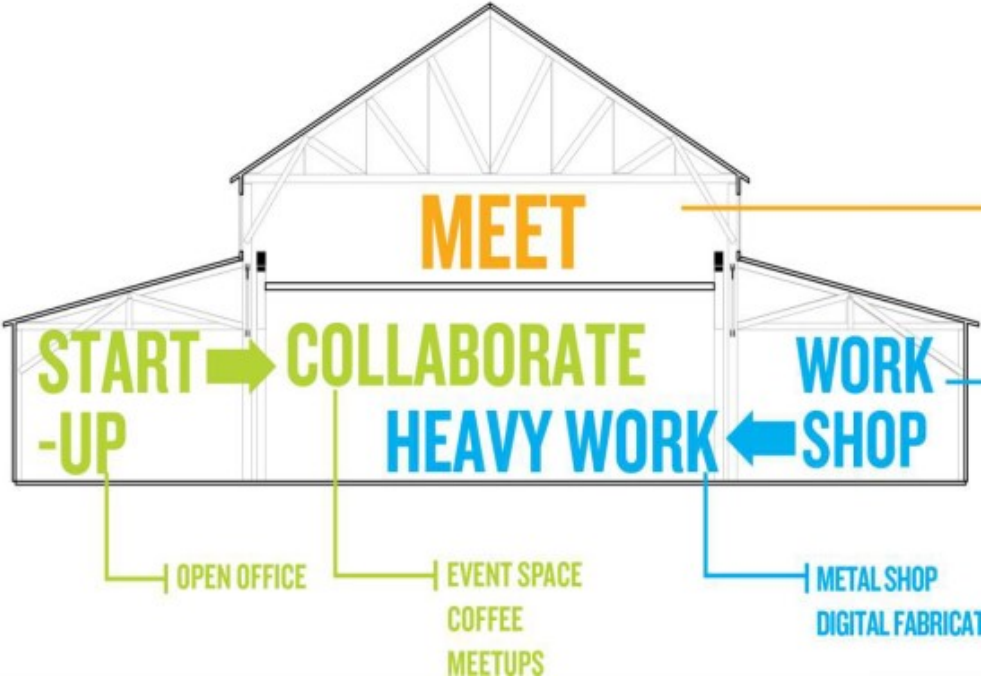


Maritime Innovation Center Construction Authorization



Advancing the Maritime Innovation Center

- Seeking authorization to execute an interagency agreement with Washington State Dept. of Commerce to accept a \$5M grant from the Clean Energy Fund Program to support the construction of the Maritime Innovation Center (MInC)
 - As part of this agreement Commerce is asking the Port to formalize support for the project by authorizing construction of the MInC
 - Staff will add an additional authorization step for the MInC and come back to commission to authorize funding for the project when we are ready to start construction
- No funding requested at this time
- Part of 2019-2023 Capital Improvement Plan

Maritime Innovation Center Progress

2016

Fishermen's Terminal Plan includes Maritime incubator development

2017

Initial Community Engagement and Innovation Center Feasibility Study

2018

WA State creates strategy for a Blue Economy

2019

Port creates MInC Advisory Committee & Creates Business Plan

Commission authorizes design for MInC

Port signs MOU with WA Maritime Blue to partner on innovation

Port partners with Maritime Blue to launch Maritime Blue innovation accelerator

Maritime Innovation Center

“The center will be used to support technology acceleration and incubation, and act as a focal point for maritime sustainability, including, but not limited to, supporting technology development for maritime decarbonization and electrification.”

Excerpt from interagency agreement



State Investment and Partnership

\$5 Million State Commitment

- Part of Governor Inslee's 2013 Jobs Plan
- 2018 State Capital Budget / Clean Energy Fund
- Included in Governor's, House and Senate Budgets
- Informed by SEEP Executive Order & Strategy for the Blue Economy
- Contracting underway



**Global
Innovation
Hub**

Blue Facility / Blue Finance

Developing Maritime Innovation Center w/ Port of Seattle

Maritime Blue Innovation Accelerator

Capital Landscape Study for WA's Blue Economy

Hub & Spoke Incubation around the State



Maritime Blue: Advancing Innovation

Industry Members

Organizational Partners

blue **A Strategic Alliance for Maritime Innovation and a Sustainable Blue Economy**

A partnership to implement Washington State's Strategy for the Blue Economy - a thriving maritime economy, a healthy ocean & marine environment, equitable & resilient communities.

Research Institutions

Public Partners



Maritime Blue Innovation Accelerator

Startup investments/sales related to first cohort of 11 startups in an Accelerator

- \$32M in Private Capital Investments (associated startups)
- \$6M in Business Sales (associated startups)
- Several Demonstration Projects and Customer acquisitions
- Combined reports of over 500% increase in sales
- At least 50 jobs created



Innovation Center Strategic Objectives

- ☑ Be a focal point for maritime innovation
- ☑ Offer incubator and accelerator environment
- ☑ Support investment in BlueTech start-ups and new technologies
- ☑ Drive equitable economic development
- ☑ Support workforce development and maritime career exploration



First Maritime Blue Innovation Accelerator Cohort



Ship Supply Building: Assets for Innovation

- Accessibility
- Access to water
- Access to laydown area
- Proximity to Maritime Suppliers and Manufacturers
- Visibility
- Historic Preservation, Aesthetics & Ability to Leverage Capital
- Equity & Diversity



Proposed Building Improvements

- Abatement of regulated materials in existing structure
- Partial existing building demolition (timber structural framework to be preserved)
- Enhancement of structural piles and framework
- Construction of new MInC building core and shell
- Utility services removal and replacement
- New building perimeter and parking lot paving

SUSTAINABILITY TARGET MInC

		BE THE GREENEST AND MOST ENERGY EFFICIENT PORT IN NORTH AMERICA			SALMON SAFE	2030 CHALLENGE	LEED V4 CREDIT	LBC CORE	LBC PETAL	FULL LBC
		WATER	ENERGY	CARBON						
WATER	GOOD (Salmon Safer)	✓			✓		S ✓	✓		
	BETTER (Reclamation)	✓			✓		✓	✓		
	BEST (Net Positive)	✓			✓		✓	✓	✓	✓
ENERGY	BETTER (2030)			✓		✓	✓	✓		
	BEST (Net Positive)		✓	✓		✓	✓	✓	✓	✓
MATERIALS	BETTER (8 Red List Mat'l's)			✓			✓	✓		
	BEST (Full Red List)			✓			✓	✓	✓	✓

HIGH-PERFORMANCE ENVELOPE
Triple-glazed, low-e windows and highly-insulated walls and roofs minimize heat loss and gain through the envelope, reducing demands on heating and cooling systems.

SALVAGED MATERIALS
Heavy timber structure is reused in place, reducing the embodied carbon footprint of the structure and saving valuable resources.

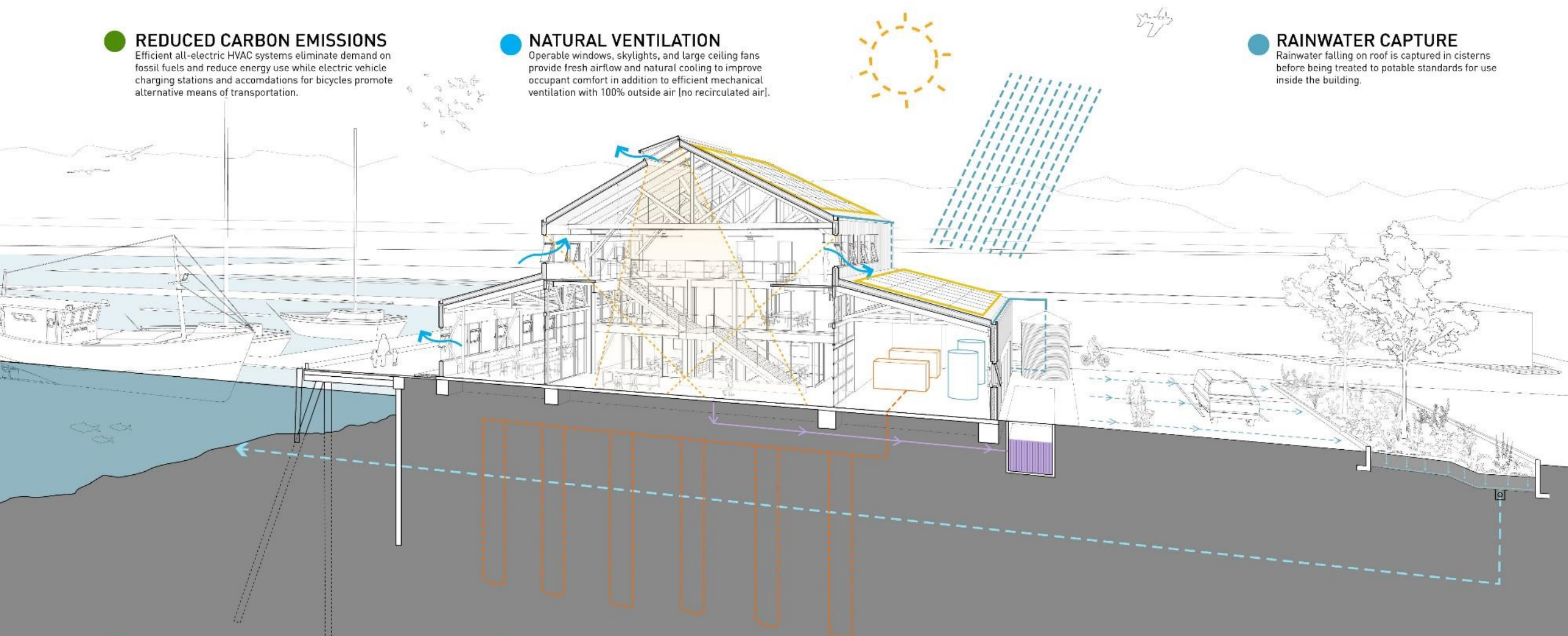
NET POSITIVE ENERGY
Photovoltaic panels on roof generate more than enough electricity to offset entire building energy use and provide resiliency.

DAYLIGHT AND VIEWS
Windows and skylights provide high-quality views to Salmon Bay and allow workspaces to be naturally daylight for most of the year, reducing use of electric lighting.

REDUCED CARBON EMISSIONS
Efficient all-electric HVAC systems eliminate demand on fossil fuels and reduce energy use while electric vehicle charging stations and accommodations for bicycles promote alternative means of transportation.

NATURAL VENTILATION
Operable windows, skylights, and large ceiling fans provide fresh airflow and natural cooling to improve occupant comfort in addition to efficient mechanical ventilation with 100% outside air [no recirculated air].

RAINWATER CAPTURE
Rainwater falling on roof is captured in cisterns before being treated to potable standards for use inside the building.



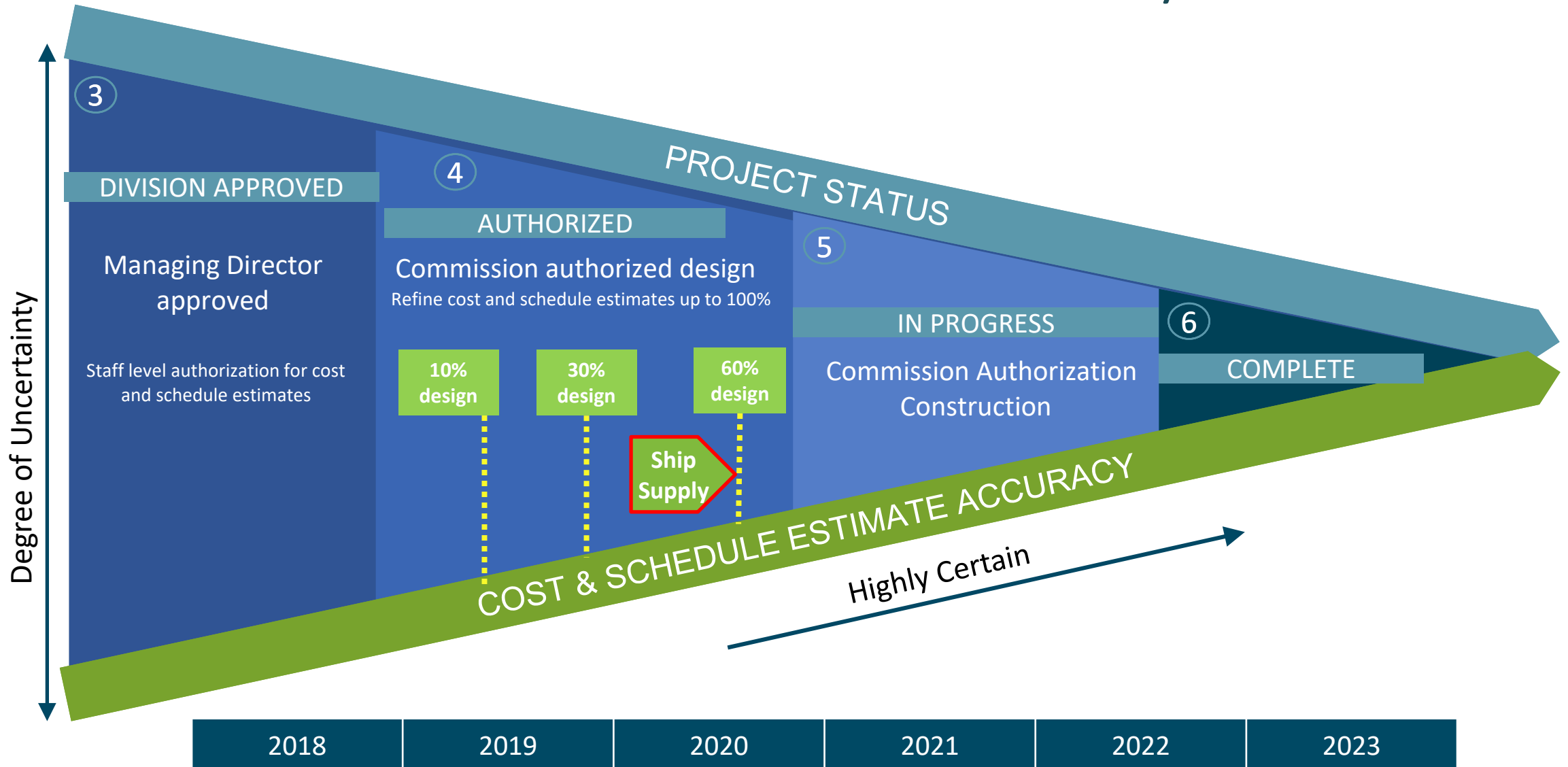
RED LIST FREE MATERIALS
All new building materials used in construction are free of harmful Red List chemicals.

GROUND SOURCE HEAT EXCHANGE
Deep geothermal wells utilize constant ground temperature as a heat sink and heat source to provide highly-efficient heating and cooling.

WASTE WATER MANAGEMENT
All greywater from sinks is treated and recycled for irrigation use on site while blackwater from toilets is treated on site, reducing demand on municipal systems.

STORMWATER TREATMENT
All stormwater runoff from impervious surfaces is directed to bioswale where it is treated before discharge into Salmon Bay, helping to protect the marine habitat Fishermen's Terminal relies on.

MInC: Status & Certainty



Maritime Innovation Center

Project Cost Summary (pre-60% Design Estimate*)

Description	Estimated Costs	% of Total Project Cost
Engineer's Estimate of Direct Constr. Costs	\$7 M	43.5%
Other Construction Costs	\$5.2 M	33%
Soft Costs	\$3.6 M	22.5%
Art Program	\$160 K	1%
TOTAL ESTIMATED PROJECT COSTS	\$16 M	100%

* The *pre-60% Project Cost* is based on a cost estimate developed post 30% Design, and pre 60% Design, which carries a level of uncertainty that will progressively reduce as design reaches full definition. The project has been included in the Port of Seattle's approved 2021-2025 CIP with a total project cost of \$16,000,000.

Next Steps



- Complete design work
- Refine cost estimates
- Secure permits
- Secure construction funding
- Partner with Maritime Blue to evaluate tenant options as facility starts construction
- Achieve Living Building Challenge

APPENDIX



Facility Location Criteria

May 2019
Commission request to
authorize MInC design

- Accessibility
- Access to water
- Access to laydown area
- Proximity to Maritime Suppliers and Manufacturers
- Visibility
- Historic Preservation, Aesthetics & Ability to Leverage Capital



Site Evaluation

May 2019

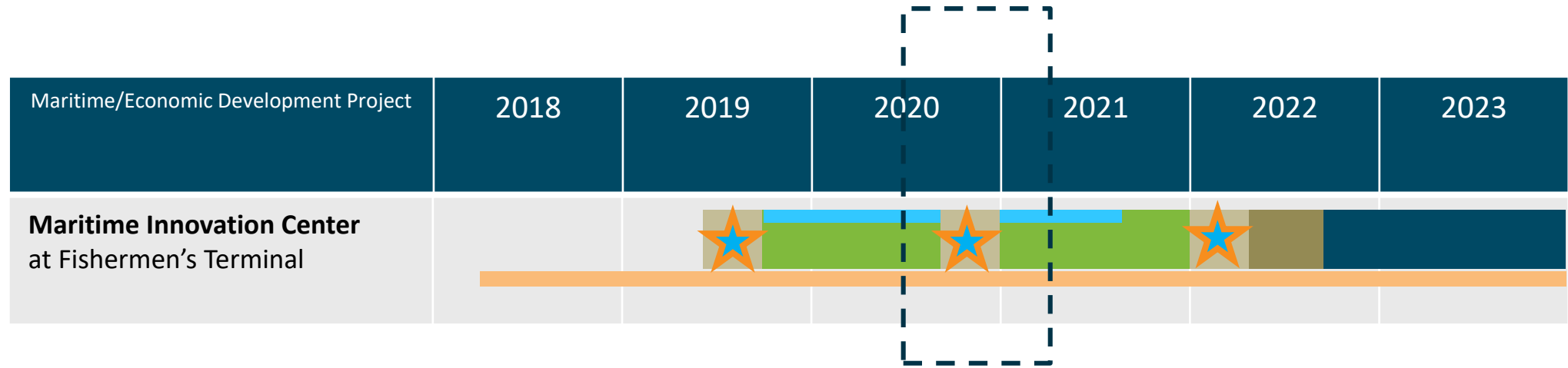
Commission request to
authorize MInC design

- Fishermen's Terminal (FT) site options ranked higher than Terminal 91 options:
 - More proximate to suppliers and partners
 - More visible and accessible
 - Better access to water
- FT's Gateway and Historic Ship Supply sites ranked similarly
 - Ship Supply slightly better based on historic preservation opportunity
- Capital development costs not considered

Maritime Innovation Center Site Evaluation

No	Site Selection Criteria	Weight	Site 1: Ship Supply Building		Site 2: T91 Uplands		Site 3: FT Gateway	
			Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
I	Accessibility 4 = Facility is within 200 yards of public transit and within 20 minute commute from partners (UW Applied Physics Lab, Maritime Blue, etc.) 3 = Facility is within 1/4 mile of public transit and within 20 commute from partners 2 = Facility is within 1/2 mile of public transit and within 30 minute commute from partners 1 = Facility is more than 30 minutes drive from partners	20%	3	0.6	1	0.2	4	0.8
II	Access to water 4 = Facility is on fresh or salt water with moorage capacity 3 = Facility is within 1/4 mile of fresh or salt water - limited moorage capacity 2 = Facility is within 1/2 mile of fresh or salt water - limited moorage available 1 = Access to fresh or salt water difficult or not optimal	20%	4	0.8	2	0.4	3	0.6
III	Access to laydown area for staging 4 = Facility provides a laydown area 3 = Facility is within 200 yards of a laydown area 2 = Facility is within 1/4 mile of a laydown area 1 = Access to laydown area is difficult or not optimal	20%	4	0.8	4	0.8	3	0.6
IV	Proximity to Maritime Suppliers and Manufacturers 4 = Facility is within 1/2 mile of machine shops and maritime suppliers (inc. chandlery) 3 = Facility is within 1 mile of machine shops and maritime suppliers (inc. chandlery) 2 = Facility is within 3 miles of machine shops and maritime suppliers (inc. chandlery) 1 = Facility not located in proximity to maritime supply chain	20%	4	0.8	3	0.6	4	0.8
V	Historic Preservation, Aesthetics & Ability to Leverage Partner Capital 4 = Facility is historic and can leverage other capital \$ 3 = Facility is new and can leverage other capital \$ 2 = Facility is new but it may not leverage other capital \$ 1 = Facility not located in proximity to maritime supply chain	10%	4	0.4	3	0.3	3	0.3
VI	Visibility 4 = Visible from Seattle arterials and surrounding streets 3 = Visible from property entrance 2 = Visibility possible from property entrance with signage or other building improvements 1 = Not immediately visible	10%	3	0.3	1	0.1	3	0.3
Total Scores		100%	3.7	3.7	2.3	2.4	3.3	3.4
Site Ranking			1		3		2	

Maritime Innovation Center Development Schedule



Community Engagement*



Commission Approval



Bid & Award



Environmental Review



Design/Permitting



Construction

* Community engagement tasks will vary by project needs

HEATING + COOLING – SYSTEMS COMPARISON MInC

All systems will have a DOAS paired with the heating and cooling systems below.

MAJOR COMPONENTS + SERVICE LIFE

GOOD VRF
 15* year: Circ. Refrigerant
 15 year: Heat Pumps
 15 year: Outdoor Condenser

BETTER WSHP
 20 year: Circ. Water Pumps
 25 year: Heat Pumps (Ducted)
 20-25 yr: Cooling Tower (Closed)
 20-25 yr: Electric Boiler

BEST GSHP
 20 year: Circ. Water Pumps
 25 year: Heat Pumps (Ducted)
 75+ year: Ground Loop
 20-25 yr: Electric Boiler (Back-up)

ADVANTAGES

- + Smaller Units/Zones
- + Low(er) First Cost

- + Higher Efficiency

- + Most efficient
- + Less visible equipment

DISADVANTAGES

- Refrigerant, Lbs
- Least efficient
- Visible ductwork, piping

- High(er) First Costs
- Water Treatment
- Large/Visible Cooling Tower

- Higher First Cost (Loop)
- Glycol Treatment

FLEXIBILITY

- Limited flexibility for TIs
- Hard to expand capacity
- Limited capability to add more to existing system

- + Very flexible for TIs
- + Easy to expand heating capacity
- + Can add units easily
- Hard to expand cooling capacity

- + Very flexible for TIs
- + Easy to add a boiler
- + Can add units easily
- Difficult/expensive to add capacity in bores

INITIAL COST

\$265,000 (3.3%)

\$320,000 (4%)

\$375,000 (4.7%)

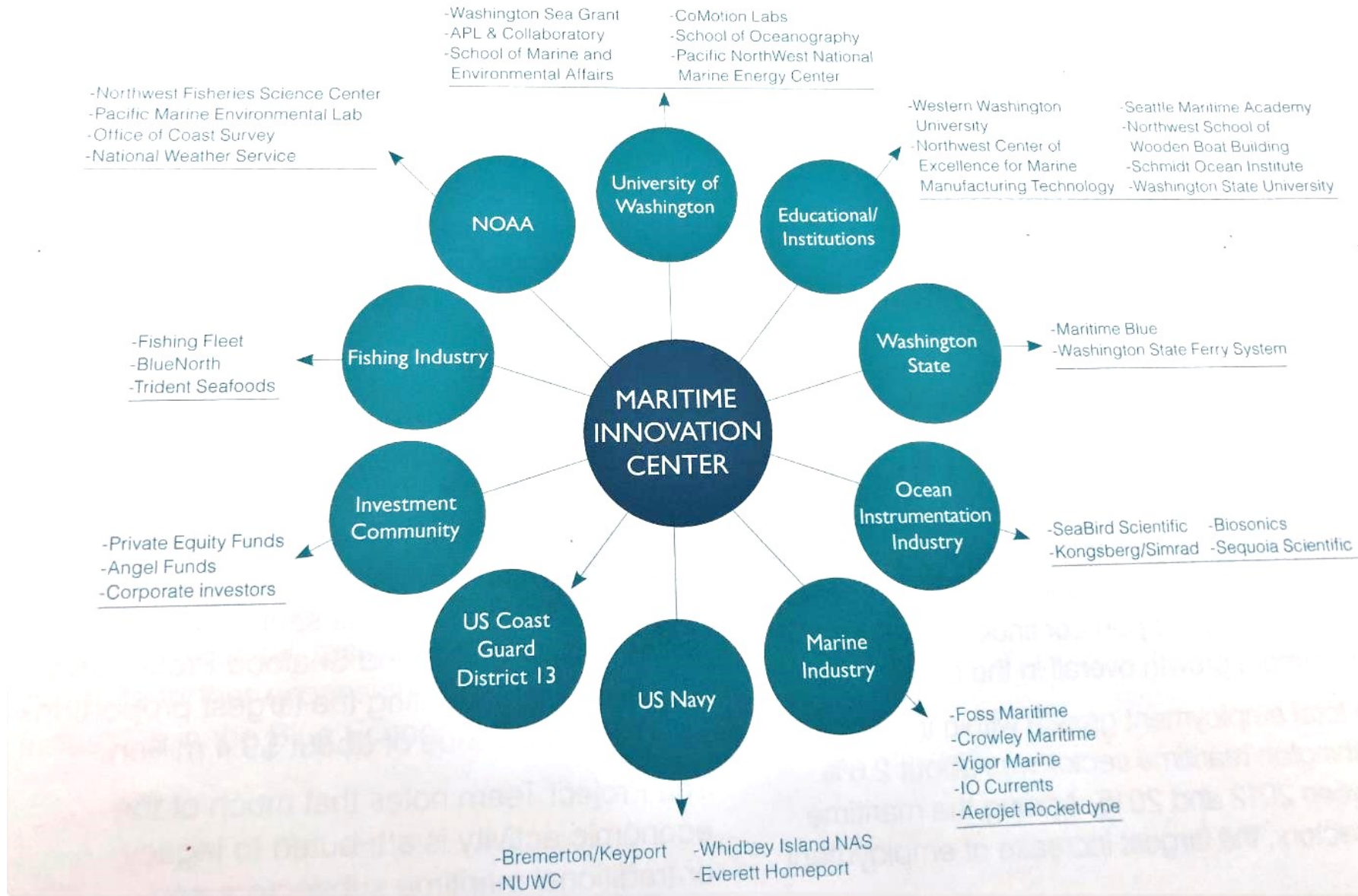
EUI ESTIMATE

25 KBTU/SF/YR

24 KBTU/SF/YR

23 KBTU/SF/YR

HUB AND SPOKE MODEL



Center Will Be Built on Partnership