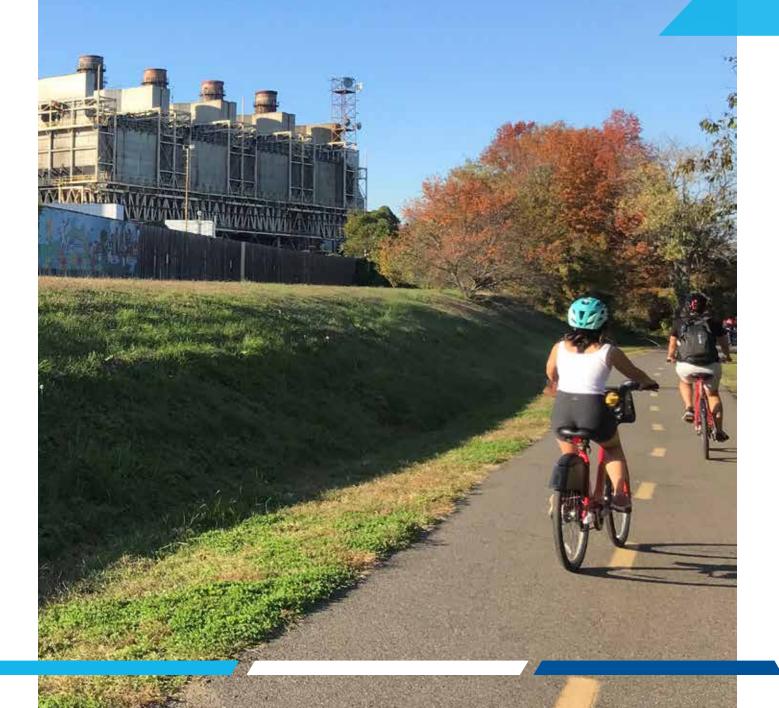


ENVIRONMENTAL POLICY COMMISSION

















APRIL 18, 2022

Redevelopment Partners













AGENDA

1. PROJECT OVERVIEW

2. SUSTAINABILITY FRAMEWORK & PRINCIPLES

NT HINK

- **3. SUSTAINABILITY APPROACH**
- **4. CARBON NEUTRALITY**

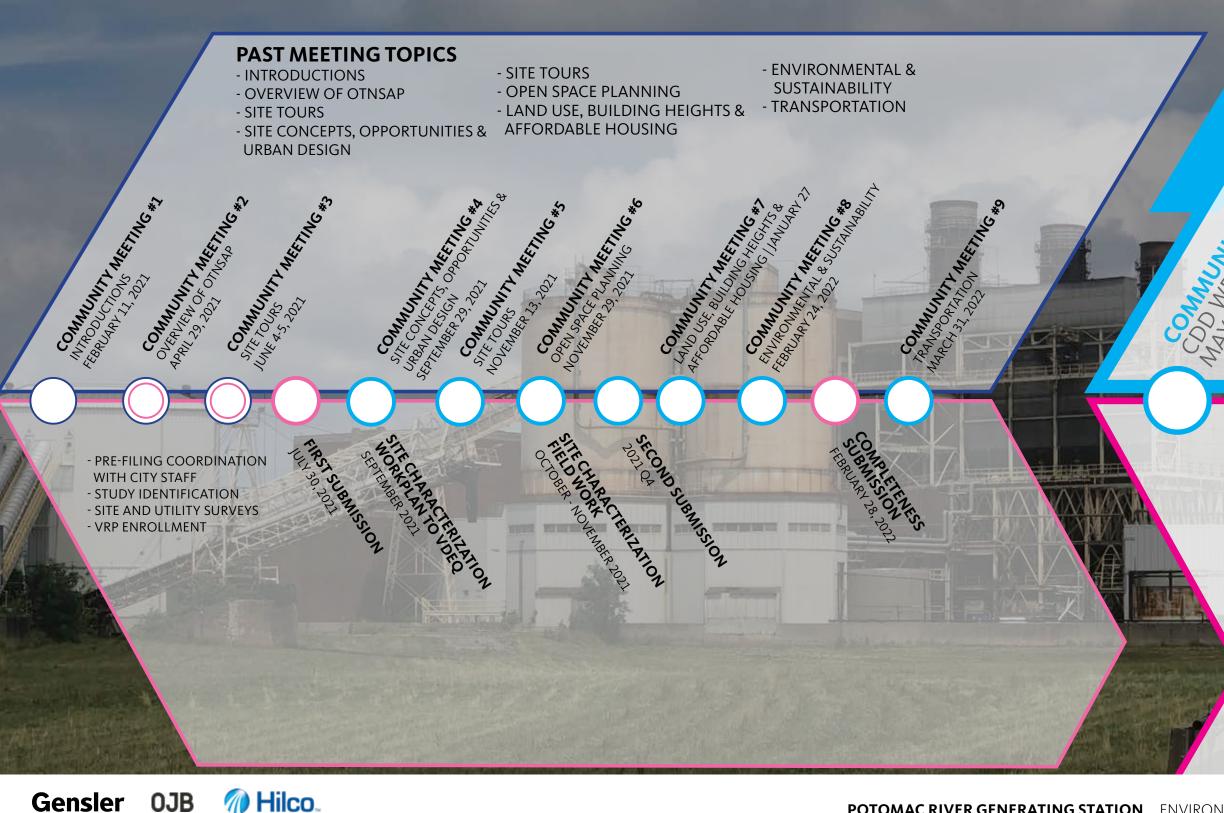
5. NEXT STEPS





SCHEDULE & PROCESS





≫STEPS FORWARD

NG *20

PLANNING PROCESS PHASE 1: REZONING & CDD CONCEPT PLAN

COMMUNITY ENGAGEMENT + OUTREACH

- February 11 Community Meeting #1
- April 28 National Park Service Kickoff Meeting
- April 29 Community Meeting #2
- June 4 & 5 Public Site Tours/ Community Meeting #3
- June 29 National Park Service Meeting
- July 30 CDD-1 Submission
- September 9 National Park Service Meeting
- September 29 Community Meeting #4
- September 30 Taste of Old Town/ NOTICe Tours
- October 21 National Park Service Meeting
- October 29 Marina Towers Property Visit
- November 08 NOTICe Meeting
- November 08 Affordable Housing Kickoff Meeting
- November 10 National Park Service Meeting

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November 13 – Community Site Tour/ Community Meeting #5

- November 15 Marina Towers Board Meeting
- November 18 National Park Service Meeting
- November 29 Community Meeting #6
- December 8 CDD-2 Submission
- January 13 National Park Service Meeting
- January 20 Parks & Recreation Meeting
- January 27 Community Meeting #7
- February 1 Planning Commission Work Session
- February 22 City Council Work Session
- February 24 Community Meeting #8
- February 28 Completeness Submission
- March 9 UDAC Meeting
- March 14 NOTICe Meeting
- March 15 Old Town North Alliance Board
- March 16 Transportation Commission Meeting
- March 17 National Park Service Meeting

- March 29– Marina Towers Resident Meeting
- March 31– Community Meeting #9

Key

Hilco. Redevelopment Partners March 21– Old Town North Community Partnership Meeting

March 23 - Alexandria House Board Meeting

• April 4 - Watergate Townhouses Board Meeting

• April 18 – EPC (Environmental Policy Commission) *

• April 19- Waterfront Commission *

• May 11– UDAC Meeting*

• May 11– AHAAC (Alexandria Housing Affordability Advisory Commission) *

• May 12 – Community Meeting #10 *

• June 10 & 11 - Site Tours *

• June 23 & July 5 – Planning Commission and City Council Public Hearings *

* Future Engagements (in italics) CDD Submissions (in blue) **Engagements in the next month**

PUBLIC BENEFITS + MITIGATION

Environmental

- Abatement, deconstruction, and remediation
- Reduced carbon footprint and sustainably designed buildings

Public Realm

- Extension of the Old Town North Arts & Cultural District
- On-site arts uses (use of bonus density)
- Provision of 5+ acres of on-site public open space
- Improvements to 5+ acres of on-site and 8.4 acres of off-site (NPS & NS land) public open space
- Below grade parking

\$60 million

\$30-35 million

\$150 million

TBD

Affordable Housing

- Voluntary Affordable Housing Contribution
- Potential on-site affordable units (use of bonus density and Public-Private Partnership)

Transportation

- Creation of new roadway network
- Off-site improvements

Economic

- 1,140 construction-related jobs (over 10 years)
- 2,905 permanent jobs
- Taxes during construction
- Annual taxes upon completion





\$7.5-11.4 million TBD

TBD \$4.75 million

\$25.5 million \$34 million



* All numbers are early estimates

PROJECT VISION Primary Design Drivers

INTEGRATE THE SITE INTO OLD TOWN NORTH

CREATE A MIXED-USE, PEOPLE-CENTRIC **ENVIRONMENT THOUGHTFULLY** CONNECTED TO OTN

CONNECT PEOPLE TO THE WATERFRONT EXPAND EQUITABLE ACCESS TO ALEXANDRIA'S WATERFRONT



PROVIDE MEANINGFUL AND VARIED OPEN SPACE CREATE PLACES FOR A VARIETY OF ACTIVITIES SEAMLESSLY CONNECTED TO NEIGHBORING PARKS



ANY CHANGES TO VEGETATION ON ADJACENT PROPERTY SHOWN FOR REFERENCE ONLY.

INTEGRATE THE SITE Site Access: Roadway Connections

Site Access

- Three site access points are proposed.
- North Royal and North Fairfax Street connections are planned at the southern side of the site. These will require an easement over the Norfolk Southern property or other arrangements with NSP.
- One connection off of Slaters Lane is proposed at the north side of the site.
- These connections are consistent with the Old Town North Small Area Plan.

Future Access

- Two additional potential future connections may be possible. These will require cooperation with abutting property owners.
- To the west, a connection to the GW Parkway via East Abingdon Street may be possible.
- An additional southern connection at North Pitt Street may be possible.



2 CONNECT PEOPLE TO THE WATERFRONT Optimize Waterfront Views and Access

- Optimize views by shortening distance
- Turn peoples' views toward the waterfront
- Shorten physical and visual distance

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HOW CLOSE DO YOU NEED TO BE TO SEE THE WATERFRONT? WISCONSIN AVENUE IN GEORGETOWN





3 PROVIDE MEANINGFUL OPEN SPACE On-site & Adjacent Open Space

Open Space on PRGS Property

- Waterfront Park: 3 acres
- Linear Park: 1.7 acres
- Central Plaza
 0.7 acres
- Pepco Liner: 0.4 acres

Total: Approximately 5.8 acres

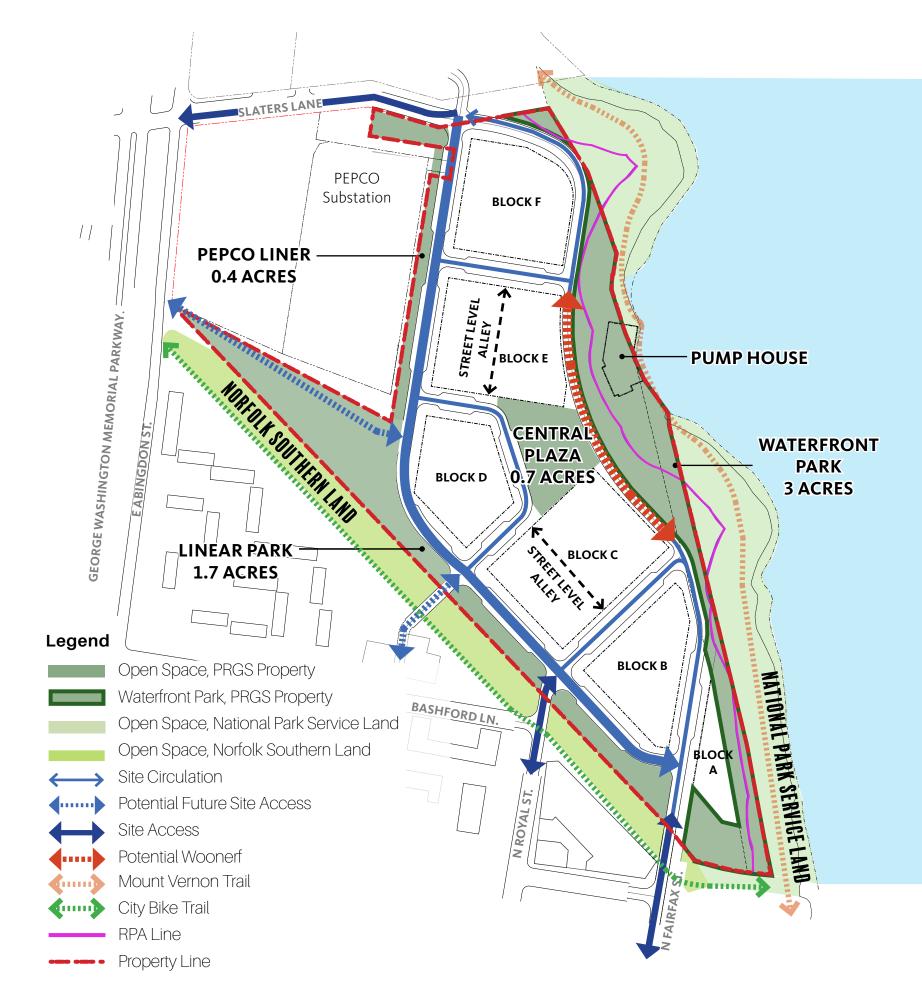
Open Space on Adjacent Property

- National Park Service: 5.3 acres
- Norfolk Southern Land: 3.1 acres

Total: Approximately 8.4 acres

Total Combined Open Space: Approximately 14.2 acres





DEVELOPMENT REVIEW PROCESS



MASTER PLANNING & ZONING

- Road and block configuration •
- Open space amount and approach
- Land use, density & height maximum

Outlines community benefit framework; Carbon Neutrality Analysis





SITE & INFRASTRUCTURE

- Streetscape, roadways and sidewalks
- Utility routing and approach

Defines public infrastructure; Sustainability Master Plan

Building sustainability features

DSUPs Development Special Use Permits



BUILDING FORM & ARCHITECTURE

• Building massing and use • Architectural definition and character Detailed open space associated with blocks

AGENDA

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The Bellwether District- Philadelphia, PA



We see opportunity

the and the defined

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The Bellwether District-Philadelphia, PA





We apply sustainability across all projects



ENVIRONMENT



ECONOMY





COMMUNITY

RAISING **ENVIRONMENTAL STANDARDS**

We remediate each site to the highest environmental standards. We recycle as much of old materials as possible in coordination with local officials to reduce our environmental footprint.

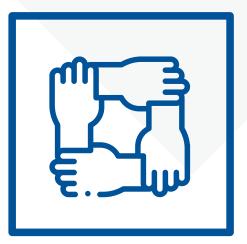




We support local economies by creating long-term jobs and recruiting locally to grow our neighborhoods.







ENRICHING COMMUNITIES

We connect to communities through open dialogue, civic participation, neighborcentric planning, and community initiatives—from local apprenticeships to scholarship programs.



HRP FOOTPRINT

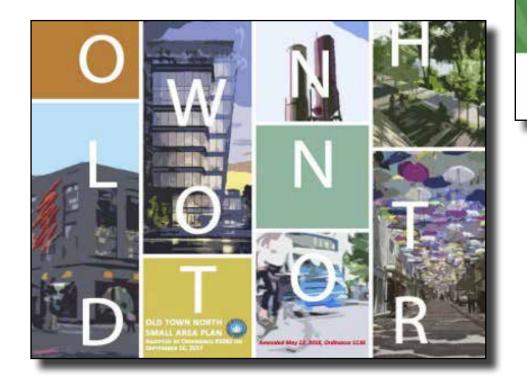
- Active projects in 11 markets
- Offices in Chicago, Boston, Philadelphia, Miami, New Jersey, California, and Northern Virginia
- Primary focus on growth and gateway markets
- Over 6,000 acres acquired
- 20 million SF Development Pipeline
- Potomac River Generating Station will be the 5th Coal Fired Power Plant HRP has redeveloped



SUSTAINABILITY FRAMEWORK

- Existing sustainability guidance for development on the PRGS site includes:
 - o Old Town North Small Area Plan (2017)
 - o City of Alexandria Green Building
 - Policy (2019)
 - o City of Alexandria Environmental Action Plan 2040 (2019)







City of Alexandria





OLD TOWN NORTH SMALL AREA PLAN

III. ENERGY AND GREEN BUILDING

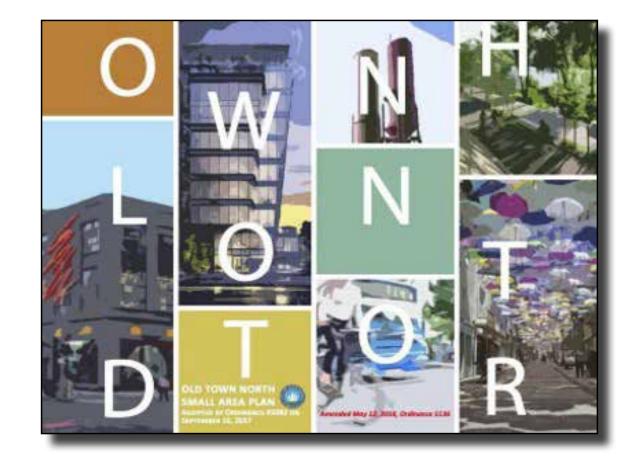
A. District-wide Sustainability Measures - Former Power Plant Site

10. Require plan area-wide sustainability through LEED-ND silver or comparable.

11. Require the submission of a Sustainability Master Plan for the former power plant site as part of the submission of the first development special use permit (DSUP) that demonstrates the compliance with the goals and recommendations of the Plan and identifies short-term, mid-term, and long-term strategies and targets to achieve the goal of district-wide sustainability measures. The Sustainability Master Plan should be updated with each subsequent block(s) and/or building(s) to show how the project achieves the Plan's goals.

12. The redevelopment of the former power plant site should strive to achieve carbon neutrality by 2040 and strive to achieve carbon neutral buildings by 2030.

13. Explore the development of district energy systems for heating and cooling on the former power plant site that take advantage of local renewable energy sources, including, but not limited to, geothermal energy, sewage heat, anaerobic digestion, and waste heat from buildings.

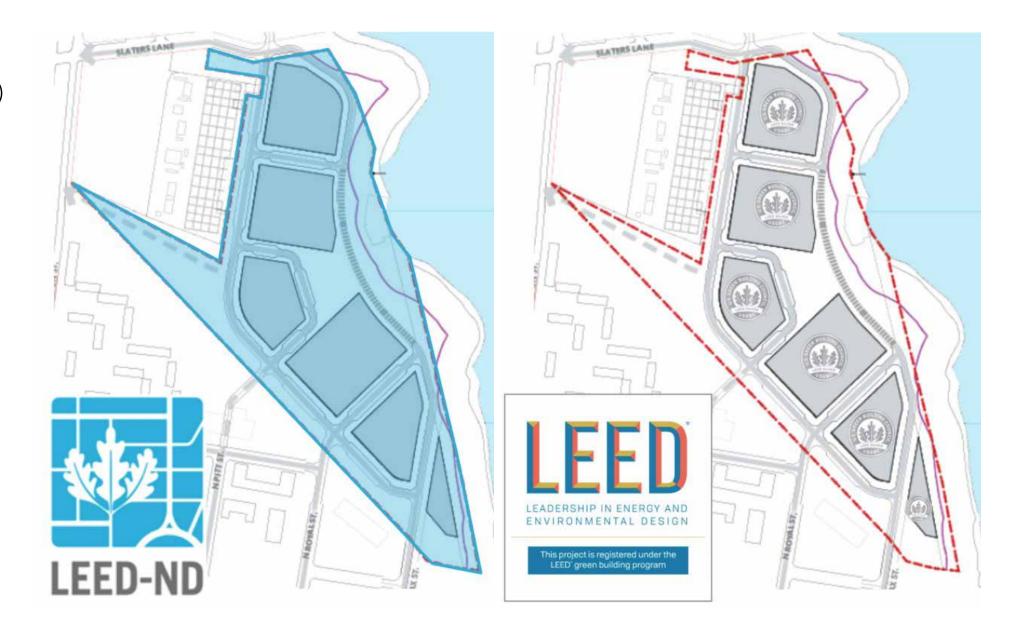


B. Energy Use

14. Encourage on-site generation and storage of renewable electricity from solar photovoltaic (PV) and other available renewable resources.

APPLICABLE LEED FRAMEWORKS

- The Old Town North Small Area Plan (OTN SAP) envisions that the PRGS site applies the green building rating system Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND). This is a plan level certification.
- Each building will also be LEED Silver certified, at minimum. This is a building certification.



CITY OF ALEXANDRIA GREEN BUILDING POLICY

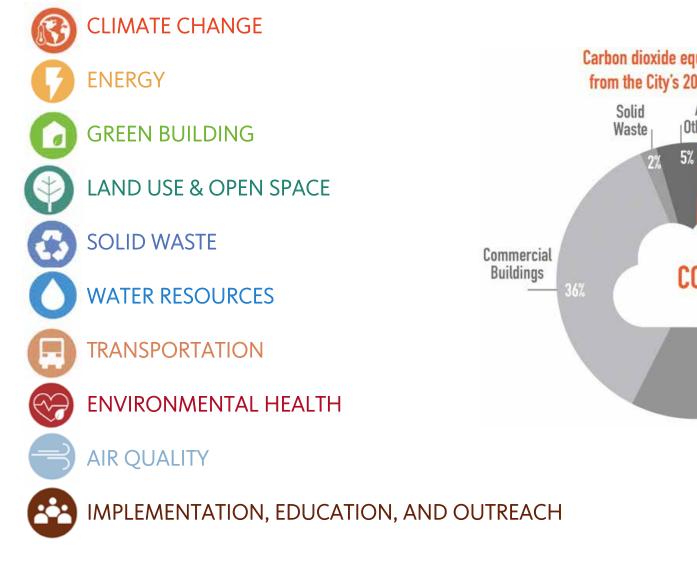
The City of Alexandria Green Building Policy requires Leadership in Energy and **Environmental Design (LEED) Silver** certification plus performance points across the following categories:

- Energy Efficiency
- Renewable Energy
- Advanced Energy Metering
- Indoor Water Use Reduction
- Outdoor Water Use Reduction
- Low Emitting Materials
- Construction IAQ Management •
- Thermal Comfort

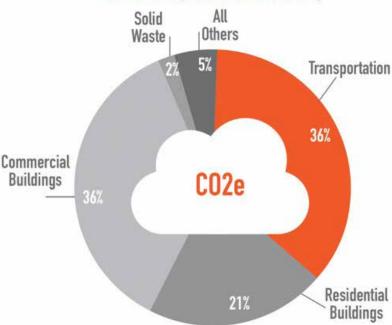


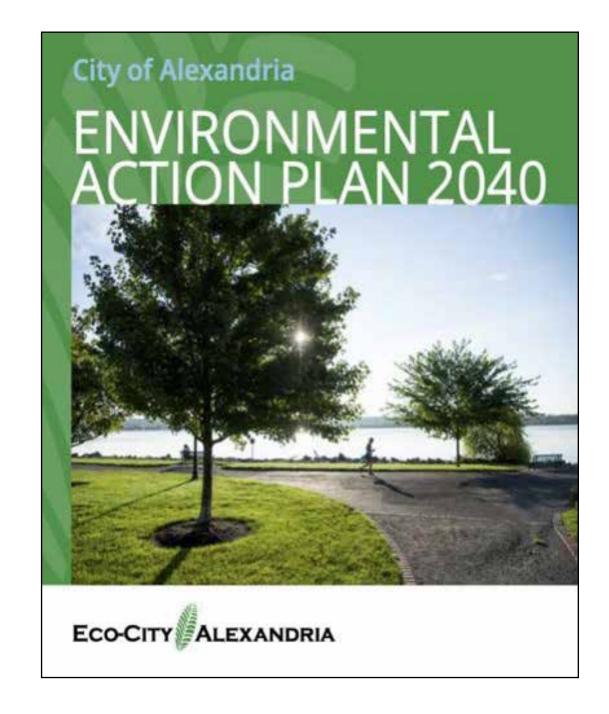
CITY OF ALEXANDRIA ENVIRONMENTAL ACTION PLAN

The EAP 2040 identifies short-, mid-, long-term actions covering the following categories:









AGENDA

1. PROJECT OVERVIEW

2. SUSTAINABILITY FRAMEWORK & PRINCIPLES

REAL PROPERTY AND

3. SUSTAINABILITY APPROACH

4. CARBON NEUTRALITY

5. NEXT STEPS





SUSTAINABILITY APPROACH



• District Wide Systems Under Analysis:

- Heating & cooling
- Stormwater management
- Cycling, pedestrian and public transportation
 - Renewables

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CARBON REDUCTION

SITE SUSTAINABILITY

- Site-wide stormwater system improvements
- 5+ acres of on-site open space, over 14 acres of combined ground level open space
 - Reduces the urban heat island effect
 - Increases tree canopy •
 - Enhances ecosystem services •
- Habitat and Ecosystems
- Example Potential Strategies:
 - Increase tree canopy & shading
 - Enhance ecosystem services ٠
 - Intensive/extensive green roofs •
 - Bioretention

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• Solar reflectance of materials



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POTOMAC RIVER GENERATING STATION ENVIRONMENTAL POLICY COMMISSION | APRIL 18, 2022 26

WATER

- Potable Reduction
- Reuse Opportunities
- Process Water
- Example Potential Strategies:
 - Minimize potable water for irrigation (exceed GBP)
 - 40% reduction from indoor plumbing fixtures (GBP)
 - Condensate and Captured Rainwater used for cooling tower and irrigation
 - Energy Star appliances
 - Submeters and leak detection
 - Potable water access during emergencies





RESILIENCY

- Infrastructure
- Essential Systems
- Adaptable Buildings
- Example Potential Strategies:
 - Renewable energy and backup power systems for critical systems support
 - Green infrastructure and natural systems for stormwater management
 - Increased vegetation and tree canopy
 - Rainwater Harvesting and potable water storage
 - Emergency preparedness
 - Onsite food production
 - Passive thermal safety





HEALTH & WELLNESS

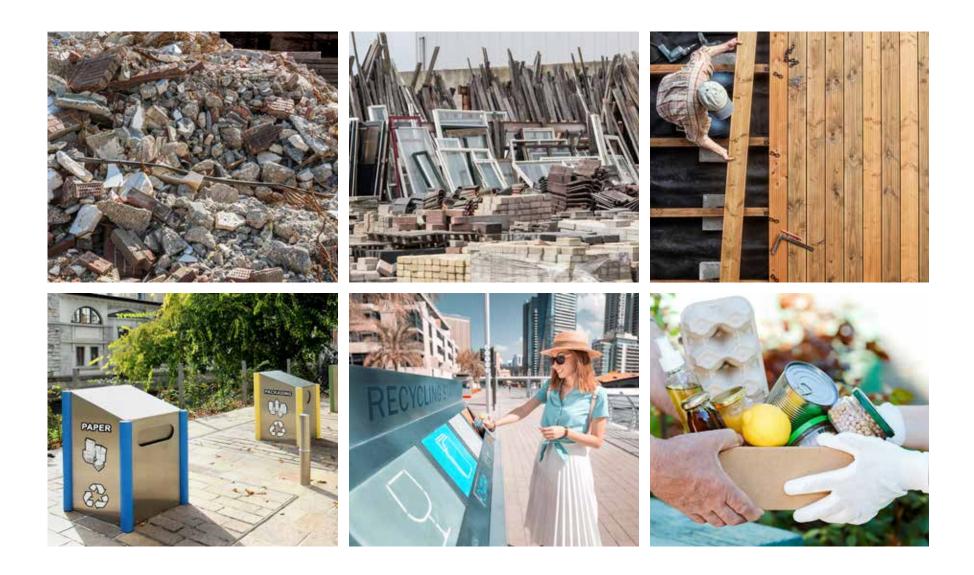
- Materials
- Indoor Air Qualities
- Comfort
- Example Potential Strategies:
 - Product Disclosure and Material Ingredients
 - Biophilic Design
 - Covid impact assessment
 - Filtration and monitoring equipment
 - Ventilation natural and mechanical
 - Daylight
 - Fitness and Health infrastructure



WASTE

- Recycling of existing materials during deconstruction, where possible
- Waste management procedures during construction and operation to divert waste material from the landfill
- Infrastructure
- Operation
- Example Potential Strategies:
 - Reuse existing materials
 - Waste Factor and circular economy
 - Recycling haulers and donation
 - Recycling containers and access
 - Landscape and food waste composting
 - Food donation and community exchange programs





CARBON REDUCTION

- Voluntary Carbon Neutrality Analysis (CNA) outlines path to Carbon Neutrality
 - 25% Improvement Energy Efficiency
 - Exceeds the current Green Building Policy
 - Studying District Wide HVAC Systems
 - Double the target in ALX Green Building Policy
 - 14% Residential
 - 11% Commercial
 - 10% reduction Embodied Carbon
 - Expanded Scope of Carbon Neutrality Beyond Energy
 - Electrification
 - Exploring the extent onsite combustion can be minimized
 - 3% Onsite Renewable Energy Target •
 - Off-site renewables
- Transportation and transit improvements encourage the use of alternative modes of transportation





AGENDA

1. PROJECT OVERVIEW

2. SUSTAINABILITY FRAMEWORK & PRINCIPLES

MIN Reveal A

3. SUSTAINABILITY APPROACH

4. CARBON NEUTRALITY

5. NEXT STEPS





WHAT IS CARBON NEUTRALITY?







WHAT DOES THAT MEAN?

WHERE DO WE START?

TO NEUTRALIZE THE LIFE-CYCLE CARBON EMISSONS ASSOCIATED WITH THE DESIGN, CONSTRUCTION, AND OPERATIONS OF THE PROJECT

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HOW DO WE GET THERE?

PATH TO CARBON NEUTRALITY

OPERATIONAL CARBON	EMBODIED CARBON	ELECTRIFICATION	ONSITE RENEWABLE
Exploring site-wide and building-specific strategies to increase energy efficiency	Exploring material selection and source to reduce embodied carbon	Emphasizing appropriate Electrification and relationship to the grid	Incorporation of onsite renewable energy generation





OFFSITE RENEWABLE

Exploring the potential for offsite renewable (PPAs, RECs, Offsets) energy generation





OPERATIONAL CARBON (ENERGY REDUCTION)

• Targeting 25% Energy Savings over Baseline

- Double the target in ALX Green Building Policy
- 14% Residential
- 11% commercial
- **Energy efficiency and demand reduction** is the most critical strategy to reduce carbon emissions.
- Energy loads for base building systems (elevators, common • area lighting, ventilation, etc) and tenant-controlled loads (plug loads, individual unit lighting, appliances, etc) represent over half of a building's operational energy use.
- Of the base building loads, ventilation represents roughly 1/3 of the total owner-controlled operational energy use.
- Advancements in scalable heat pump technology are a critical component of achieving operational carbon reductions.
- The team is currently evaluating the feasibility of "districtwide" (central utility plant, GSHP, etc.) and localized energy efficient HVAC systems.





RIVER WATER HEAT EXCHANCE OPPORTUNITIES & CHALLENGES

OPPORTUNITIES

- Leverage existing coal plant infrastructure
- Utilize adjacent river for heat source/sink
- Opportunity to supplement GSHP and or Cooling Tower

CHALLENGES

- Shallow water depth may not provide required temperature differential
- Challenging multi-jurisdictional regulatory process
- Significant length of run needed







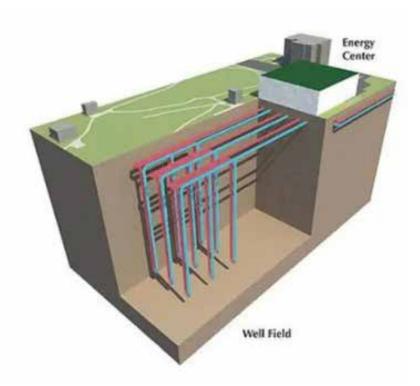
NREL Technical Feasibility Study for Deployment of Ground-Source Heat Pump Systems

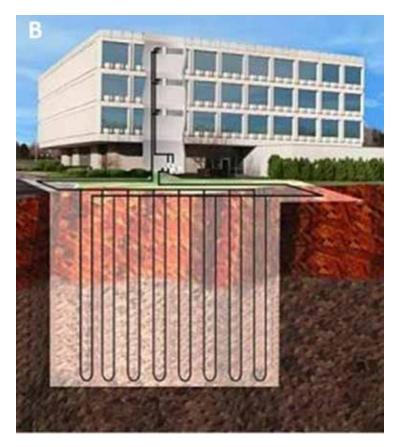
GEOTHERMAL HEAT EXCHANGE OPPORTUNITIES & CHALLENGES

OPPORTUNITIES

- Reduces roof area for cooling towers
- Ability to disperse load across the site
- Resilient solution for thermal load management

- Extremely high first cost
- Requires significant site area to reach critical system loads
- Potential conflict with underground garage
- Efficiency depends on balanced commercial/residential land use



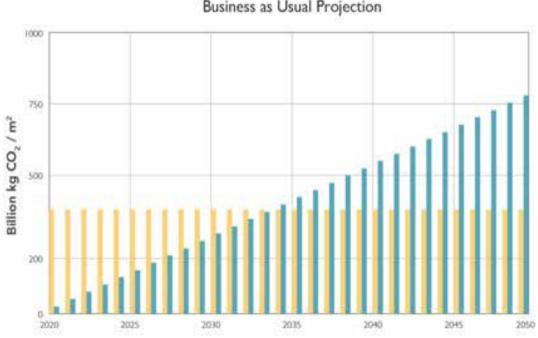


NREL Technical Feasibility Study for Deployment of Ground-Source Heat Pump Systems

EMBODIED CARBON MATERIALS

10% Embodied Carbon Reduction

- Expanding the scope of carbon neutrality beyond energy consumption
- Embodied carbon is the impact of building materials from cradle-to-grave.
- The embodied carbon is **fixed** once construction is complete.
- The embodied carbon of the project equates to at minimum 6 years of operational carbon.
- Heightened awareness and selection around the environmental impact associated with material choices. Environmental Product Declarations (EPDs)
- Local sourcing to minimize carbon from extended transportation and carbon sequestration will also be explored.



Total Carbon Emissions of Global New Construction ever year from 2020-2050 **Business as Usual Projection**

EMBODIED CARBON OPPORTUNITIES & CHALLENGES

OPPORTUNITIES

- Reuse, recycle, and reduction of materials
- Efficient design and reduced excess
- Innovative materials
 - Low-carbon concrete mixes
 - HFC-free insulaton
 - Mass timber
- Sequestration (storage) of carbon

- Challenge to measure due to lack of industry data
- Limited material availability and increased costs
- Potential to derail scheduling with limited material availability



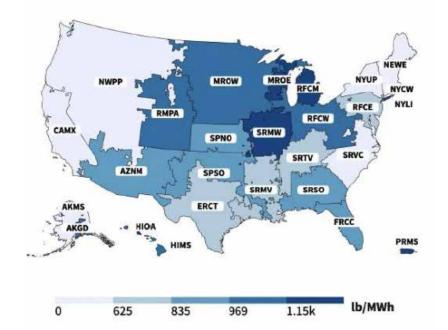






ELECTRIFICATION

- Minimizing onsite combustion is an important step in carbon neutrality. Appropriate electrification is being explored to the extent feasible.
- Virginia Clean Economy Act (VCEA) requires Dominion Energy Virginia to be carbon-free by 2045.
- Minimizing **electric resistance heating**, which is extremely inefficient, is an important energy efficiency consideration.
- For electrification to be truly effective, the electrical grid must use **renewable sources** to generate electricity.



CO₂ total output emission rate (lb/MWh) by eGRID subregion, 2020









ELECTRIFICATION OPPORTUNITIES & CHALLENGES

OPPORTUNITIES

- No combustion on site
- Carbon free energy ready
- Heat pump solutions available
- EV chargers for vehicular use

- Emergency Power
- Electric Resistance is extremely energy intensive
- Burden of increased demand on the Utility
- Needs of Commercial Tenants/Users
- Consumer Expectations





ON-SITE RENEWABLE ENERGY

• 3% On-site renewable target

- On-site renewable energy is an important strategy for **immediate response** to reducing operational carbon.
- Implementation of rooftop solar needs to account for competing priorities associated with available roof and open space.
- The technology of solar energy continues to improve.
- There are limitations to how much on-site renewable energy generation can offset energy use in **urban environments**.



SOLAR PHOTOVOLTAICS OPPORTUNITIES & CHALLENGES

OPPORTUNITIES

- Clean energy closest to source and demand
- Resilient solution
- Potential to combine green roof and solar PVs

- Large area required to create substantial output
- Limited and fragmented surface area translates to modest output
- Competes with accessible open space and biodiversity
- Shade from adjacent buildings or surrounding tree canopy can reduce efficiency



HOW MUCH SOLAR POWER COULD BE GENERATED ON THE POTENTIAL LINEAR PARK? Norfolk Southern Solar Farm

Size: Approximately 3.5 acres

- If all 3.5 acres were 100% covered with PV, approximately 800-1,000 kW/year (Nominal Capacity) could be generated:
 - At 2.15M square feet, 4-5% of total site energy
 - At 2.5M square feet, 3-4% of total site energy
- This is an idealized estimate and doesn't account for "loss factors" such as:
 - Existing and permanent shade from surrounding trees
 - Cloudy days
 - Loss of any PV coverage in exchange for other uses such as:
 - o Walkways and bike paths
 - o Playgrounds, ball courts or other recreational areas



MICROGRIDS OPPORTUNITIES & CHALLENGES

OPPORTUNITIES

- Not reliant on electrical grid
- Can be used for EV charging, building loads, combined heat and power systems

- Requires larger scale and space to be feasible (battery storage, cooling energy, related costs)
- Independence from the grid at this scale likely require distributed fuel/power sources





OFF-SITE RENEWABLE ENERGY

- New off-site renewable energy generation and on-site **electrification alignment** is critical (such as grid-interactive buildings)
- New development can **stimulate** new sources of clean renewable energy in the grid
- Exploring new mechanisms to allow for tenant level procurement of off-site renewable energy sources
- Advancements in the availability of small scale
 Power Purchase Agreements (PPA)
- Utility's ability to meet the increasing demand for electricity without introducing new fossil fuel based energy source



OFF-SITE RENEWABLE ENERGY OPPORTUNITIES & CHALLENGES

OPPORTUNITIES

- Potential to add new renewable energy to electrical grid
- Power Purcahse Agreement (PPA)
- Renewable Energy Credis (RECs)
- Promotes Community Choice Aggregation

- Contracts can be complex and challenging
- Utility cost is higher than standard alternative
- Individually metered residential unit PPA is a complication for ownership to offset





CARBON NEUTRALITY RECAP

- Voluntary Carbon Neutrality Analysis (CNA) to outline a path to Carbon Neutrality
 - 25% Improvement Energy Efficiency
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 - Electrification

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- Exploring the extent onsite combustion can be minimized
- 3% Onsite Renewable Energy Target
- Off-site renewables

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• Targets will be measured and revisited during:

- Sustainability Master Plan
- Infrastructure DSP as relates to site level
- Open Space DSPs (for waterfront park and proposed linear park) as relates to park area
- Future Phase DSUPs as relates to buildings





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AGENDA

1. PROJECT OVERVIEW

2. SUSTAINABILITY FRAMEWORK & PRINCIPLES

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3. SUSTAINABILITY APPROACH

4. CARBON NEUTRALITY

5. NEXT STEPS

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SUSTAINABILITY MASTER PLAN

The Sustainability Master Plan (SMP) runs in parallel to the Infrastructure DSP to be submitted later this spring.

The purpose of the SMP is to:

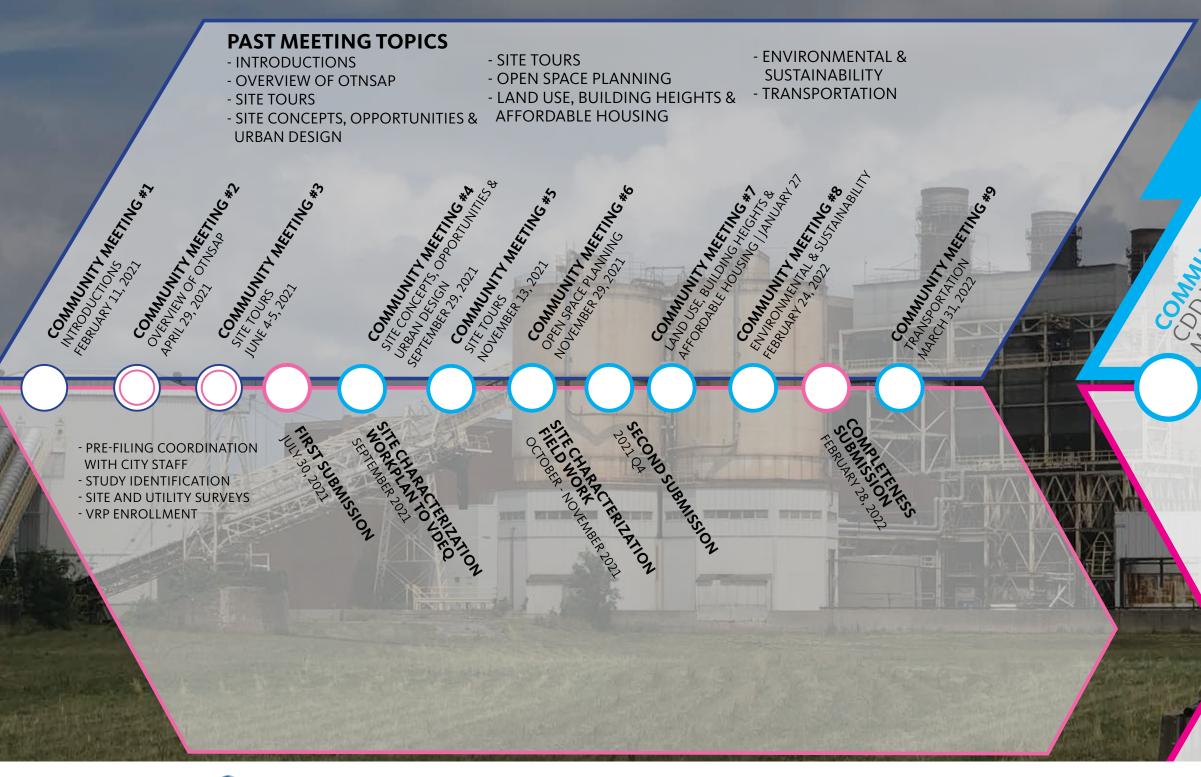
- Establish metrics for sustainable performance thresholds across several impact categories
- Demonstrate how the project complies with goals and recommendations of the city
- Establish a variety of short-term, mid-term, and long term strategies
- Emphasize important elements of sustainability related to the development



MEASURES

SCHEDULE & PROCESS





≫STEPS FORWARD

NG *20

PLANNING PROCESS PHASE 1: REZONING & CDD CONCEPT PLAN



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