Item No.: 6h_Supp Meeting Date: July 14, 2020

WTCW HVAC Replacement

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Action Requested

Authorize Design and Construction funding



Background

- 69,507 SF, 4 story multi-tenant office building
- Tenants: World Trade Center Club, Café Opla, Columbia Hospitality, World Affairs Council and Others
- Completed construction in 1999
- Rooftop HVAC equipment is original to the building At the end of its useful life

Project Summary

 Replace Primary HVAC Components + Kitchen HVAC

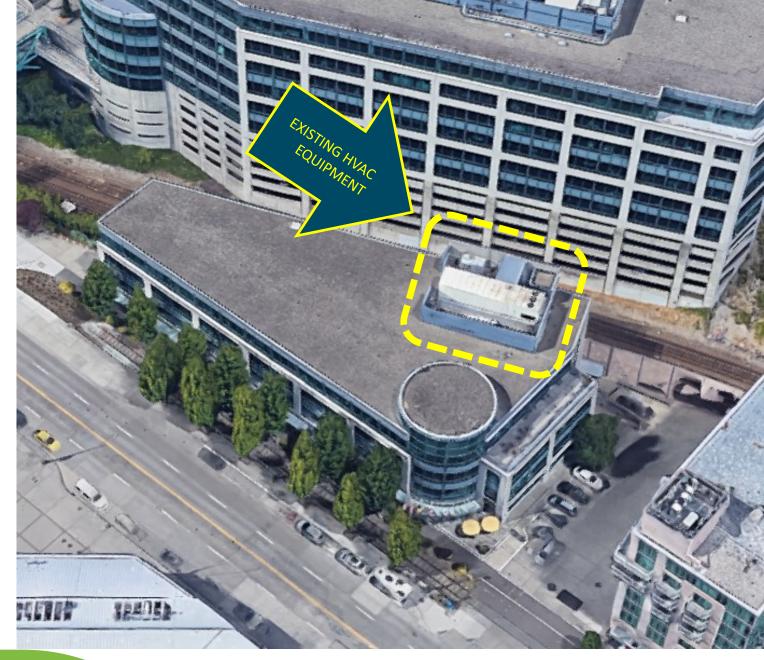
Includes cost premiums for offhours work and temporary HVAC.

- Complete by Fall 2021
- Estimated Cost: \$3.53M



Approach

- A Pilot for the Sustainable Evaluation Framework
- Balance Cost with
 Increased Energy Efficiency
- Eliminate Natural Gas Use
- Consider System Design Holistically



Sustainable Design Approach Goals

- Cost effectiveness
- Costs balanced against environmental benefits
- Greenhouse Gas Emission Reduction and Energy Efficiency
- Eliminate use of natural gas for heating
- Advance efforts to achieve CA goals
- Tenant Impacts
- Improve occupant comfort, minimize tenant disruption

Alternatives Considered

- <u>Alternative 1.</u> In-kind system
 - Like-for-like Rooftop Unit (RTU) Replacement
- <u>Alternative 2.</u> State-of-the-art system
 - High-efficiency Dedicated Outdoor Air System (DOAS) Unit with Variable Refrigerant Flow (VRF) Heat Pump System with Controls and Kitchen DOAS and VRF Heat Pump
- <u>Alternative 3</u>. Hybrid approach
 - Like-for-like RTU Replacement **Plus** Controls Retrofit and Variable Air Volume (VAV) Box Replacement and Kitchen DOAS and VRF Heat Pump

Alternative Analysis

| | Cost Effectiveness | | Greenhouse Gas Emission Reduction | | Energy Efficiency | | Impacts to Tenants | | |
|--------------------------------|-----------------------------------|-----------------|---|--|--|----------------------------------|-----------------------------------|----------------------|---|
| | Capital / Construction Cost | Life Cycle Cost | Maritime/EDD Building Energy Emissions Reduction (% from 2018 Emissions) | Lifetime CO ₂ avoided (Metric Tons) | Expected Energy Use Intensity (reduction compared to 2017 baseline) | Annual Energy Savings (kBTUs) | Level of Work in Tenant Spaces | Construction Time | Tenant Comfort/ Temperature Control |
| | | | | | | | | | |
| | | | | | | | | | |
| Alternative 3 (Recommended) | \$3.5M/2.8M | \$4.9M | 0.9% | 376 | 60 (14%) | 668,000 | Medium | Medium | Medium 9 |

Alternative 3 Benefits

- Reduces 376 Mt CO₂ over project life
- Eliminates all natural gas use for heating building spaces
- Expected to reduce operating maintenance costs at WTCW
- Demonstrates innovative HVAC technology
- Provides improved tenant comfort and moderate disruption during construction
- Maximizes sustainability goals at a marginal cost increase

Contracting Method and Schedule

- Building Engineering Systems (BES) Contract
 - Based on lessons learned from other BES projects
 - Port will provide performance specs and contractor will design and construct
 - Opportunities for efficiency, quality, and innovation
 - Women and Minority Business Enterprise (WMBE) goal of 6%
- Schedule
 - Q3/2020 Q4/2020: Advertise, award, and execute BES contract
 - Q1/2021 Q4/2021: Design and construction
 - Q1-Q3/2022: Project closeout

