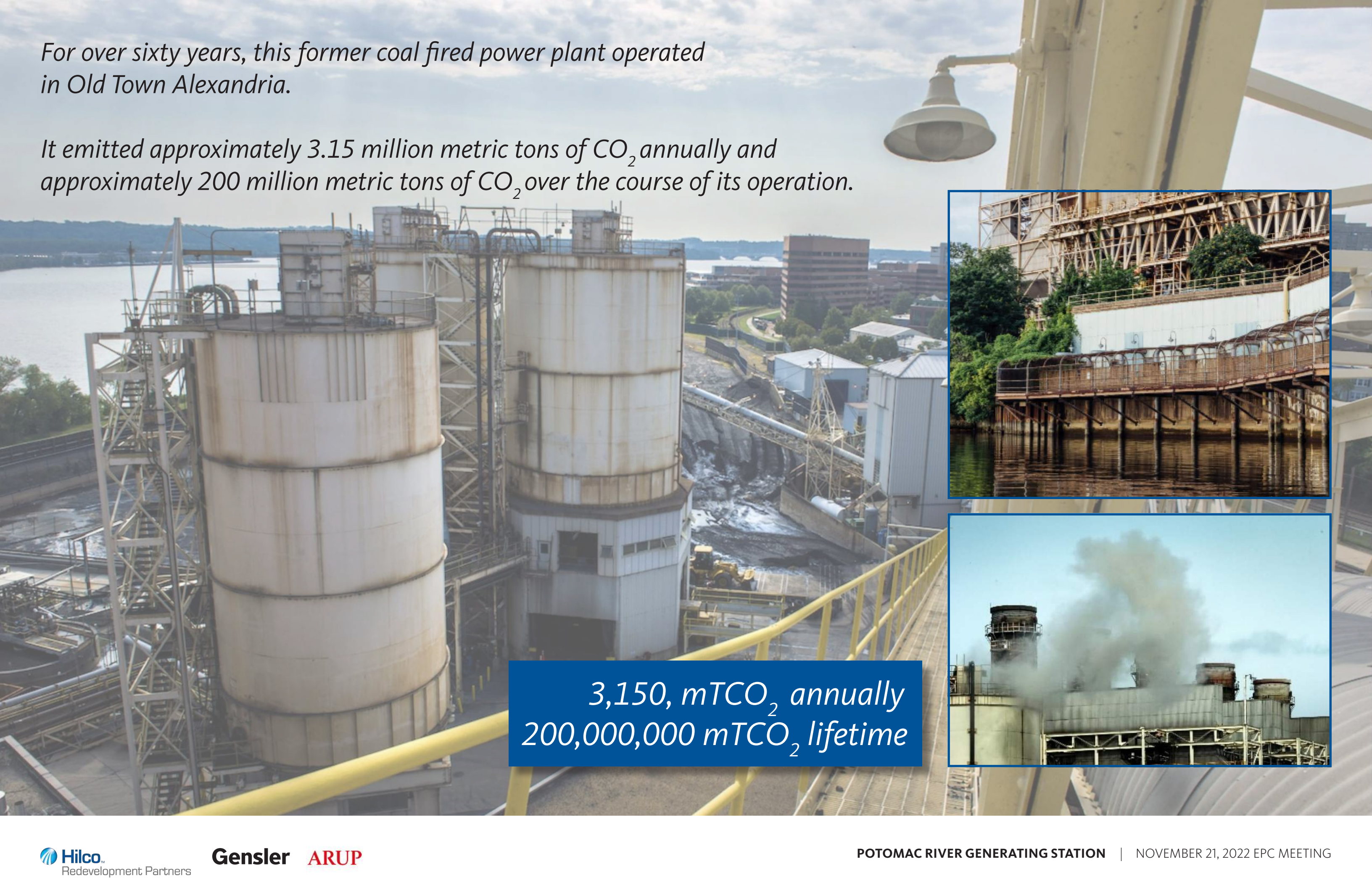
**3. COORDINATED SUSTAINABILITY STRATEGY OVERVIEW**

**4. CSS REPORTING AND TRACKING**



*For over sixty years, this former coal fired power plant operated in Old Town Alexandria.*

*It emitted approximately 3.15 million metric tons of CO<sub>2</sub> annually and approximately 200 million metric tons of CO<sub>2</sub> over the course of its operation.*



*3,150, mTCO<sub>2</sub> annually  
200,000,000 mTCO<sub>2</sub> lifetime*



*The plant was closed in 2012 thanks to the advocacy of many Alexandrians.*



*The vision for reintegrating this site into the neighborhood was established in a two+ year planning process that culminated in the adoption of the Old Town North Small Area Plan (SAP) in 2017.*



**WE TRANSFORM  
UNSIGHTLY BLIGHT...**

**INTO SUSTAINABLE  
COMMUNITIES**

# A COMPREHENSIVE SITE VISION

## 1 INTEGRATE THE SITE INTO OLD TOWN NORTH

Create a mixed-use, people centric environment thoughtfully connected to OTN

## 2 CONNECT PEOPLE TO THE WATERFRONT

Expand equitable access to Alexandria's waterfront

## 3 PROVIDE MEANINGFUL & VARIED OPEN SPACE

Create places for a variety of activities seamlessly connected to neighboring parks



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Alexandria's waterfront

**3** **PROVIDE MEANINGFUL &  
VARIED OPEN SPACE**  
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**4**

**CREATE A SUSTAINABLE  
NEW PLACE**

Pursue sustainable and resilient strategies  
through a multi-pronged approach

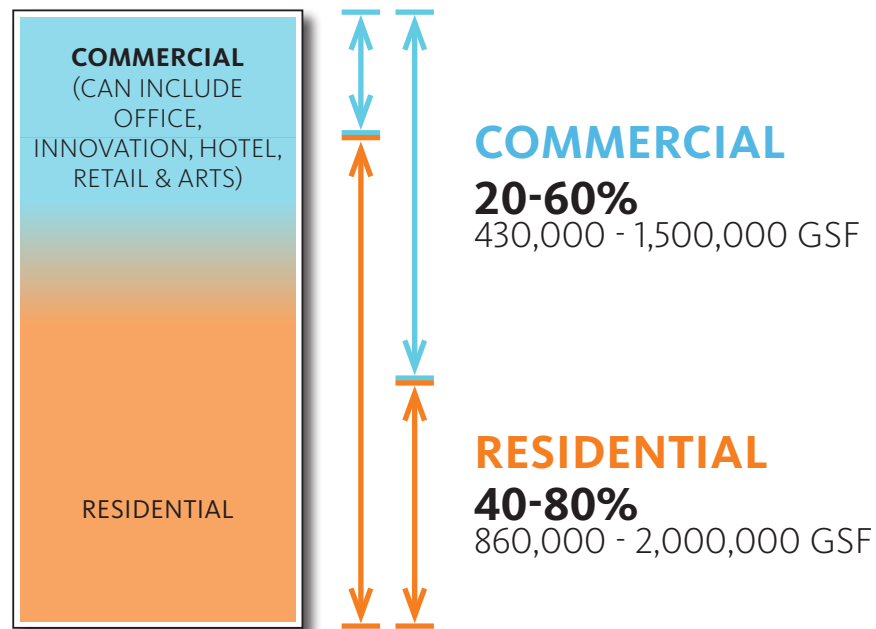


# LAND USE & HEIGHT

## APPROVED IN CDD

- A mix of commercial and residential uses will be developed on the site. Commercial uses may include office, arts, innovation, hotel & retail.

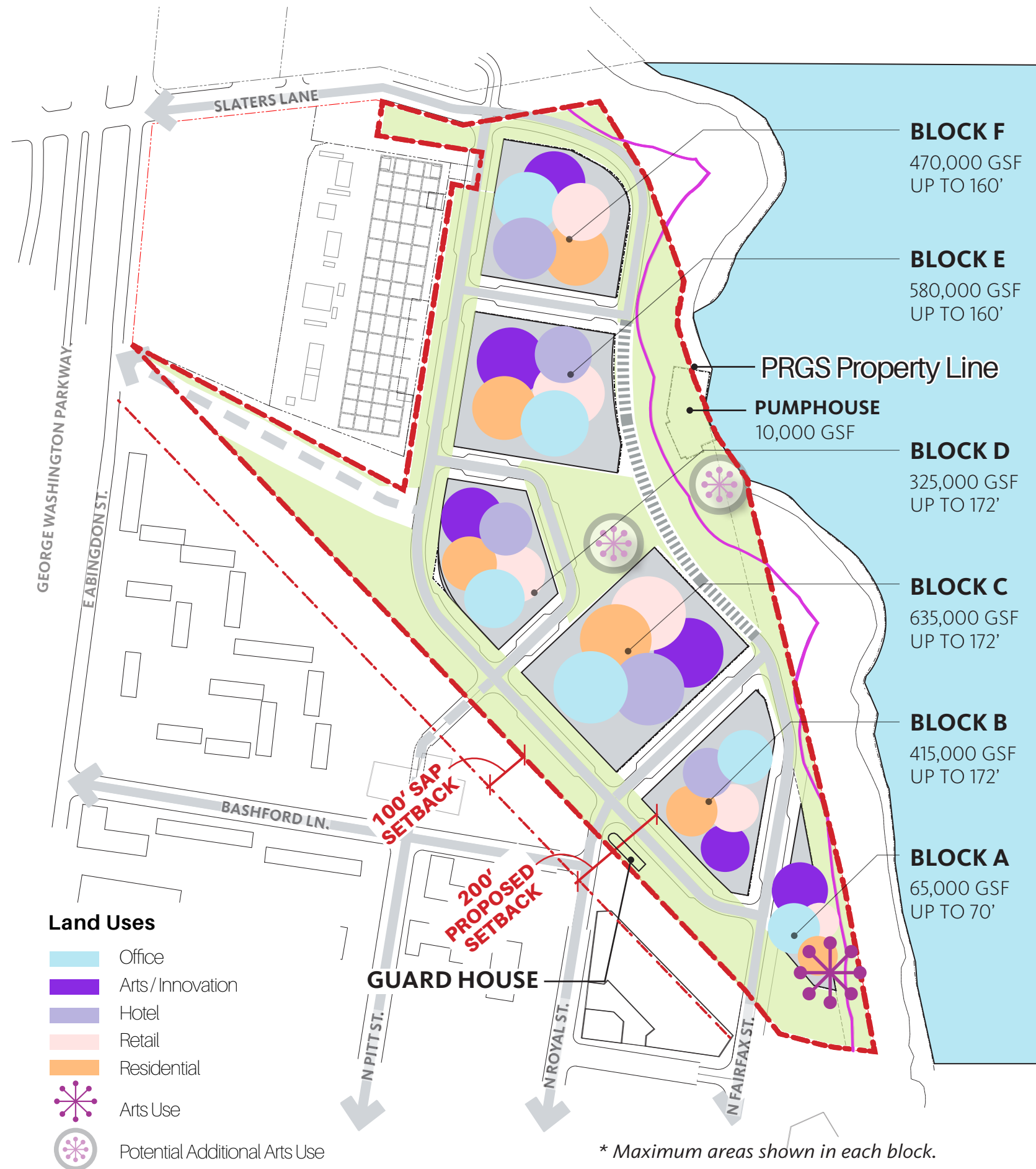
### FLEXIBLE DISTRIBUTION OF USES ACROSS SITE



\*USES WILL BE MIXED ACROSS THE SITE.

\*Commercial uses can include, but are not limited, to those listed.

	BLOCK A	BLOCK B	BLOCK C	BLOCK D	BLOCK E	BLOCK F	PUMP HOUSE
	65,000 GSF	415,000 GSF	635,000 GSF	325,000 GSF	580,000 GSF	470,000 GSF	10,000 GSF
<b>Commercial*</b>	✓	✓	✓	✓	✓	✓	✓
Office	✓	✓	✓	✓	✓	✓	✓
Arts/Innovation	✓	✓	✓	✓	✓	✓	✓
Hotel		✓	✓	✓	✓	✓	
Retail	✓	✓	✓	✓	✓	✓	✓
<b>Residential</b>	✓	✓	✓	✓	✓	✓	



\* Maximum areas shown in each block.

# COMMUNITY BENEFITS

**ENVIRONMENTAL  
REMEDiation**



**Abatement & Deconstruction  
Of Power Plant**

**Site remediation**  
in coordination with  
Virginia Department of  
Environmental Quality  
(VDEQ)

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**\$60 Million**



**ECONOMIC BENEFIT**



**1,100 Construction Jobs  
2,000 Permanent Jobs**

**+/- 1,100 construction-  
related jobs**  
**+/- 2,000 permanent jobs**  
**+/- \$35 M net taxes** during  
development  
**\$12 -15 M net annual taxes**  
at completion

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**+/- \$35 Million  
Net Taxes  
(over 11 years)**



**AFFORDABLE HOUSING  
& SUBSIDIZED ARTS USES**



**8-16% Affordable  
15,000 SF Arts space**

**Affordable Housing:**  
**\$8-11M** monetary contribution  
**+/- 60 units** through bonus  
density  
**+/- 100 units** through P3

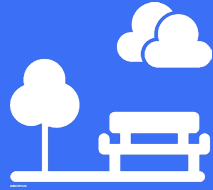
**Arts:**  
**+/- 15,000 SF** subsidized arts  
space through bonus density

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**\$48-111 Million  
\$16 Million**



**OPEN SPACE &  
ACTIVATION**



**14 Acres New or  
Improved Open Space**

**14.2 acres** of publicly  
accessible open space created  
or improved

- **Improved cyclist and  
pedestrian connectivity**
- **Active & passive open  
spaces**
- Potential **waterside dining**  
at pump house

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**\$30-35 Million**



**ENVIRONMENTAL  
SUSTAINABILITY**



**Aggressive Carbon  
Reduction Targets**

- **25% Energy savings**
- **10% Embodied carbon  
reduction**
- **3% On site renewable  
- Electrification**

Comprehensive sustainability  
approach: **reduced energy  
usage, renewable energy,  
storm water management, &  
decreased reliance on vehicles**

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**\$65 Million**



**TRANSPORTATION &  
CONNECTIVITY**

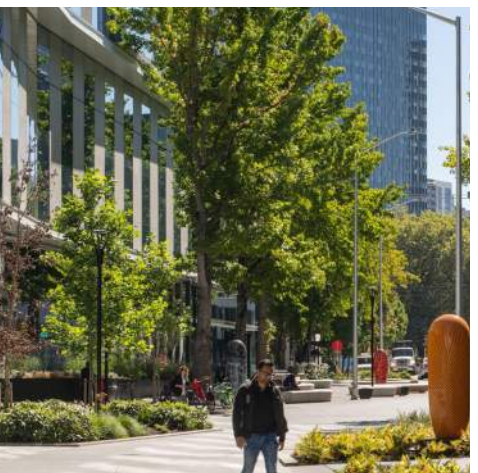


**Pedestrian & Bike Friendly  
Improved GWMP Connections  
New DASH Stops**

- **Reconnection to Old Town  
North** road network
- **Bike infrastructure** connected  
to Mt. Vernon Trail
- **Woonerf** provides pedestrian &  
cyclist priority.
- **Below-grade parking** garage

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**\$177 Million**





# ARUP SUSTAINABILITY PRACTICE

- SUSTAINABILITY STRATEGY
- RESILIENCE AND ADAPTATION PLANNING
- CAMPUS DECARBONIZATION STRATEGY
- CLIMATE ACTION PLANNING AND GHG
- CLEAN ENERGY PROCUREMENT ADVISORY
- RENEWABLE ENERGY ANALYSIS
- BATTERY STORAGE SYSTEMS
- DISTRICT ENERGY FEASIBILITY
- GEOTHERMAL ANALYSIS
- BIOMASS FACILITY ASSESSMENT
- TRANSPORTATION ELECTRIFICATION
- EMBODIED CARBON REDUCTION AND CIRCULAR ECONOMY STRATEGY
- NATURE-BASED SYSTEMS
- CERTIFICATION AND RATING SYSTEM ADMINISTRATION
- SMART & DIGITAL MASTERPLANNING

## A HISTORY OF PROVEN EXPERIENCE



Low carbon buildings with on-site renewables



Embodied carbon calculation and material specification expertise



**Linda Toth**  
CLIMATE & SUSTAINABILITY



**Rebecca Hatchadorian**  
CLIMATE & SUSTAINABILITY



**Katherine Schwartz**  
CLIMATE & SUSTAINABILITY



**Alan Glynn**  
DISTRICT ENERGY



**Nick Swedberg**  
DISTRICT ENERGY



# COORDINATED SUSTAINABILITY STRATEGY

The Coordinated Sustainability Strategy (CSS) is a comprehensive approach to sustainability to be used to inform design, construction, and operational decisions. The CDD Condition 145 specifically outlines the CSS timeframes for the five site and building performance targets - operational carbon, on-site renewable, embodied carbon, electrification and off-site renewable - from Condition 139. The CSS runs in parallel to the Infrastructure DSP.

The purpose of the CSS is to:

- Establish metrics for sustainable performance thresholds across six impact categories
- Demonstrate how the project complies with CDD commitments and sustainability goals
- Establish potential of short-term, mid-term, and long term strategies
- Emphasize important elements of sustainability outcomes for the development
- Outline pathways for individual building LEED BD+C Silver and site-wide LEED for Neighborhood Development Silver certifications



## Coordinated Sustainability Strategy (CSS)

Former Potomac River Generating Station Site  
Alexandria, Virginia

DRAFT October 6, 2022










# CSS SUSTAINABILITY COMMITMENTS

## ABOVE & BEYOND CITY SUSTAINABILITY CONSIDERATIONS

The Coordinated Sustainability Strategy (CSS) is based on the evaluation of triple bottom line thinking - how each implementation will fare across environmental, social and economic factors. Holistic analysis of each strategy will consider factors that align with the most innovative planning elements to address climate change backed by the latest scientific data from sectors including buildings, transportation, waste, and water.

-  **25%** Energy Use Reduction
-  **10%** reduced Embodied Carbon target
-  **3%** of on-site energy use will come from On-site Renewable Ener-
-  **Electrification** minimizes on-site combustion
-  **Transportation** and transit improvements

### OPERATIONAL ENERGY REDUCTION TARGETS

	RESIDENTIAL	COMMERCIAL
Typical LEED BD+C Silver Building	12%	9%
Typical LEED ND Silver Site	5%	2%
Alexandria Green Building Policy	14%	11%
<b>POTOMAC RIVER GENERATING STATION</b>	<b>25%</b>	<b>25%</b>

\* Percentages measured **BETTER** than ASHRAE 90.1-2010



# CSS PLANNING TIMEFRAMES

## CSS PLANS ACROSS THREE TIMEFRAMES



### SHORT TERM 2022-2026

- Readily available technology with an established payback period of 7 years
- Payback evaluation criteria includes first cost, incentives, utility savings, and operations & maintenance costs over the life of a system
- Technically and financially feasible sustainability strategies will be included in DSUPs submitted during this timeframe

### MID TERM 2027-2031

- Technology that may not have been technically or financially feasible as a short-term strategy but has seen improved efficiency and/or payback period or financial incentives
- Potential process improvements to operational methods

### LONG TERM 2032 & beyond

- Ambitious or unknown technologies that can adapt to previously constructed buildings
- Management and operational methods that improve and/or maintain existing equipment and materials



# SCHEDULE & PROCESS

# STEPS FORWARD



**KEY**

-  IDSP
-  DSUP
-  CDD APPROVAL
-  CSS
-  COMMUNITY MEETINGS



# CSS CATEGORIES

## SIX CATEGORIES OF SUSTAINABILITY CONSIDERATIONS

### SITE

Open Space  
Planting for Ecosystem Support  
Stormwater Management & Blue/Green Infrastructure  
Circulation, Transportation, Zero Emission Vehicles



### WATER

Potable Water Demand Reduction  
Indoor Water Use Efficiency  
Water Storage and Reuse



### ENERGY & CARBON

Energy Efficiency Strategies  
System Electrification  
District Systems  
On- & Off-site Renewables  
Embodied Carbon  
Commissioning & Efficient Operations



### INDOOR ENVIRONMENT

Indoor Air Quality  
Daylight  
Thermal & Acoustical Comfort  
Human Health & Wellbeing  
Construction Air Quality Management



### MATERIALS + WASTE

Material and Waste Reduction  
Healthy Materials  
Responsible Sourcing  
Waste Management



### RESILIENCE

Climate Resilience Strategies  
Heat Island Effect and Tree Canopy  
Adaptation for Extreme Weather Events  
Future-proofing and Flexibility for Infrastructure





# INCREASED ACCESS TO OPEN SPACE

Open Space on PRGS Property: Approximately 5.52 acres  
 Open Space on Adjacent Property: Approximately 8.4 acres

**Approximately 14 acres of new or improved publicly accessible open space**

## LINEAR PARK



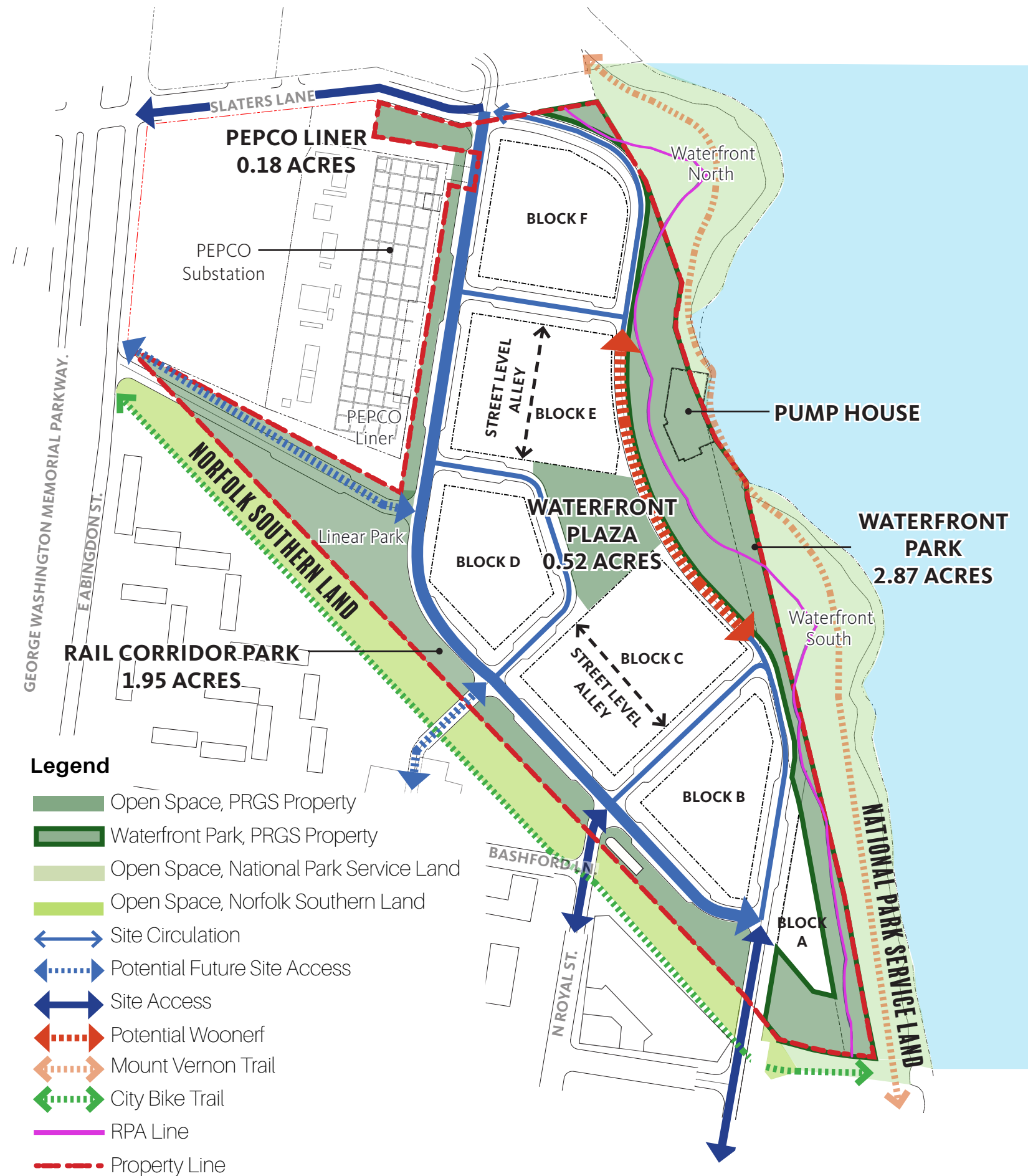
## WATERFRONT NORTH & SOUTH



## PEPCO LINER



## WATERFRONT PLAZA AREA

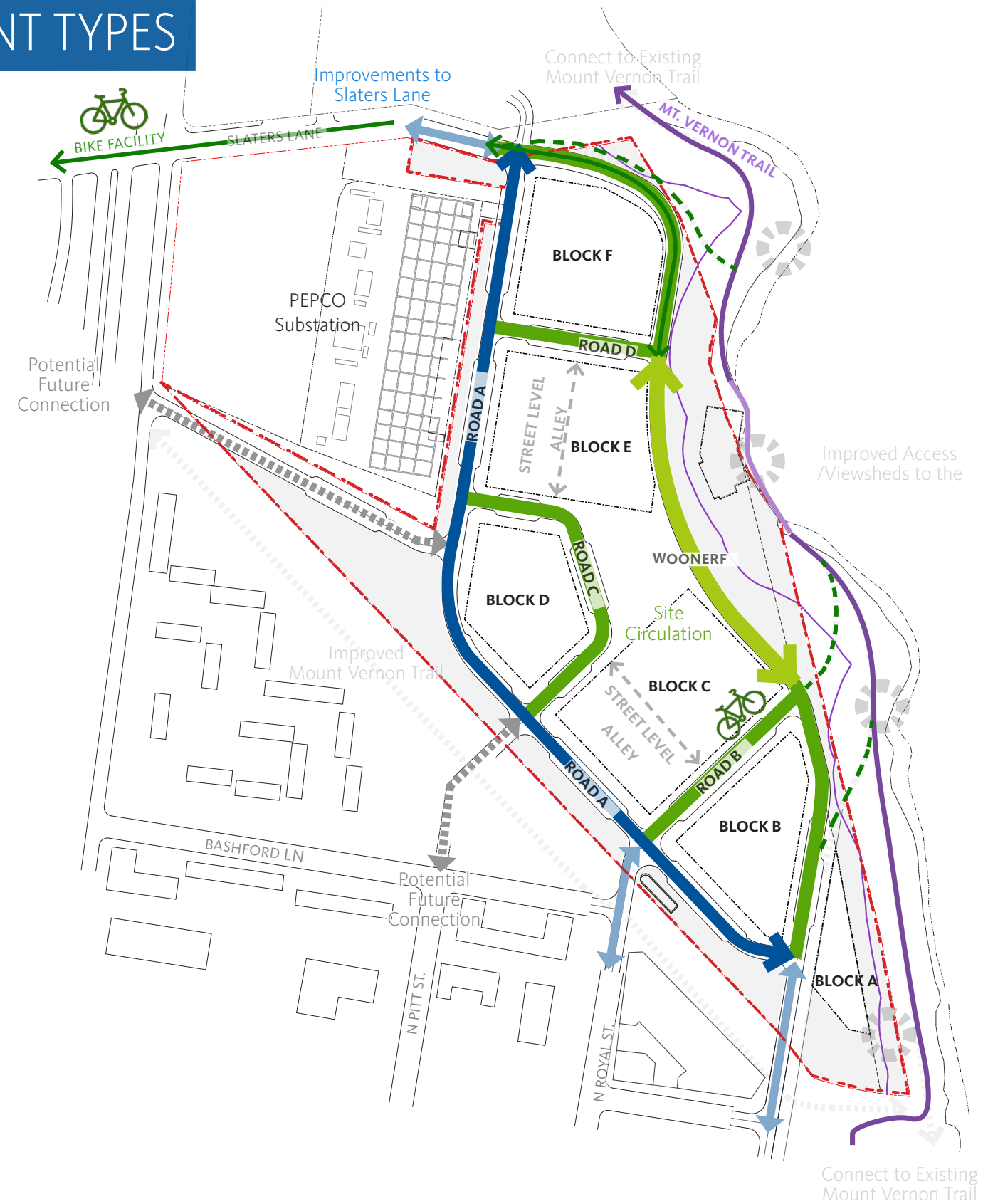




# MULTIMODAL TRANSPORTATION

## A COMPREHENSIVE NETWORK FOR ALL MOVEMENT TYPES

- 'Road A' is a public road that includes provision of a DASH transit route and facilities (2 bus stops in either direction) through the site and continued coordination with City and DASH to improve frequency of planned service
- Deliberate connections have been made to existing surrounding trails and green space increasing health and wellbeing opportunities for users
- Pedestrian network has been upgraded by providing direct, comfortable and safe connections for pedestrians to the Mount Vernon Trail and the Old Town North neighborhood
- The woonerf is a people-focused street along the waterfront that prioritizes pedestrians and cyclists while still allowing for vehicle circulation



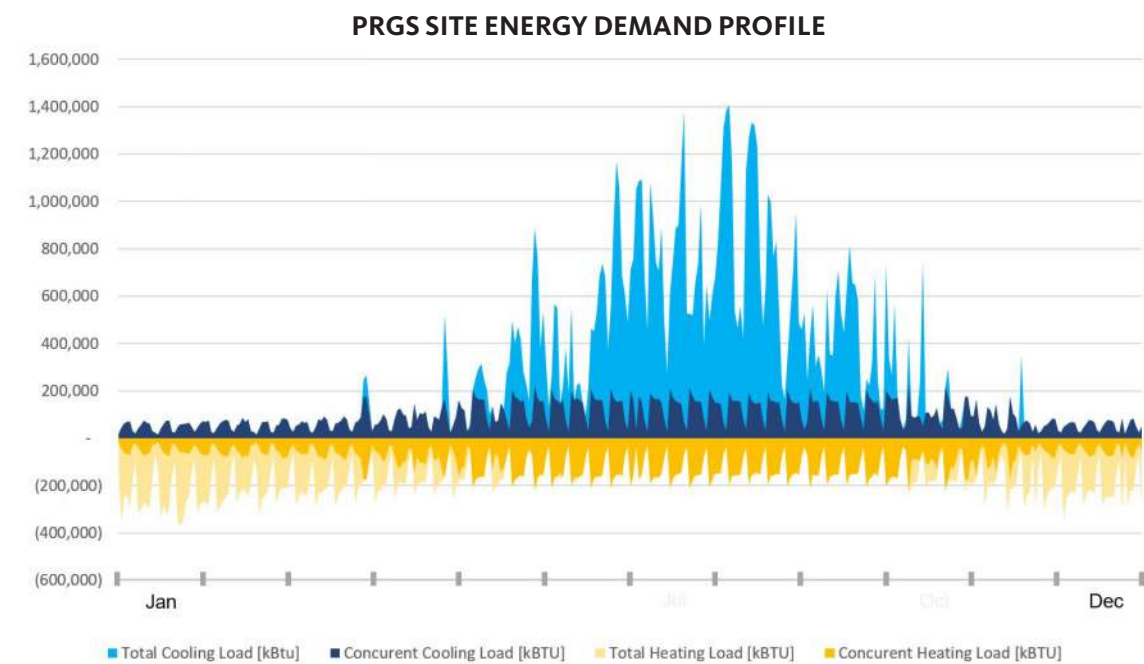


# DISTRICT ENERGY ANALYSIS

The Coordinated Sustainability Strategy (CSS) will be informed by a district energy analysis. This is structured to align with the district energy systems listed in the Old Town North Small Area Plan.

The purpose of this analysis is to:

- Evaluate financial and technical feasibility of shared systems for performance, physical space requirements, operations and maintenance, costs and incentives, and future connectivity
- Align performance metrics with energy efficiency, operational carbon and embodied carbon commitments as defined in the CDD
- Identify potential emerging technologies beyond short-term and mid-term timeframes that may be adopted long-term into the project with financial incentives





# RENEWABLE ENERGY ANALYSIS

The Coordinated Sustainability Strategy (CSS) will also outline the pathway to meet the aggressive 3% on-site renewable energy generation target as defined in the CDD.

The purpose of this analysis is to:

- Evaluate financial and technical feasibility of available on-site PV locations for performance, physical space requirements, operations and maintenance, costs and incentives, future connectivity and conflicts with other requirements
- Outline an optimized use of horizontal and vertical space for PV potential to maximize production and also provide space for site amenities
- Address range of emerging PV technology in regard to efficiency, rated power, availability and costs required to meet targets in mid- and long-term timeframes
- Identify potential off-site areas for renewable energy generation, such as the linear park in coordination with City





# CSS REPORTING & TRACKING

A Reporting & Tracking section in the CSS will outline:

- Building and neighborhood certifications



- The CDD defines required reporting timelines:
  - **Prior to Release of Final Site Plan**, submit a draft scorecard for each DSUP
  - **At Building Permit**, submit a scorecard reflecting final design
  - **One year following Certificate of Occupancy**, submit final scorecard reflecting as-built conditions, including offsite renewable strategies
  - **For the first 5 years of occupancy**, monitor and report energy usage

- Implementation and tracking obligations. This includes a custom tracking Dashboard developed to work across the entire site and multiple development parcels.

## Dashboard Snapshot

Source		Goal/Intent	Key Metric	Sitewide Performance	Performance By Submission	
SOURCE	REFERENCE	CATEGORY	DEFINITION / GOAL / INTENT	KEY METRIC	Sitewide Performance	Infrastructure DSP
CDD	154 155	CARBON	Public benchmarking results for each new building(s) within the CDD plan area will be made available to the City through ENERGY STAR® Portfolio Manager platform or equivalent. Monitor and provide tracking documentation following occupancy of each building for the first 5 years of occupancy.	N/A	N/A	N/A
CDD	96	SITE	The applicant shall design and provide the following publicly accessible and public open space a. Central Plaza - approximately 0.70 acres b. Rail Corridor Park - approximately 1.67 acres c. Waterfront Park - approximately 3.00 acres d. Pepco Liner - approximately 0.40 acres	Minimum 5 acres	### acres (delivered)	N/A
CDD	139.a	CARBON	Each building(s) shall achieve a minimum 25% reduction in operational emission based on ASRHAE Standard 90.1-2010 Appendix G established by 2019 Alexandria's Green Building Policy or achieve an EUI target based table CC103.1 of the 2021 IECC.	≥ 25% reduction in energy (Design) - or - EUI ≤ 45 kBtu/sf - Multifamily (Table CC103.1) EUI ≤ 28 kBtu/sf - Office (Table CC103.1) EUI ≤ 69 kBtu/sf - Hospitality (Table CC103.1)	###% reduction ###.# kBtu/sf (residential) ###.# kBtu/sf (commercial)	N/A
CDD	139.b	RENEWABLES	The site shall achieve a minimum 3% annual on-site renewable energy generation across the CDD area. Prior to the approval of the infrastructure development site plan (DSP), the applicant shall evaluate strategies to increase the targeted 3% on-site energy generation through approaches such as use of public open space, adjoining properties, or other comparable approaches as part of the Coordinated Sustainability Strategy (CSS). The applicant will evaluate strategies to increase the onsite generation above 3%.	≥ 3% on-site renewable generation (site aggregated basis - designed)	≥ #% on-site renewable generation (site aggregated basis)	N/A
CDD	139.c	CARBON	Each newly constructed building(s) shall achieve a 10% reduction in embodied carbon compared to industry-standard construction practices. With each preliminary DSUP submission, the Applicant shall provide an estimate of the Embodied Carbon Intensity (ECI) [kgCO2/m2 or lbCO2/sf].	≥ 10% reduction embodied carbon	≥ #% reduction #### mt/CO2e - reduced (site aggregated basis - delivered)	% reduction (mt/CO2e - reduced)







# THANK YOU!

POTOMAC RIVER GENERATING STATION  
REDEVELOPMENT

