



The Re-Development of the Amethyst Lot A Vision for Portland Landing

City of Portland, Maine
Economic Development Department

December 20, 2017



To the City of Portland,

The spirit of Portland, Maine is reflected in our vision for the redevelopment of the Amethyst lot. Portland Landing will be a vibrant waterfront public space tailored to the recreation and transportation needs of a great maritime city. Inclusive and resilient, Portland Landing will be the pride of residents of all ages and interests for generations to come.

Portland is the State of Maine's largest and most diverse city, growing in population while preserving its heritage. The city is rich in culture, culinary delights, music, and outdoor activity, while at a crossroads between economic growth and affordability. What we find surprisingly absent in this coastal community, most prevalent in neighboring waterfront communities, is a signature waterfront public space accessible from the civic center. Portland Landing can be that civic destination, accessible to all from all walks of life.

Offering space to relax, view, sail, fish, celebrate, meet, greet, launch and learn, Portland Landing is our response to the City's needs. Nestled and interwoven within a resilient framework of wave and flood attenuating landforms and structures, new water-dependent travel and recreation amenities emerge.

We are pleased to submit this vision plan, prepared in collaboration with dedicated City staff and community stakeholders. This vision for the Amethyst lot, long locked in a state of disrepair and an unknown fate, represents a critical first step in reimagining downtown's public waterfront.

Gary Sorge, FASLA, AICP
Vice President, Stantec

The Stantec team acknowledges the participation, leadership and commitment of the following individuals who helped craft the development program, design concepts and overall vision for Portland Landing. Their collective insight was critical in the preparation of this Plan and their continued advocacy will be vital to its success.

Stakeholders

Chris Robinson, Vice President, Ameriprise Financial
Cyrus Hagge, Owner, Project Management, Inc.
Donnie Carroll, Director, Maine Narrow Gauge Railroad Company and Museum
Dory Waxman, Owner, Old Port Wool and Textile Co.
Jesse Patkus, Purington Construction
Kara Wooldrik, Executive Director, Portland Trails
Kevin Costello, Manager, CPB2 LLC
Maggie Stanley, Architect, Goduti-Thomas Architects
Alison Hildreth, Alison Hildreth Studio
Lin Lisberger, Chairwoman, Public Arts Committee
Adam Shepherd, Executive Director, Rippleffect
Alan Graves, Ocean Marine LLC
Barbara Nash, VP, India Street Neighborhood Assoc.
Bill Coppersmith, Co-Owner, Fishermens Catch
Carole Merrill, Executive Director, Portland Society for Architecture
Casey Prentice, Manager, CPB2 LLC
Diane Davison, Executive Director, Friends of the Eastern Promenade
Gerald Mylroie, Chairman, American City Planning Directors Council, American City Quality Foundation
Jack Humeniuk, Representative, Ports America
Jack Lufkin, VP Business Banking, KeyBank
Jay Norris, President, Munjoy Hill Neighborhood Association
Jim Brady, Manager, CPB2 LLC
Joe Malone, President, Malone Commercial Brokers
John Jordan, President, Calendar Islands Maine Lobster Company
Kevin Battle, Harbor Master, Harbor Master of Portland
Kristen Grant, Southern Maine Marine Extension Associate
Michael McAllister, Interim Executive Director, SailMaine
Patrick Phillips, Board Member, Restorative Justice Institute of Maine
Paul Drinan, Executive Director, Friends of Fort Gorges
Paul Weiss, President, SMRRC Inc.
Paula Agopian, Real Estate Agent, Keller Williams
Peter Ayers, Working Waterfront Coalition
Richard Barringer, Research Professor Emeritus, University of Southern Maine
Scott Reischmann, Owner, Portland Schooner Company
Terry Duddy, Lawyer, Kelly, Rimmel and Zimmerman
Tony Donovan, Marine Rail Transit Coalition

City of Portland

Ethan Strimling, Mayor
Jon Jennings, City Manager
Sally DeLuca, Recreation Director, Portland Recreation Department
Greg Mitchell, City Economic Development Director
Tuck O'Brien, City Planning Director
Belinda Ray, City Council District 1
Ethan Hipple, Director of Parks Division
Jeff Levine, Planning and Urban Development Director
Nathan Moulton, Director, Rail Program
John Peverada, Parking Manager
Aaron Shields, Director Project Management, Parks
Kathy Alves, Maritime Manager
Caitlin Cameron, Urban Designer
Christine Grimando, Senior Planner
Bill Needelman, Waterfront Coordinator
Justin Pellerin, Project Engineer
Lori Paulette, Senior Executive Assistant
Jacob Soley, Planning and Historic Preservation Intern

Stantec

Stephen Bushey, Associate Branch Manager
Gary Sorge, Vice President, Community Development
Amy Seek, Design Director
Nathan Henderson, Environmental Services
Celina Daniell, Technical Assistant
Joe Geller, Vice President
Thu Ngan Han, Project Landscape Designer
Sara Morrison, Landscape Architectural Designer
Brooke Barnes, Senior Associate, Environmental Services
Paul Harrington, Senior Principal





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Photo Credit: Corey Templeton

Introduction

The City of Portland hired Stantec to refine a program and prepare a schematic design for the redevelopment of the Amethyst lot (now, Portland Landing) on Thames Street. The site is a vacant parking lot with access to community boating, sail training and open space, partially subject to remedial restrictions, with a field of remnant piles from the historic Grand Trunk Railway piers on the water. The site is located in the Eastern Waterfront redevelopment district and contains approximately three acres of uplands and ten acres of adjacent submerged lands within the Fore River at the mouth of Portland Harbor. Adjacent land uses include the Ocean Gateway marine passenger terminal, a State of Maine rail-trail right-of-way, and the Portland Company complex. Like much of the Portland Peninsula, nearby land is undergoing a tremendous revitalization, with multiple hotels, commercial office and retail/restaurants under construction. New development is highlighted by the now under construction WEX Corporate Headquarters at 1 Hancock Street, opposite the proposed Portland Landing site.

Stantec's Planning and Landscape Architecture studio and New England-based environmental and marine facility design team was selected by the City of Portland as the design consultant. We began our work with an analysis of the site's Redevelopment Program Statement previously prepared by the City.

At the start, our team anticipated an adaptive reuse of civic infrastructure and the creation of all-season marine

destinations and a rich variety of play and transportation experiences for the Amethyst site. We recognized the intrinsic value of the location that people enjoy today and aimed to capture the intrigue of the space, engage the water in multiple ways, and create a linked assembly of civic spaces and waterfront activity that will attract tourists and residents of diverse recreational interests. In addition, our team recognized the site as an opportunity to increase the resilience of Portland's waterfront to sea level rise, a priority of the City. Our vision and the City's goals aligned seamlessly and are presented in this study, 'The Redevelopment of the Amethyst Lot – A Vision for Portland Landing.'

Our Vision for Portland Landing will bring excitement, add vibrancy, integrate upland and submerged lands in a cohesive program, and commemorate the city's rich history. Our efforts put paramount emphasis on operational and financial sustainability, authenticity and simplicity and meeting the recreational needs of local residents and transient populations.

Planning Process

Stantec engaged the Study Workgroup and Stakeholders to refine the Redevelopment Program Statement, review alternative design concepts, and create a final preferred design alternative and implementation strategy. Our work plan included the following action items:

- Prioritize uses through Workgroup and Stakeholder presentations and engagement;
- Refine Redevelopment Program per engagement;
- Evaluate existing infrastructure and identify potential coastal risks to new development;
- Develop alternative design concepts for evaluation, permitability, and selection;
- Develop planning level opinion of probable construction cost for the selected preferred alternative;
- Illustrate the preferred alternative to a schematic design level, including visualization renderings;
- Identify funding strategies and sources for completing and maintaining the project; and
- Deliver final master plan document.

Public Outreach Overview

Public outreach and engagement were vital components of the master plan process. We employed numerous techniques to engage Workgroup and Stakeholders, including:

- Public forums, including a strengths, weaknesses, opportunities and threats assessment (SWOT) to determine needs and an initial design narrative;
- One-on-one meetings with interested stakeholders;
- Visual preference surveys administered during program and design review meetings at key milestones in the planning process;

- Review of design alternatives with concept evaluation and participant City staff and stakeholder question and answer periods; and
- Presentation of a preferred alternative and support graphics, program requirements, and implementation strategy to key stakeholders and governmental councils and agencies.

Numerous meetings were held through the Winter of 2016 and Spring of 2017. Key meetings included the following:

- December 22, 2016: Workgroup Questionnaire distributed
- January 10, 2017: Workgroup Kickoff Meeting
- January 25, 2017: Meeting with Sail Maine
- January 26, 2017: Meeting with CBP2 Representatives
- February 17, 2017: Presentation of four alternative concepts at a City Workgroup meeting
- February 24, 2017: Meeting with Regulatory Officials
- April 26, 2017: Workgroup Meeting
- May 25, 2017: Public Presentation of Preferred Alternative



"A place to learn about and connect to maritime culture..."

"A pleasant, comfortable public space at the water..."

"A community gathering space!"

"Potential to focus the Eastern Waterfront's energy toward the water..."

"A forward-thinking design that accepts a future with more water..."

Initial Public Feedback

Questionnaire Responses

A questionnaire was distributed in December 2016, requesting information that would help the design team to better understand the way community members view the site. One question asked respondents to comment on the site's greatest physical assets. Responses highlighted the site's proximity to the water and potential water access as its most important features. Connectivity is also key; the site is located along a regional trail system and is within easy walking distance to downtown shops and hotels as well as residential neighborhoods.

The social, economic, and environmental potentials of the site imagined by respondents are varied. Some see the site as a locus of Portland history and identity: it should be full of marine 'hubbub'. Some see it as a vital place to gather and to connect; it will be a place where people can see each other engaging in different activities. For example, a girl sailing in a hijab, or a lobsterman dropping his catch. Others cited future potential for resumed public rail service, harking back to the site's former Grand Trunk Rail heyday.

Economically, most people see the site not as a revenue-generator in and of itself, but as an amenity that would add

value to the neighboring businesses and properties as a waterfront park.

Some described the environmental potential of creating a gradual transition from terrestrial urban to marine at the shoreline. Some hoped for stormwater management or windpower.

The site's weaknesses were also mentioned. Among them: inadequate parking and vehicular access, small overall size, existing utility line conflicts, vulnerability to flooding and storms, hard edges at the water and upland, and contamination at Moon Tide Park. Several respondents mentioned the potential negative influence of 58 Fore development, both in terms of aesthetic impact and due to increased density and crowding.

Opportunities arising from the development that respondents commented on included: a marine-oriented theme to connect all elements of the site; signature visual elements like wind turbines or public art or a water feature; and space that extends over the water to increase the size of the overall lot for any number of activities.

The design team asked what uses or programs, on site or off, community members thought would benefit most from the redevelopment. Some mentioned the India Street and Munjoy Hill neighborhoods, which lack open space. Others mentioned the visual impact of a beautiful space for cruise visitors. The opportunity to access Fort Gorges or other islands via a water taxi that stops at Portland Landing was also mentioned.

Redevelopment also poses risks, if carried out without great care. Risks mentioned by respondents were: taking up the open space with a building, accommodating too much program, not integrating with 58 Fore development, missing an opportunity to create resilience against storms and flooding, creating a place that will require a lot of maintenance, prioritizing large events over marine activity, and allowing too much vehicular access.

Workgroup Kickoff Meeting

At the Workgroup Kickoff Meeting in January, big picture items were discussed, such as the need for an approach to

flooding and sea level rise, how to accommodate Sail Maine programming, and the future of the Narrow Gauge Railroad. Other items that were mentioned included the question of whether water access should include swimming, whether floating or fixed infrastructure should be utilized, and whether filling at the waterfront to gain square footage is possible. Some attendees mentioned the importance of views -- from the neighborhood to the park, from the park to the water, from cruise ships to the park, etc. Other topics discussed:

- Fishing as a multi-cultural, cross-generational activity;
- Use of native and salvaged materials to construct the site;
- The nature of the edge -- breaking down the bulkhead with boulders, stepped down access, etc.;
- The need for parking to be assessed on a city-wide scale;
- The potential to site the Fisherman's Memorial on site; and
- Snow storage needs.

The design team took the initial feedback from these meetings and survey responses and began to synthesize participants' visions for the site.

Activity

- Watersport
- Destination Play
- Food Vendors
- Tubal Pool
- Fishing Pier
- Sailing

Art, Commemorative & Interpretive Elements

- Lighting
- Playful Sculpture
- Salvaged Relics
- Iconic
- Contemplative Sculpture
- Adaptive Reuse

Waterfront Destination

- Event Space on Pier
- Event Space on Pier
- Event Space on Pier
- Performance Space
- Tours and Charters
- Waterfront Boardwalk

Open Space

- Informal Seating
- Beach / Wave Attention
- Promenade
- Rocky Shoreline
- On Land and Over Water
- Multi-Use Space

Connectivity

- Bi-level Pathways
- Bi-level Pathways
- Linear Park / Vehicular Circulation
- Shared Use Path
- Intimate Scale
- Passive Park with Pathways

Environmental Benefit

- Raised Walkway and Stormwater Control
- Raised Walkway and Stormwater Control
- Marsh
- Upland Wetland
- Rain Gardens and Pervious Surfaces
- Rain Gardens and Pervious Surfaces

Redevelopment of Amethyst Lot
City of Portland, Maine - Open House Event
Jan. 24, 2017

PUBLIC FEEDBACK FROM PRECEDENT IMAGES AND ATTRIBUTES PRESENTED AT A WORK GROUP AND STAKEHOLDER MEETING - GREEN DENOTES AN ATTRIBUTE DESIREABLE TO EXPLORE AT PORTLAND LANDING

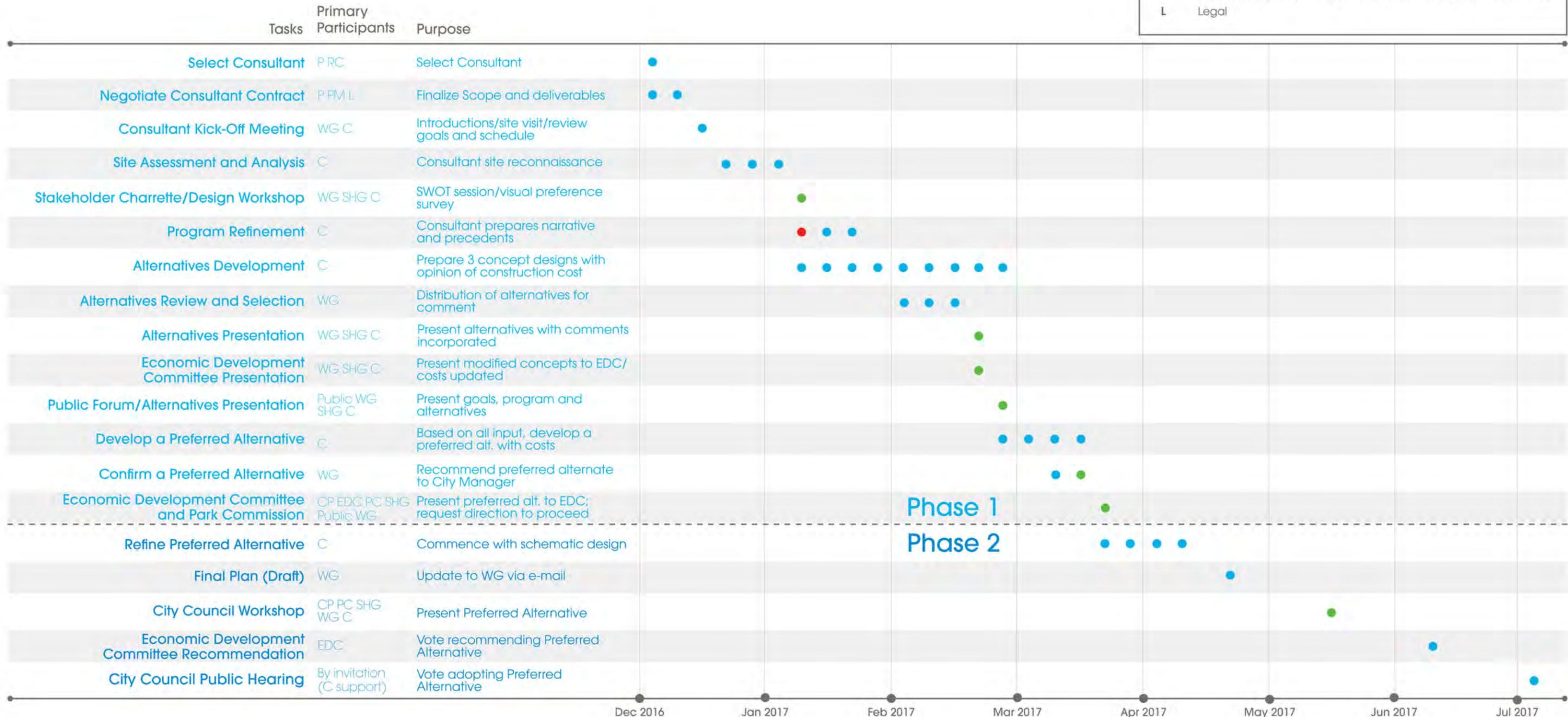
Redevelopment Work Plan

The following schedule includes primary tasks and task participants, the purpose of each task, and the projected duration of each task defined at the start of the study. Stantec and the City of Portland administered this Work Plan leading to the development of the Vision for Portland Landing.

KEY

- Primary effort for respective task
- Consultant led presentation / in-person consultant participation
- Open House

P Purchasing	WG Workgroup
RC Review Committee	C Consultant
PM Project Manager (City & Consultant)	SHG Stakeholder Group
L Legal	EDC Economic Development Committee



Planning Approach

The Portland Landing Redevelopment Plan emerged through a two-phase planning approach and stakeholder engagement strategy, summarized as follows:

Phase I: Development of a Preferred Design Concept comprised of the following subtasks:

- Consultant and Study Workgroup Kick-Off Meeting
- Amethyst lot site assessment and analysis
- Stakeholder and Workgroup Design Workshop
 - Preliminary development program review
 - SWOT analysis, discussion of site strengths, weaknesses, opportunities and threats
 - Visual Preference survey
- Development Program Refinement
 - Stakeholder meetings (58 Fore Street/CBDP2 Development Team; regulatory authorities; Sail Maine representatives)
- Alternatives' Development, Presentation and Review
 - Preparation and presentation of four (4) initial concept alternatives for Workgroup and Stakeholder review
- Presentation to the Economic Development Committee (By City of Portland)
- Development of a Preferred Alternative
 - A culmination of input from all previous tasks
- Preferred Alternative Selection
 - Presentation to the City Manager, City of Portland
 - Presentation to the Economic Development Committee
 - Presentation to the Parks Commission
- Final Presentations to the Economic Development Committee and Park Commission (Pending)

Phase II: Development of a Final Schematic Design

- Refinements to Preferred Alternative, including costs and permitting requirements
- Final Vision Plan for the Amethyst lot – Portland Landing

Next Steps

Prior to the commencement of Phases III and IV, the City of Portland shall conduct necessary internal presentations to the City Council and the Economic Development Committee for adoption of the Final Plan. Review authorities may include:

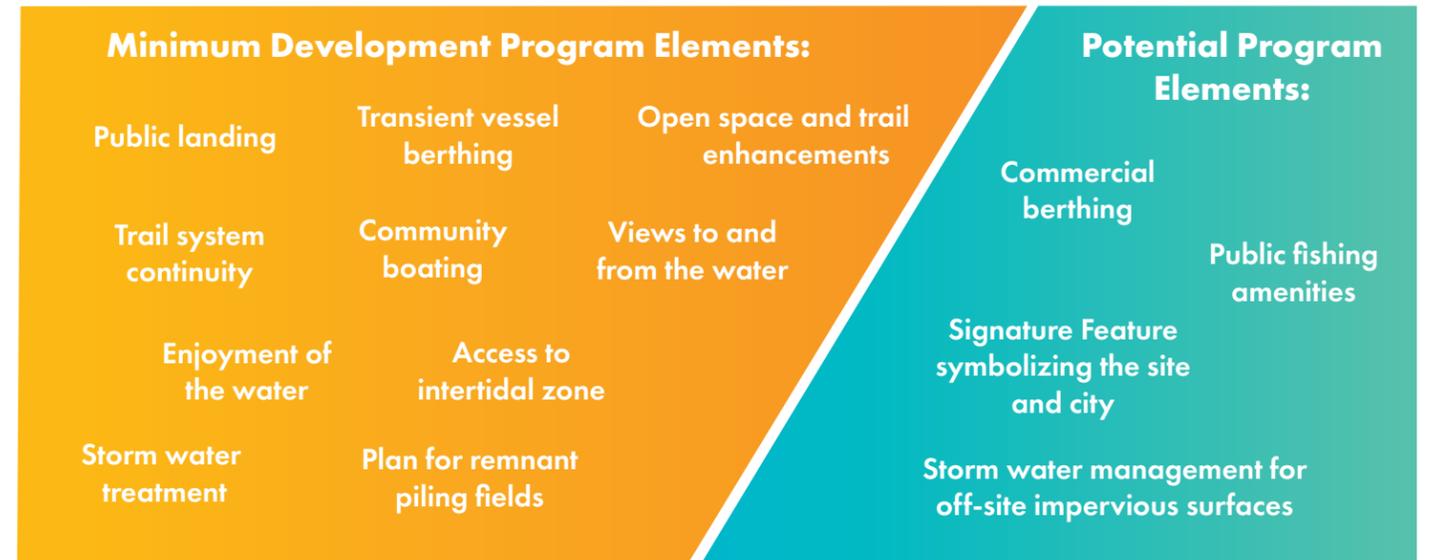
- City staff
- The City Council Workshop
- Economic Development Committee
- City Council Public Hearing
 - Vote by the City Council to adopt the Final Plan (Draft). Upon adoption, the Plan shall be deemed a Final Plan
- Parks Commission
- Planning Board
- City Council

Phases III and IV

Following City review of schematic design, Phase III will comprise design development, permitting, construction documents, and funding allocation for implementation (phasing possible). Phase IV includes construction documents, bidding, contractor procurement and construction.

Redevelopment Program

One of the first steps in the development process was to determine a desired program and to prioritize uses considering current uses, site potential, and desires of stakeholders and participants. Stantec collaborated with the Workgroup, Stakeholders and the public to advance the development program for the Amethyst site, building on the good work of the Workgroup and Stakeholders. An extensive list of potential features was prepared and our team assisted in crafting a refined program of features to best meet public needs and respond to environmental, aesthetic, maritime and resiliency priorities.



Minimum Development Program Elements:

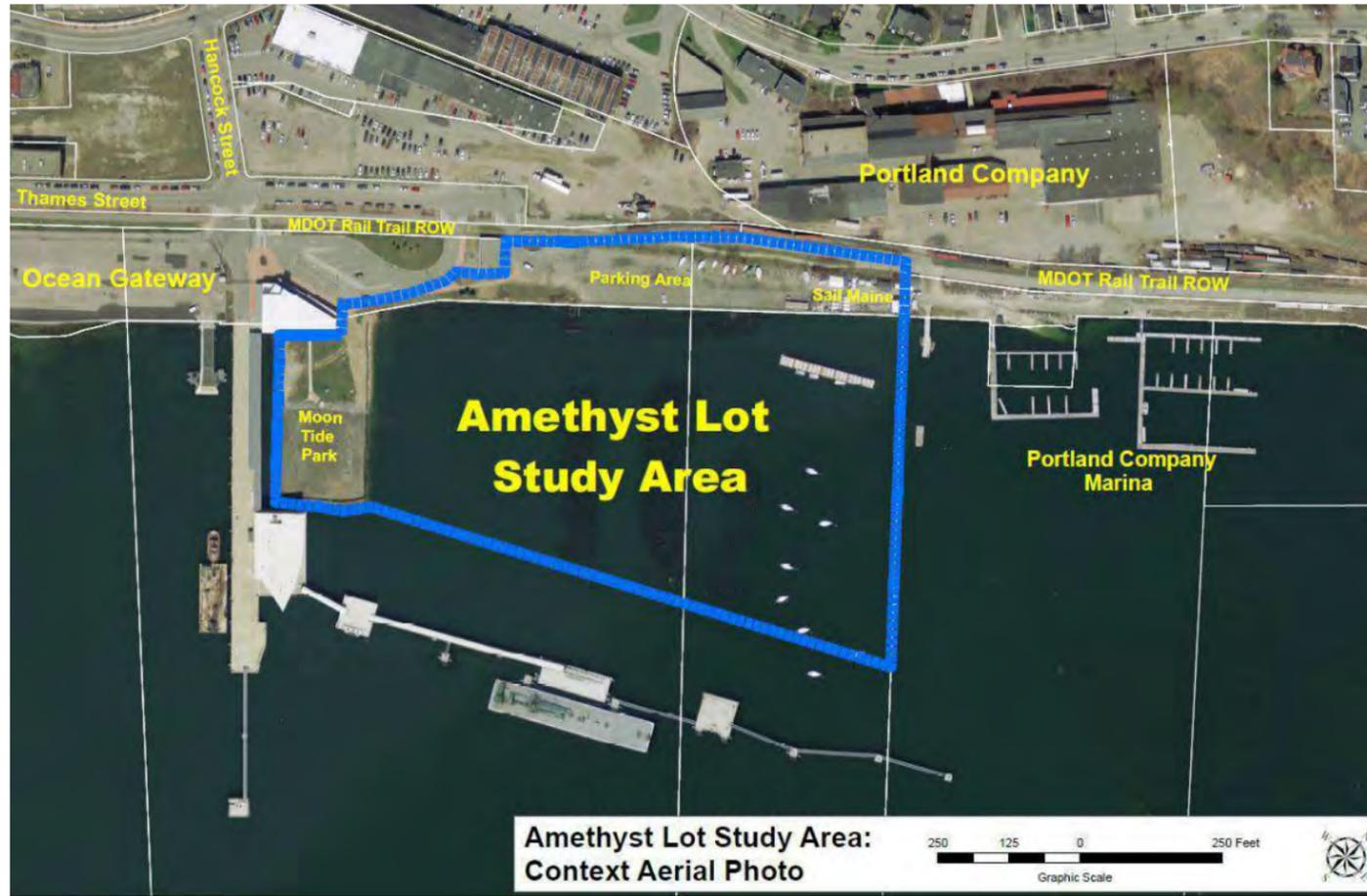
- Public landing and transient vessel berthing;
- Open space and accessible multi-use trail enhancements;
- Trail system continuity, serving both access to the site and through-travel;
- Permanent facilities for community boating, including Sail Maine and Ripple Effect;
- Public views to and from water using low-scale structures and landscape design elements;
- Opportunities for passive enjoyment of the water;
- Access to the intertidal zone;
- Stormwater treatment for impervious surfaces; and
- Short-term and long-term plan for remnant piling fields from the Grand Trunk Railway piers.

Potential Program Elements:

- Commercial berthing for home-port charter and water taxi services;
- Public fishing amenities, where safe and appropriate;
- Signature Feature –functional and/or artistic statement symbolizing the site and the city; as a design feature, a particular use, public art installation, etc.;
- Stormwater management of off-site impervious surfaces.

Specific Design Features include:

- Tide pool playground;
- Public art;
- Fountains and play features (hills, mounds, boulders, splash pads, etc.);
- Seating for multiple uses in a variety of conditions;
- Living shoreline/beach construction;
- New fixed piers and re-use of existing pilings where feasible in historic pier areas;
- Floating docks;
- Reasonably-scaled and sensitively-sited structures supporting on-site program (potentially on land, docks, or floats);
- Green infrastructure highlighting interaction between water and land;
- Storm drain outfall on the site which will allow the City to provide separated storm drain service to the Munjoy Hill/Fore Street watershed;
- Pathways (internal, at water's edge, or extending over the water) augmenting the Eastern Promenade Trail;
- Shared facilities that accommodate multiple compatible uses;
- Lawns and/or hills;
- Picnic areas;
- Steps, ramps, seats at/to the water's edge; and
- Information signs and wayfinding.



Existing Conditions Assessment

The study area is situated on the Fore River in the Casco Bay, with views to the islands in the Bay, notably Fort Gorges. The study area consists of three acres on land and ten acres of submerged land. Located in Portland's East End, a short walk from the Old Port District, Commercial Street, and the Arts District, the Amethyst lot provides a significant opportunity to get close to the water from these pedestrian-friendly areas. The southern-most waterfront open space in downtown Portland and adjacent to Ocean Terminal, its high visibility and key location guarantee its significance to both tour groups and community members.

The study area is L-shaped with a pinch point at the drop off for the Ocean Gateway Receiving Building. The area, like most of the Portland waterfront, is flat, with residential and commercial development rising into the hills to the west. Much of the three acres on land

is paved for parking and vehicular access for current uses. These include community sailing (Sail Maine, Ripple Effect), the Eastern Promenade Trail, a segment of the regional trail system that accesses the Bay, and informal passive recreation. Community members use the parking lot to park and view the water. Large scale road races periodically use the space for staging and support. Weddings and events at the Ocean Terminal overflow to the site, which serves as a signature backdrop for photography. Taxis serving visiting cruise ships queue within the parking area.

In the ten acres of submerged lands, there are three significant areas of pile fields, burned remnants of the Grand Trunk Railway piers constructed in the mid-19th Century. Piles also occupy various areas close to the bulkhead and around the edge of the lot.

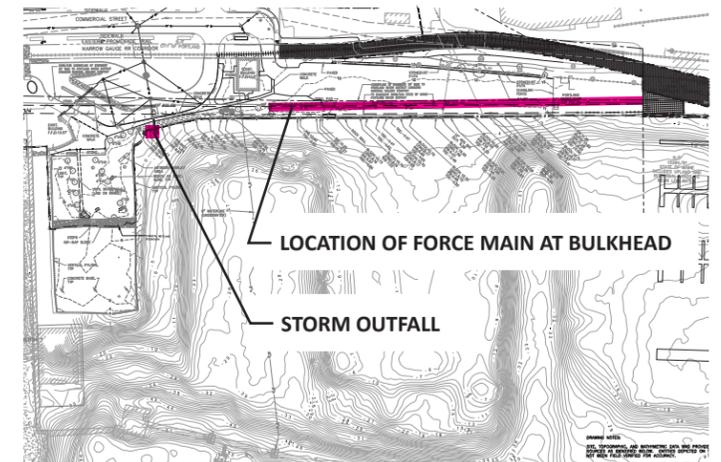
Moon Tide Park extends from the landward part of the lot, built on contaminated fill that was dredged from the harbor in the 1980s. The pier was partially transformed in 2007 as a public rock garden, providing space for passive recreation and gathering and accentuating the tidal range with marsh grasses placed radially outwards and boulders accented with aluminum leaf. The park's wood pile cribbing is deteriorating, resulting in exposure and erosion of the underlying contaminated dredge spoils below. The southern half of the lot is submerged at high tide. Long term stability of the containment structure has been and remains a concern. Riprap stabilization has been placed on the outboard extent of the Moon Tide Park cribbing network.

The existing bulkhead consists of a mix of granite and concrete, with large granite pieces at the base and some additional concrete placed on top, at a nearly vertical face down to the water. The revetment runs the length of the site's frontage from the Gateway Terminal building to the 58 Fore Street property to the east. The revetment height is about 12' and generally spans the full tide range. It is mostly exposed at low tide and only partially exposed at high tide. Various sources suggest the revetment is founded upon a wood crib structure. The top of the revetment is either concrete or bituminous asphalt placed to the revetment edge. A timber guardrail is positioned along much of the revetment waterfront edge. Conditions behind the revetment consist of manmade filled land, all of which was associated primarily with the site's original use, the Grand Truck Railway Complex.

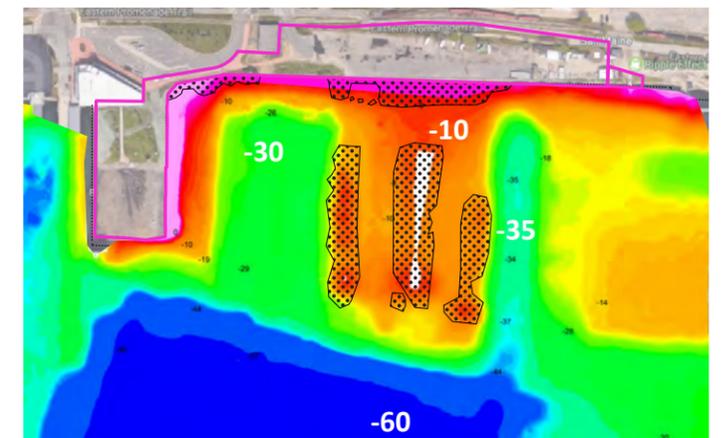
Utilities on site include a major force main sewer that runs parallel to and behind the bulkhead and a separated storm drain outfall at the pinch point of the site. Future designs for the proposed improvement plan will need to specifically address potential conflicts with the existing 33" force main sewer, perhaps by relocation if necessary. Initial discussions with the force main owner, the Portland Water District, have indicated a potential willingness to discuss design options for relocating the pipe. The City of Portland Public Works and Water Resources staff have a keen interest in future opportunities for aligning new drainage infrastructure in the park, thus coordination at this level is also a prerequisite to any future designs.

Operating on the site without a long-term lease since 2004, Sail Maine is a non-profit community sailing organization. Its current facilities are portable and include tool sheds, boat storage, seasonal tents, and an office building. Water access occurs from a gangway at the northernmost edge of the lot, on the waterfront adjacent to the Portland Company Marina. Setting sail from the Amethyst lot at the mouth of the harbor provides access to the recreational and fisheries resources of Casco Bay. Sail Maine has expressed a desire to expand its facilities with a long-term lease.

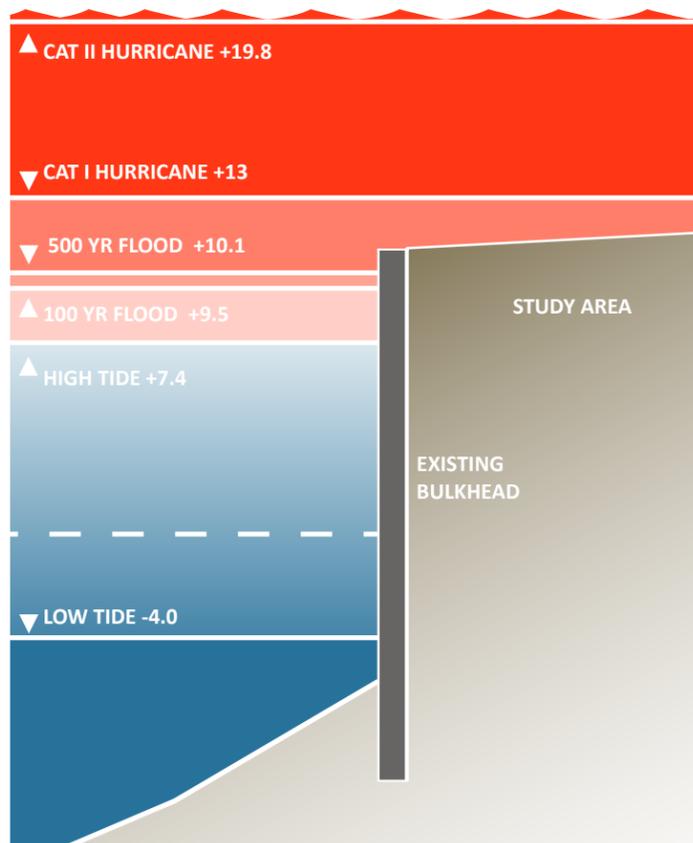
Directly adjacent to the site, the Ocean Gateway Terminal hosts cruise ships, an international ferry service, a visitor center, and events. The Ocean Gateway Terminal complex was constructed by the City for the benefit of allowing cruise ships and international ferries to visit the region.



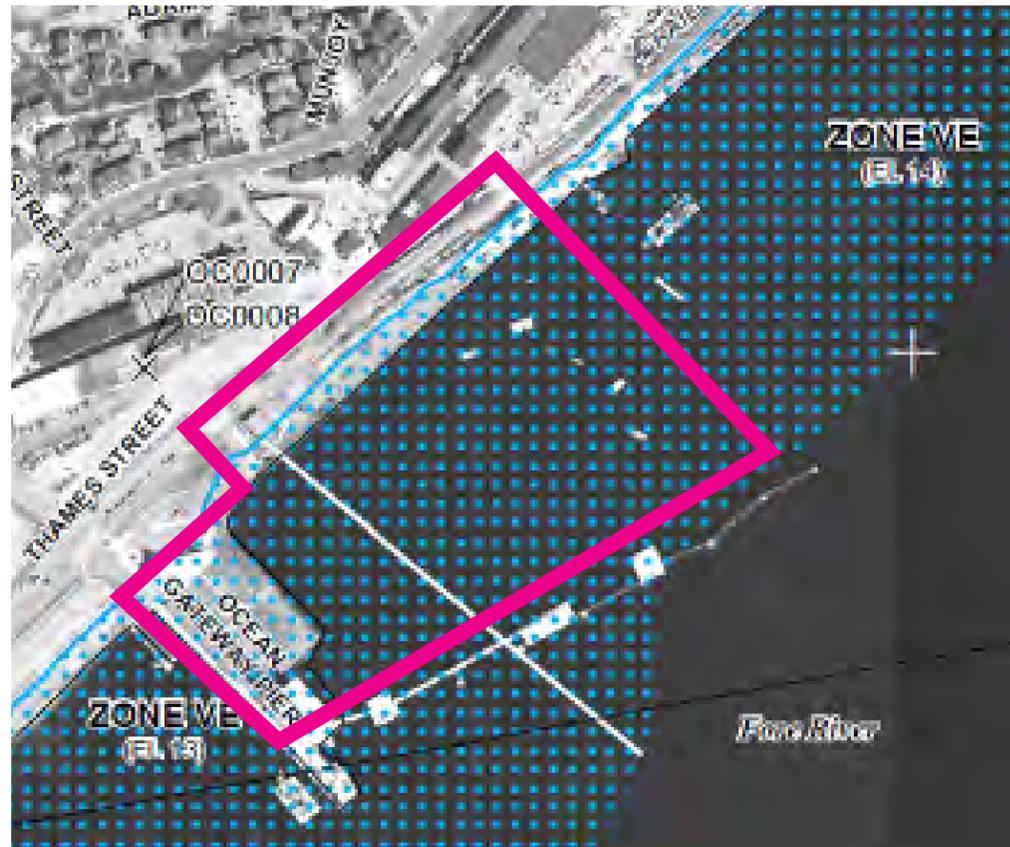
UTILITIES



BATHYMETRY



WATER LEVEL FLUCTUATION - TIDAL AND EVENT



FEMA FLOOD ZONES



SLOSH, CAT II STORM

The Ocean Gateway Receiving Building sits just west of Moon Tide Park, with vehicular drop off and parking for ferry and cruise ship operations. The CAT ferry ticket office, serving the port, is stationed directly adjacent to the site in a one-story concrete block building. A historic railroad corridor hosting the historic Narrow Gauge railroad forms the eastern border of the site. Planned mixed-use development to the northeast adjacent to the lot will be greatly enhanced by open space on the Amethyst lot.

Bathymetric data of the ten acres of submerged lands in the study area shows a steep drop off from the edge of the bulkhead, owing to dredging for shipping. Water depths dive to -30 in the areas of open water within the study area and -15 to -20 at the pile fields. The cruise ship basin (outside the study area) is dredged to -60 feet.

With tidal fluctuation and intensive boating use, including large ships, there is significant wave action influencing the site, which is somewhat attenuated by the existing

pile fields. The Gateway Terminal receives very large vessels that are assisted to and from port by local tug services. Prop wash from these activities is a significant concern and an obstacle to overcome with respect to the physical improvements, operations and management of the Portland Landing site. Future designs and permitting will require close coordination and cooperation with the Portland Harbor Commission, Portland Pilots, Portland Tugboat Services and other stakeholders, as it relates to Gateway Terminal operations and nearby harbor activities.

Tides fluctuate dramatically at the Amethyst lot, with more than eleven feet of change from high to low at extreme tides. The bulkhead sits three to four feet above high tide and fourteen to fifteen feet above low tide, necessitating long ramps for access to the water, as is typical in Casco Bay. Flooding is increasingly common in the Casco Bay region, and the Amethyst lot has experienced significant flooding. The lot is located within the FEMA VE zone and, according to the Maine Geological Survey

SLOSH mapping (Sea, Lake, and Overland Surges from Hurricanes) is well within the inundation zone for Category I and II hurricanes.

Vulnerability to sea level rise and storm surge is a concern across Casco Bay, as the rate of sea level rise is increasing in this region. According to the National Oceanic and Atmospheric Administration (NOAA), over the last 20 years, sea level has been rising in the Casco Bay at a rate of 4.4 mm/year, more than twice NOAA's long-term average. With an accelerating rate of increase, it is not possible to determine what rate should be anticipated for future planning efforts. There is also an increasing frequency of storms, including Nor'easters, hurricanes, and tropical storms. While Portland is protected from some of the impacts of storm surge and flooding by its natural topography, which rises fast from the waterfront, there are vast areas of the city that are extremely vulnerable, within the floodplain and on fill lands.

The Old Port District, adjacent to the study area, is a popular tourist attraction, with restaurants, galleries and shopping drawing pedestrian traffic. This area is served by Commercial Street, named an American Planning Association Best Street in 2008. A Coastal Adaptation to Sea Level Rise Tool (COAST) model showing the vulnerability of the Commercial Street Waterfront anticipates \$111.5 million in building damages by 2100 due to the cumulative effects of storm surge and sea level rise by that time.

SLOSH data shows the vulnerability of the entire Casco Bay region, with the Amethyst lot inundated under 3-6 feet of water in the event of a Category 2 hurricane. A Category 3 or 4 hurricane would put the site, Commercial Street, and much of downtown under more than nine feet of water. Portland Landing presents an opportunity to set a standard for resilience in the region.



Photo Credit: Collection of Maine Historical Society

PORTION OF GRAND TRUNK RAILWAY COMPLEX AND PORTLAND COMPANY SITE

Historic Uses

The early success of Portland's economy was due to the City's key role as a transportation and shipping hub, with relatively easy connections to Europe, Canada, Boston, and the United States' interior. The Amethyst lot was part of the Grand Trunk Railway Complex, shown above and upper right, from about 1845 to 1965. A terminus on the main line of the Grand Trunk Railway system that connected Portland to Montreal, the lot was crisscrossed by rail transporting cargo throughout the US and Canada, as well as Railroad buildings, grain elevators, wharves, and piers. In the mid-20th century, rail transport declined in Maine, and most of the railroad infrastructure and buildings were demolished or burned.

From the early 1980's to 2000, Bath Iron Works (BIW) Dry Dock Facility conducted ship fitting operations at the Maine State Pier and the pier that is now Ocean Gateway. The Amethyst lot was used for laydown and parking and what we now call Moon Tide Park was constructed from the disposal of dredged materials.

From 2002-2004, Cianbro Corp temporarily occupied the former Bath Iron Works (BIW) complex for completion of the "Amethyst Project", giving the subject site its

informal name. During this time, Cianbro assembled and commissioned two exploratory off-shore oil drilling platforms, shown lower right. At over 300 feet tall, for the duration of the project the rigs dominated the site and the Portland skyline. The "Amethyst lot" provided employee parking during the project.

The Ocean Gateway Marine Passenger Terminal opened in 2008 after an extended planning and construction period following the departure of BIW. "Moon Tide" was constructed as an environmental art installation, funded by a "percent for art" contribution for design as part of the Ocean Gateway project. The innovative design is a conceptually-interesting attempt to engage plantings and installations with the ocean within the intertidal portions of the site. However, in application the design has not performed as expected with failures in plantings, materials, erosion of the containment walls, and continual soil settling on the site.

In 2011, the large Pier 2, Berth 2 (so-called "megaberth") was constructed over the former BIW dry dock site, allowing the world's largest cruise ships to call at Ocean Gateway, just to the south of the subject site.

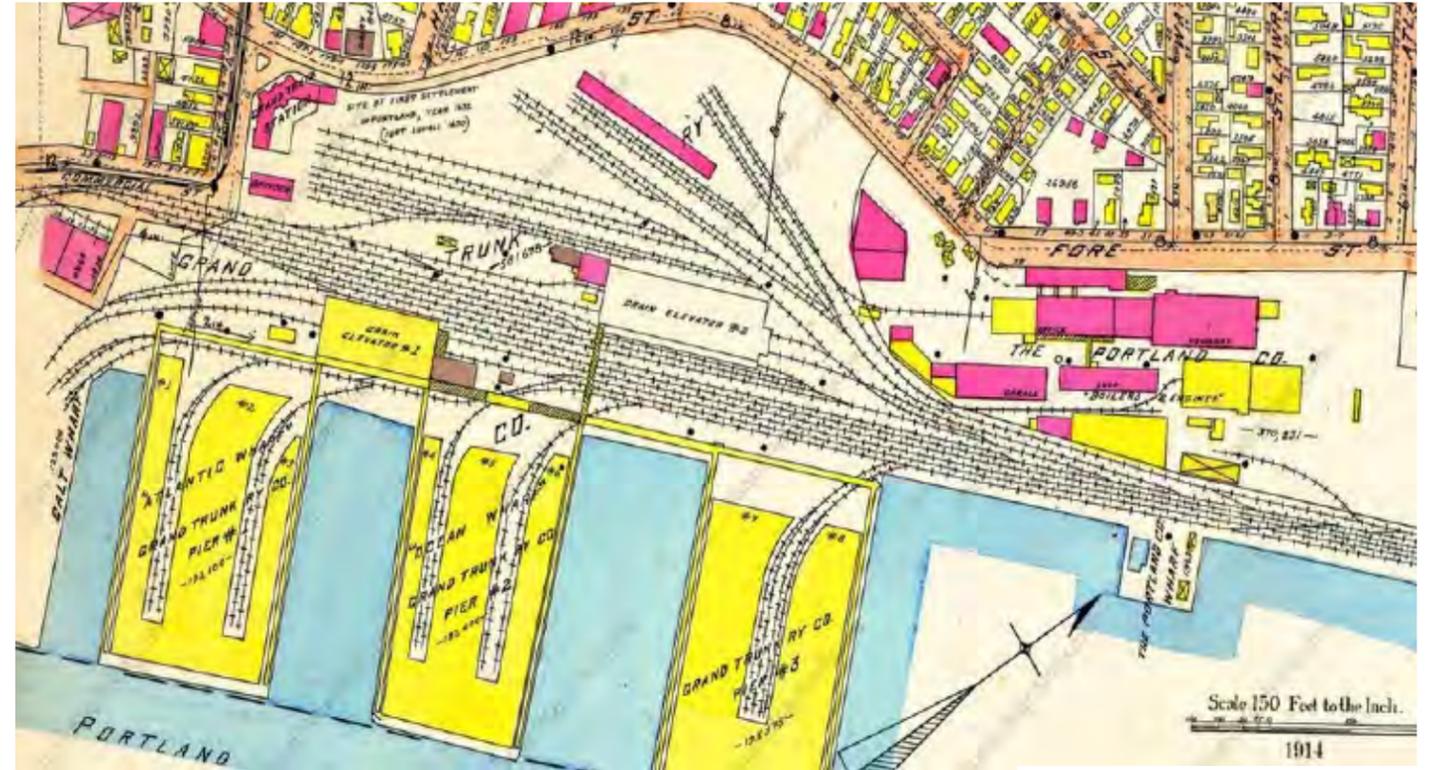


Photo Credit: Greater Portland Landmarks

GRAND TRUNK RAILWAY COMPLEX



Photo Credit: The Cianbro Companies

'AMETHYST PROJECT' OIL RIGS



PILES LEFT FROM THE GRAND TRUNK RAIL PIER - VIEW FROM THE 'PINCH POINT' OF THE STUDY AREA

Current Uses

The Amethyst lot currently supports several important community programs and uses throughout the year. This usage should continue to be accommodated and enhanced through open space development.

Sail Maine and Ripple Effect operate from the Amethyst site. These organizations offer youth and adult boating and outdoor programs to thousands of community members and visitors. These programs have onsite storage, maintenance, and office facilities.

The Eastern Promenade Trail is part of an extensive system of trails providing 70 miles of recreational access throughout Portland and surrounding communities. A multi-use bike and pedestrian trail, The Eastern Promenade Trail runs along the old Grand Trunk Railway corridor and passes through the upland edge of the Amethyst site, enjoying broad views of the bay and continuing on to the Casco Bay Bridge and Portland Harbor.

The Maine Narrow Gauge Railroad Company & Museum currently operates on the rail right-of-way, owned by the State of Maine. While never part of the site's rail service history, narrow gauge (two-foot wide) rolling stock was manufactured at the Portland Company during the 19th Century. The museum provides seasonal excursion rides to passengers adjacent to the Amethyst lot, including Polar Express rides during the winter holidays and Friday night ice cream rides in the summer. Museum facilities are located north of the Amethyst lot in the Portland Company complex.

West and south of the Amethyst lot, the Ocean Gateway terminal serves cruise ships - some hosting as many as 5,000 passengers - in the fall and spring. Tourist activity from cruise ships is a growing component of the Portland economy and cruise ship dockage is an increasingly important activity for the Port of Portland. Passengers exit ships to the south of the Amethyst lot to taxis and tour buses parked along Thames Street. Ocean Gateway facilities include a 5,000 sq foot venue for weddings and events, available for use most of the year.

The CAT Ferry provides warm season car and passenger ferry transportation to Nova Scotia, from the Ocean Gateway terminal. Ferry ticketing and administration takes place in a former BIW industrial building located southwest from and adjacent to the Amethyst lot. Much of the waterfront southwest of Amethyst is occupied by a queuing lot for ferry passengers taking vehicles by ferry on the CAT.

Moon Tide Park, part of the study area and historically a holding crib for dredge materials from the Harbor, is currently the site of an artwork that celebrates the drama of the 11-foot tides at the waterfront. Half of the site is submerged in water at high tide. The two-tiered park is managed by the City and is made available as an outdoor wedding and event venue.

The parking lot on site is used as a drop off for Sail Maine and as a gathering space for large events. In addition to formal uses of the site, many community residents use the site informally as a place to look out onto the water.

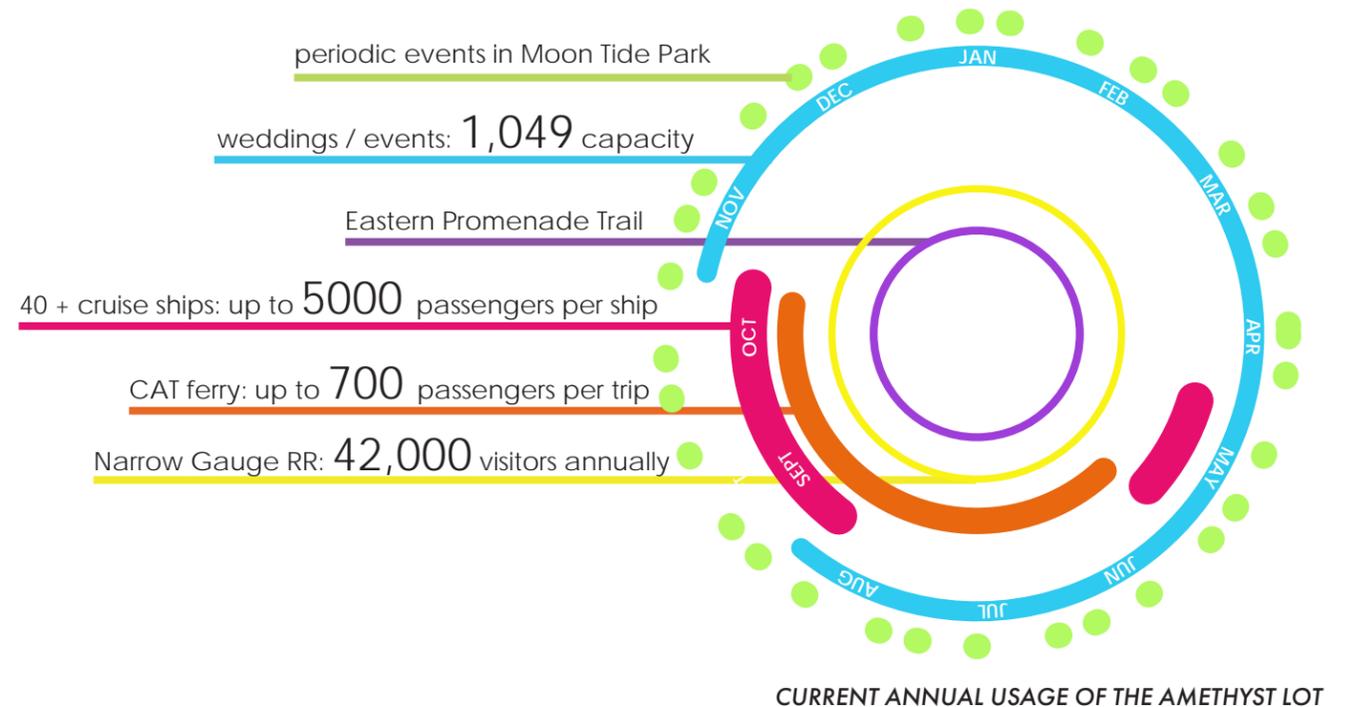


Photo Credit: Portland Trails

EASTERN PROMENADE TRAIL



Photo Credit: Galen Koch

SAIL MAINE



Photo Credit: Todd Henson

CRUISE SHIP PORTING



NARROW GAUGE RAILROAD

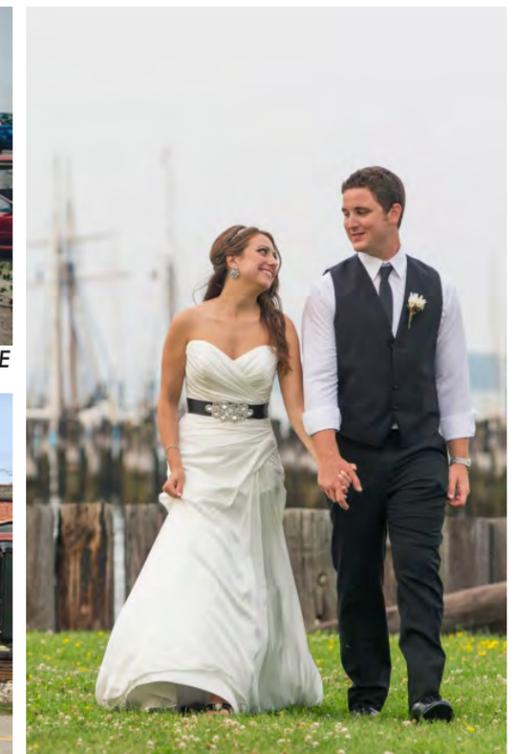


Photo Credit: Alexandra Daley-Clark



Photo Credit: Wex Inc.

PLANNED WEX HEADQUARTERS WEST OF AMETHYST LOT AND AC HOTEL ON SOUTH SIDE OF HANCOCK STREET (UNDER CONSTRUCTION 2017)



Photo Credit: Perkins + Will Boston office

PLANNED 58 FORE STREET DEVELOPMENT NORTH OF AMETHYST LOT

Future Development

Planned development at the waterfront in Portland highlights the importance of the Amethyst lot as a vital community resource, now and in the future. Increasing density will increase demand for access to open space and the water.

Planned development at 58 Fore Street north of the Amethyst lot, shown in the upper and lower right hand images, will include mixed-use residential buildings, commercial buildings, a marina, and waterfront open space. A total of ten acres, the site includes several historic buildings that will be incorporated into the new development. It will also accommodate the ROW corridor for the Narrow Gauge Rail and the Eastern Promenade Trail. The master plan for this development

was released in December 2016. With open space on the water connecting to the Amethyst lot, this development will have a significant relationship with Portland Landing.

Directly across Thames Street from the Amethyst lot, a four-story, 100,000 sq ft development will serve as the global headquarters for Wex, a payment processing company, shown upper left. Diagonally southwest, a new 150 room AC Hotel is scheduled to open in 2018.

In addition to these adjacent sites, the entire eastern waterfront is experiencing a historic development period within which the Portland Landing project will be a critical component.



Photo Credit: CPB2 LLC

PLANNED 58 FORE STREET DEVELOPMENT NORTH OF AMETHYST LOT



Photo Credit: Corey Templeton

EXISTING AMETHYST LOT

Design Vision

Portland Landing will provide the City of Portland with a signature waterfront amenity that functionally, visually, and symbolically connects people with the city's maritime heritage and provides a vital public connection to Casco Bay. The redeveloped lot will provide Portland citizens and visitors of all ages and interests a new and permanent place to interact year-round with the water for a myriad of passive and active uses. Advocates and City officials envision the Amethyst lot as the threshold to the Casco Bay. Proposed uses will benefit neighboring residents and businesses and complement the Eastern Promenade Trail, Moon Tide Park, public infrastructure, multi-modal transportation, and mixed-use development.

Our design vision is characterized by the following goals:

Reflect the City. The City of Portland and the Eastern Waterfront have a rich history. Relics and artifacts integrated into the design will commemorate the site's history and provide elements of surprise and education throughout the landscape.

Give access to the shoreline. The more ways to experience the water, the better; sailing, tour boats and water taxis, tidal pools, fishing and wildlife observation are waterfront attractions that provide something for everyone for a cost that need not be significant. Many of these activities also provide opportunity for private-public partnerships and revenue generation

through voluntary participation. Access to the water allows for a dynamic and diverse recreation program and will effectively expand the physical upland limits of the Amethyst lot.

Create a new open space destination. The new waterfront should serve not only its own neighborhood, but the entire community, drawing visitors from the region. It should provide enough range and frequency of activities that it is well worth a day trip.

Allow for programmatic diversity. Vendors, concessionaires, commercial boating, and others each provide a valued service to the visiting public, contributing to the vibrancy of the space and enrichment of the recreational opportunities. Shoreline and water access, people-watching, wading, fishing, strolling, boat launching, open air events, eating and nature observation are key attractions. Every visitor should find multiple opportunities to enjoy the space from season to season.

Prioritize program elements. Understand the full range of programming goals and provide support facilities for a four-season interconnected waterfront and public space destination.

Provide multi-use capacity. Create a plan that allows many activities to happen at the same time, without compromising the experience of any activity. The desired program includes many complementary passive recreational amenities.

Complement adjacent land uses, rail corridor and activities that already activate the space. The lot should be enhanced to support current uses on site and adjacent -- as well as activities associated with planned development and rail service adaptations.

Recognize the magnificence of the Amethyst lot location. Planning should recognize aspects of the site that make it special: a generous waterfront with broad views of the Bay, the presence of historic piles on the water, ease of access to the water, proximity to downtown and new development, and transient boating and water access.

Support water-dependent uses. Programming should focus on accommodating a range of water-dependent uses alongside upland recreational activities.

Create a sustainable park. The park should be designed with an emphasis on sustainability, resiliency, operations, maintenance and utilization. Key opportunities to enhance site sustainability include:

- Renewable energy use and energy conservation;
- Sourcing of local and/or recycled materials;
- Native plant material selection;
- Habitat enhancement;
- Permeable and low-reflectivity pavement systems;
- Water conservation;
- Stormwater management;
- Erosion control;
- Evaluation of remaining service life of critical waterfront infrastructure;
- Adaptive reuse of existing infrastructure; and
- Construction staging provisions.

Cultivate Open Space stewardship. Stewardship begins with leadership and partnerships and a community-supported revenue stream with reinvestment of this revenue into perpetual park maintenance and continued capital improvements. The Study Workgroup and the Stakeholders have developed a strong framework for ongoing stewardship and success for the study area.

Respond to Sea Level Rise. Design alternatives must respond to the impacts of sea level rise and ever-more frequent and intense storm events through resilient and responsible design. Design should also implement green infrastructure enhancements to improve water quality and reduce stormwater run-off.

Take early action. Integrate basic improvements (restroom access, parking and handicapped accessibility) and anticipate future, permanent installations so that cost efficiencies and space allocations are considered early.

Design Drivers

From an ambitious list of ideas for the site, the Stantec team identified key factors that would drive design for any option we might consider. Each design alternative addresses these factors to varying capacity.

- Character of the water's edge
- Options for access and water-oriented uses
- Location of community sailing + public landing
- Parking and vehicular access
- Remnant piles
- Views to Fort Gorges and Casco Bay
- Public Art
- Resilience + stormwater treatment

The great value of this site comes from its long waterfront edge, views out to the water, and downtown proximity. Open space at the waterfront will naturally draw visitors to the edge, and the nature of that edge is very important. It might invite a person down to touch the water, or a boardwalk might float above the tides. It might extend as a beach or disappear into marshy grasses. The character of this edge will define the character of the park as a whole.

The character of the edge and the types of access to the water desired are closely-related. All uses at the waterfront will be water-oriented, but considerations for possible programs run a wide range from a berthing pier to floating wetland gardens, fishing piers to terraced seating, transient vessel berthing, water taxi and related water-related business opportunities. This raises the question as to whether step down areas should be on piers or on fill; regulatory requirements usually discourage filling, so all build-out will be cantilevered over or built on piers outside of the line of the existing bulkhead.

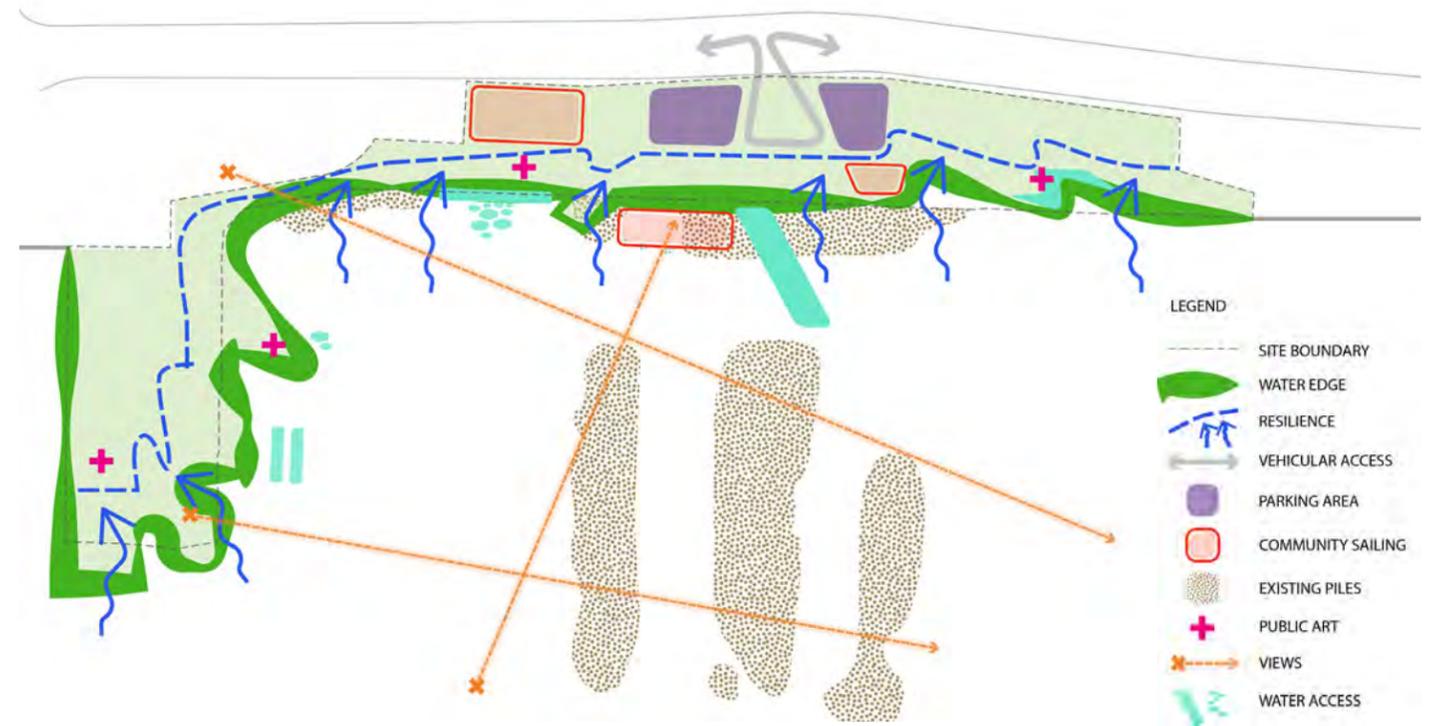
The community sailing programs on site have space for storage, maintenance, offices, and a gangway to floating docks on the water. These are located at the northern end of the site, adjacent to future development at 58 Fore Street. With 18 year round staff and more during boating season, and with 4,000 annual participants, this program is highly valuable to the community, well suited to the

visions for the site, and ultimately a highly desirable program to maintain on site. Our design analysis explored different locations for the program, in part because it requires a safe distance from other users and so should be compatible with other programs proposed for the park, and in part because its adjacency to the future waterfront at 58 Fore development might not be ideal. Our team studied options locating facilities on the water, within the existing CAT ferry ticket office on site, and along the water in a range of locations.

Analysis of possible sailing locations was conducted alongside analysis of potential locations for a public berth. The historic piles, located in the center of the water-borne ten acres of the site, is a significant factor for locating and sizing boating accommodations. Because sailing programs involve smaller, non-motorized boats, and often young student sailors, it was determined that the two uses should be separated.

Sailing programs and any potential boating facilities will require vehicular access, and a few stakeholders want to preserve some number of parking spaces at the water without sacrificing the entire lot to parking. We studied alternatives ranging from a simple drop off without parking to increasing numbers of parking spaces -- to utilizing the existing Ocean Gateway Receiving Building drop-off. In all cases, vehicular drop off had to be located close to Sail Maine, as parents drop off their children and need to be able to see them arrive at the sailing program. It seemed feasible, given intermittent usage of the site for drop off and parking, to utilize a proposed parking area for events and activities like farmers markets and festivals. The location and orientation of this lot were studied with these considerations in mind.

The piles remaining from the site's Grand Trunk Railway history give the lot its very particular character and interest. As historic relics, as foreground for views out to the water, as habitat and wave attenuators, as potential structures for new construction on the water or as armatures for floating art pieces -- the piles have value for this site and demand consideration. Also, the

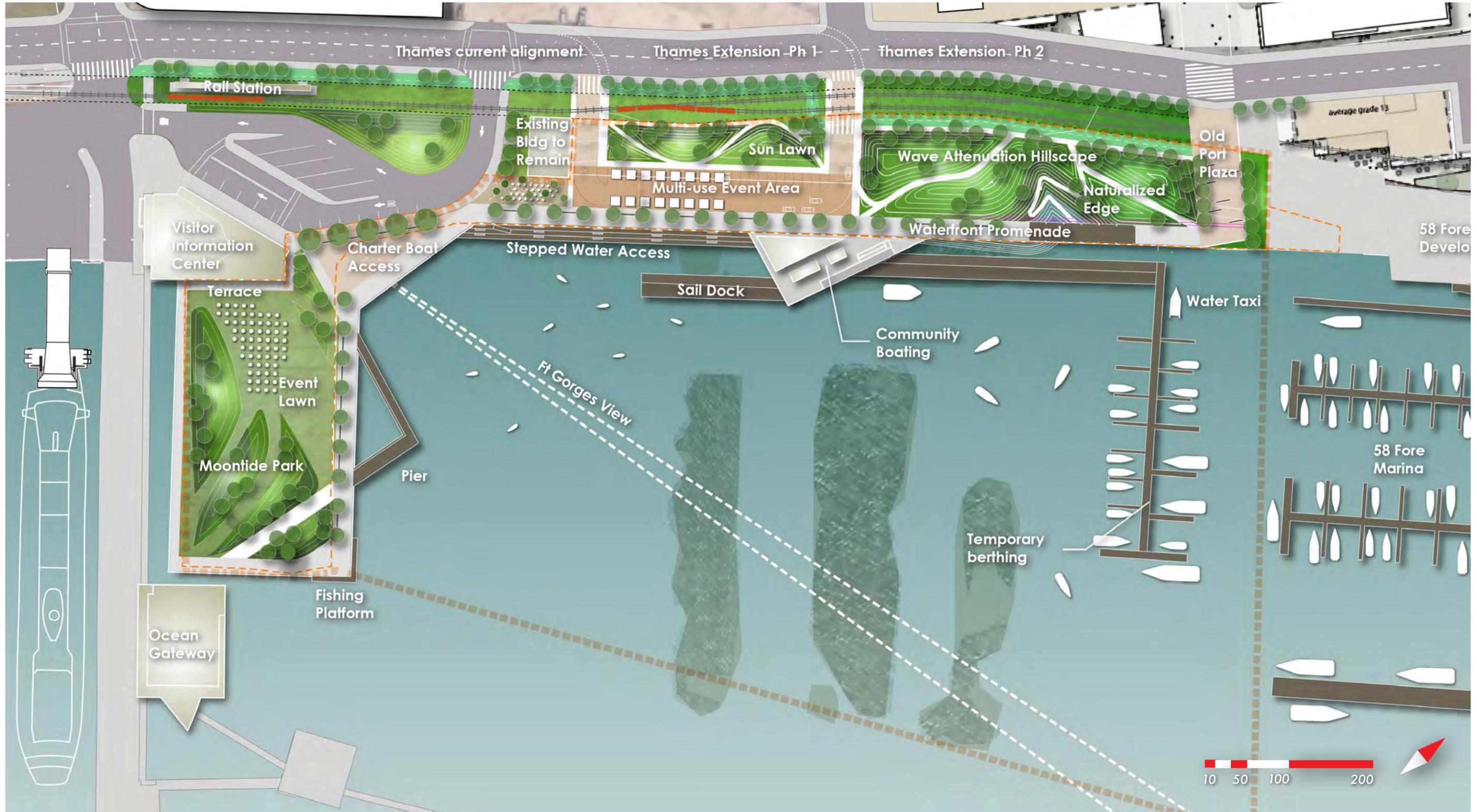


impacts of their removal -- to existing habitat, to sediment disturbance, and to the bulkhead -- were considered. However, concerns about their potential failure and breakage or contamination, as well as the potential need for open water for boating, drove consideration of the piles' removal. Eventually, the piles will likely need to be either removed or stabilized. For now, it is possible to work around them and appreciate their character.

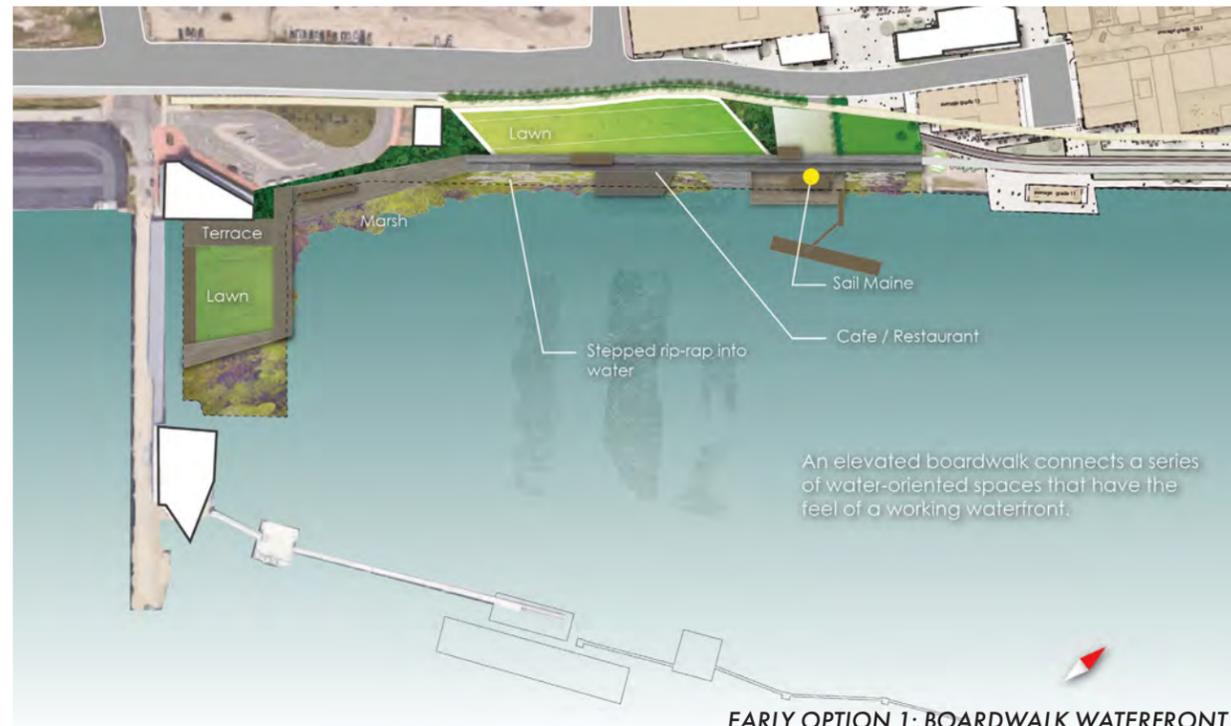
The piles provide an interesting foreground for views out to the Casco Bay and to Fort Gorges. They appear as a backdrop in wedding photography because they evoke the legacy of Portland's working waterfront. Views across the water are invaluable opportunities for pause within the city. With various piers and extensions out onto the water, and with planned marina development at 58 Fore, the prime views from the waterfront occur at the knuckle between Moon Tide Park and the CAT Ticket office. Our team defined a view corridor to Fort Gorges from the knuckle of the site that any extensions from The Amethyst lot onto the water should preserve.

Discussions with the arts community highlighted the opportunity for integrating art into any potential design scheme. The site has multiple locations suitable for permanent, functional, or portable art exhibits of appropriate scale and character. Art should be a source of inspiration, positive energy and/or historic relevance.

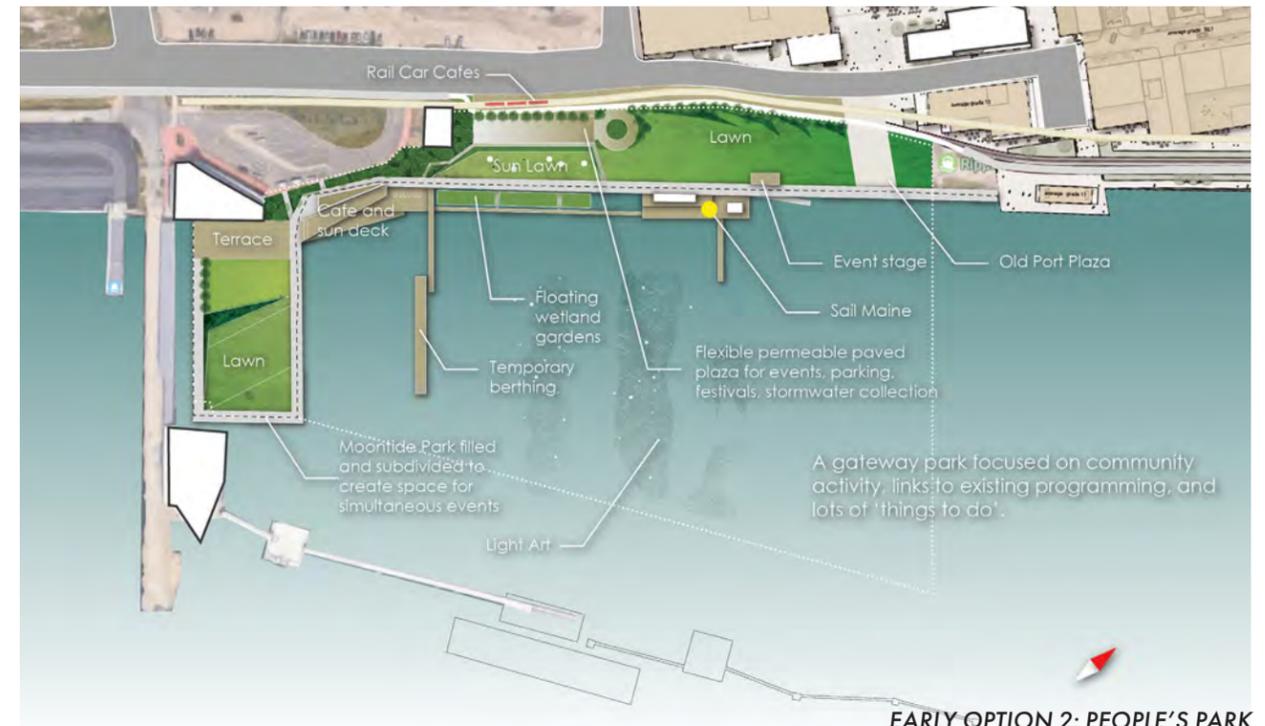
Finally, the site must address issues of climate change and sea level rise mentioned earlier in this document. As the leading economy in the region, and with the high visibility and key location of this site, it seems natural that Portland would use this opportunity to create a highly-visible approach to climate change adaptation. Our analysis identified a few means of dealing with sea level rise and storm surge: maximizing site permeability, creating large vegetated areas, development of floating infrastructure, elevating the bulkhead, providing for flood storage, and creating wave attenuating devices. There is a parallel drive to deal with stormwater on and potentially off site, as nuisance flooding is an increasingly common occurrence around the Casco Bay. Adaptations for larger storms will also help with management of smaller events. Further study is needed to finalize an approach to resilience.



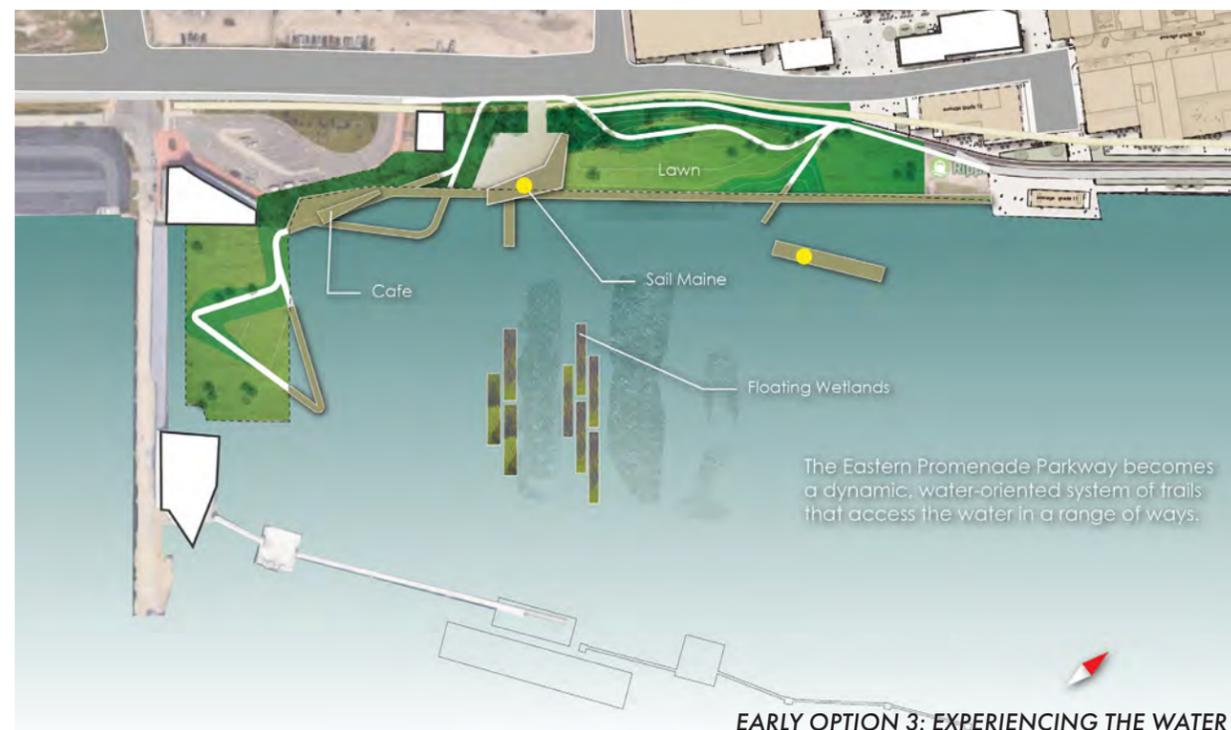
PREFERRED ALTERNATIVE: FINAL ALTERNATIVE SELECTED BY CITY WORKGROUP AND STAKEHOLDERS FOR DEVELOPMENT



EARLY OPTION 1: BOARDWALK WATERFRONT



EARLY OPTION 2: PEOPLE'S PARK

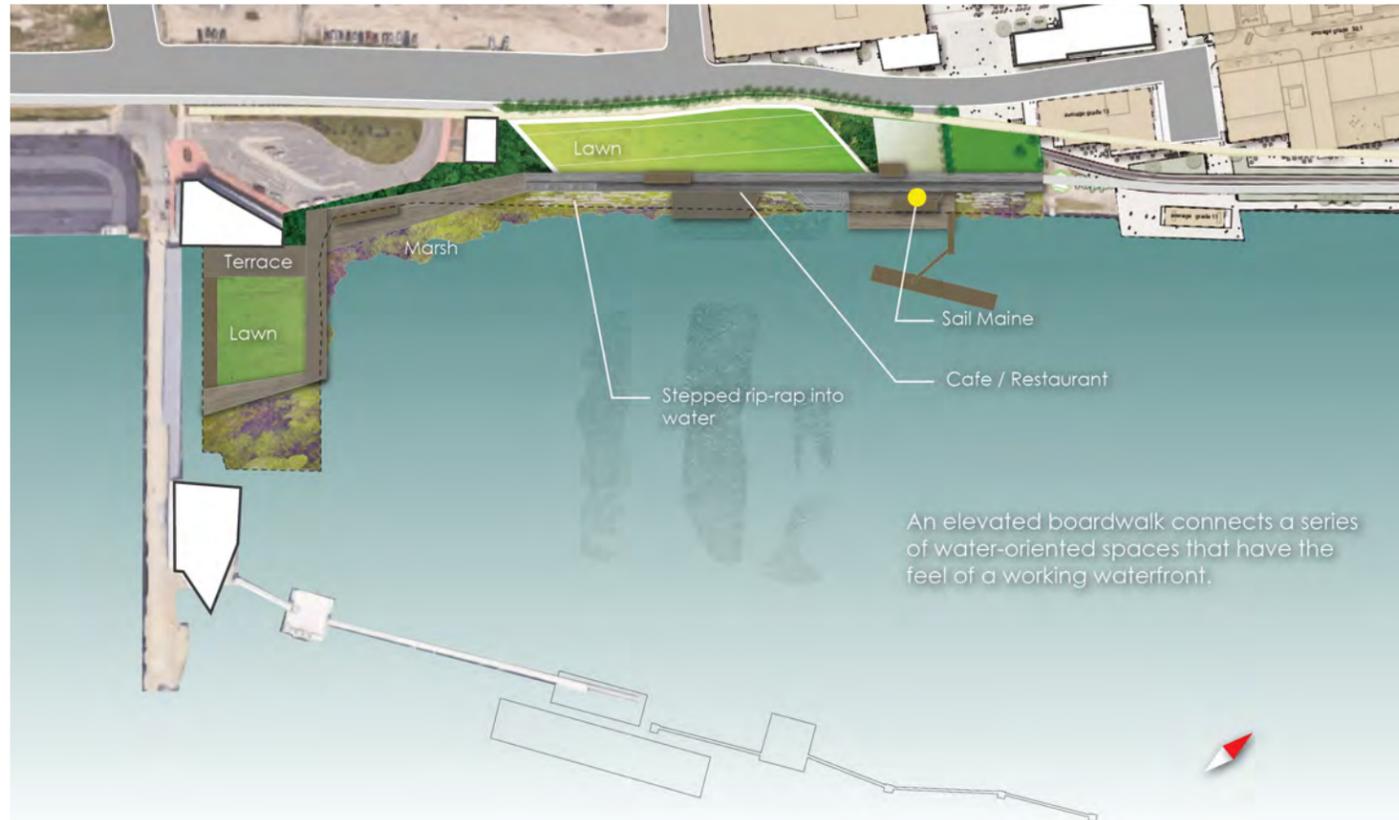


EARLY OPTION 3: EXPERIENCING THE WATER



EARLY OPTION 4: ECOLOGICAL EDGE

OPTIONS CONSIDERED BY THE CITY WORKGROUP AND STAKEHOLDERS



Preliminary Alternatives Analysis

Early Option 1: Boardwalk Waterfront

Our first design option responded to the source of the region's economic vitality, Portland's long history of water-oriented commerce and its relationship with the water -- for boating, fishing, and recreation. This option concentrated activities along the water in a boardwalk spine that alternately stepped down to the water, extended into piers, floated over marshlands, and broadened into sitting areas and plazas. It took the language of the working waterfront to produce a range of relationships to the water. Activities along the boardwalk were interwoven with boating and fishing taking place at the water. The submerged area of Moon Tide Park was maintained as a marshland that would continue to be inundated at high tide, but with increased habitat value as a tidal marsh. Overlooking it, a formal lawn with a terrace would provide flexible space for events and festivals with a view across the piles toward Fort Gorges.

At the 'knuckle' between Moon Tide Park and the upland area of this scheme, the boardwalk transitioned to a plaza that floated over naturalized marsh to provide breathing room for pedestrians along the vehicular area and to maximize opportunity to enjoy the view across the water at this prime location. A shade structure and deck for sitting helped to articulate this narrow edge.

As the boardwalk progressed north, it opened to a large lawn that was flexible for more significant events, games, sports, or passive recreation. On the water side, stepped seating was integrated into the marshland, giving stepped-down access to the water. These steps would be submerged at high tide.

A food vendor or pop up cafe sat along the boardwalk at the water's edge to activate the boardwalk throughout

the day, and, just north of it, community sailing facilities extended over the water. Vehicular access to these facilities was provided by way of a flexible plaza that served as a drop off for Sail Maine during sailing hours and provided a link to the Fore Street development. It could be used for a farmers market or other activities and events seasonally.

A plaza within the 58 Fore Street development overlooked a waterfront lawn on the Amethyst lot, as the two sites dovetailed. Nearer the edge within this corridor, the boardwalk stepped down to the water.

The existing piles were retained along the waterfront and utilized to support the cafe terrace and to secure marshland development. Piles in the water were also retained for habitat, wave attenuation, and as a visual amenity.

Response by the City Workgroup and Stakeholders to this scheme was positive because it concentrated focus on water-oriented uses. The Stakeholder group suggested that that focus might be amplified -- we might provide more water-oriented uses, more boating, fishing, and access to the water. Along with these uses, vehicular access would need to be increased. There was also suggestion that there should be a temporary berth for public access -- in this as well as all other options, as this is a highly desired use.

The Workgroup didn't think it would be feasible to naturalize the edge into marshland with terraced steps giving access to the water. This was confirmed by subsequent regulatory review. And because of contamination at Moon Tide Park, it would be preferable to armor and elevate the structure rather than risk public exposure to contamination.

Finally, the Sail Maine location at the north was challenged. Locating Sail Maine at the adjacency to 58 Fore development limited flexibility for creating a seamless connection to that development.



INTERWOVEN BOATING AND COMMUNITY SPACES
Photo Credit: Getty Images



Photo Credit: Andre Jenny



BULKHEAD BROKEN DOWN IN STRATEGIC LOCATIONS TO CREATE TERRACED SEATING AND FLOOD PROTECTION
Photo Credit: Stantec



WORKING DOCK LANGUAGE REIMAGINED TO CREATE GATHERING SPACES
Photo Credit: Michael Alderman



Early Option 2: People's Park

People's Park recognized the key location of the Amethyst lot in relationship to the pedestrian center of downtown Portland, as well as the demand for public open space to accommodate a wide range of activities and events in Portland -- as suggested by the current significant use of the site even without City investment. Current and future users were considered in designing a park that would maximize programmatic range and value through flexible uses. City residents and visitors would gather in this space for large events or for concurrent programs -- providing an opportunity for people to mix, and watch, and socialize, and celebrate.

In this scheme, a reconstructed bulkhead fortified the entire waterfront edge and formed a recreational spine linking events and activities along the water. The vertical face of the bulkhead was articulated to provide habitat value. Parking and drop off were provided close to Thames Street and the CAT ticket office, with these areas

shielded from the rest of the park by the elevated planes of a 'sun lawn' that overlooked the water. The vehicular turnaround and drop off was accessed by a new curb cut extending from the proposed Thames alignment at the new 58 Fore development.

Sail Maine was located at the center of the site close to the drop off and was built out over existing piles onto the water. This over-water location provided a secure and discrete location for all boat set up and maintenance work while preserving park open space for other events and activities.

Adjacent to Sail Maine and on the water was a system of floating wetlands, intended for both water cleansing and recreational and educational use, that could be explored on foot through a stepped-down system of floating paths. South of these gardens, a temporary berth extended onto the water to provide boating access to the public.

The knuckle of the site, with views out to the islands in the bay, was occupied by a cafe and stepped down sun deck that extended beyond the bulkhead to give visitors a few different options for enjoying the views. Beyond the sun deck, Moon Tide Park provided a formal event terrace and lawn, as well as a separate area for passive users to enjoy the park even while formal events were in progress.

At the north of the site, a formal plaza connected 58 Fore Street development directly to the boardwalk. Upland and to the east, Narrow Gauge Railroad cars (or new cars) had a new proposed use as cafe cars, serving the park in an informal vending area. And out on the water, the piles were retained and used as an armature for a light art installation, extending use of the park into the evening hours.

The intensified programming of the boardwalk left the rest of the site open for flexible programming and passive use.

This scheme was selected by the majority of the Workgroup and Stakeholders as the basis for a next stage of the redevelopment plan due to its focus on much-needed open space programming, while maintaining water-oriented uses at the waterfront itself, including the public berth. The goal of maximizing square footage to allow for the most programming and greatest flexibility was well received; this type of civic space would be very well utilized in downtown Portland, particularly with new planned development in the area. However, distance between the parking lot and water access was cited as a potential issue -- parents will need to be able to see children arrive at their destination from the drop off, and cars with boats in tow should have easier access to the waterfront. And the location of the public berth was questioned, as it would block views and potentially have inadequate space for safe navigation around the historic piles and relative to the Gateway Terminal berth.



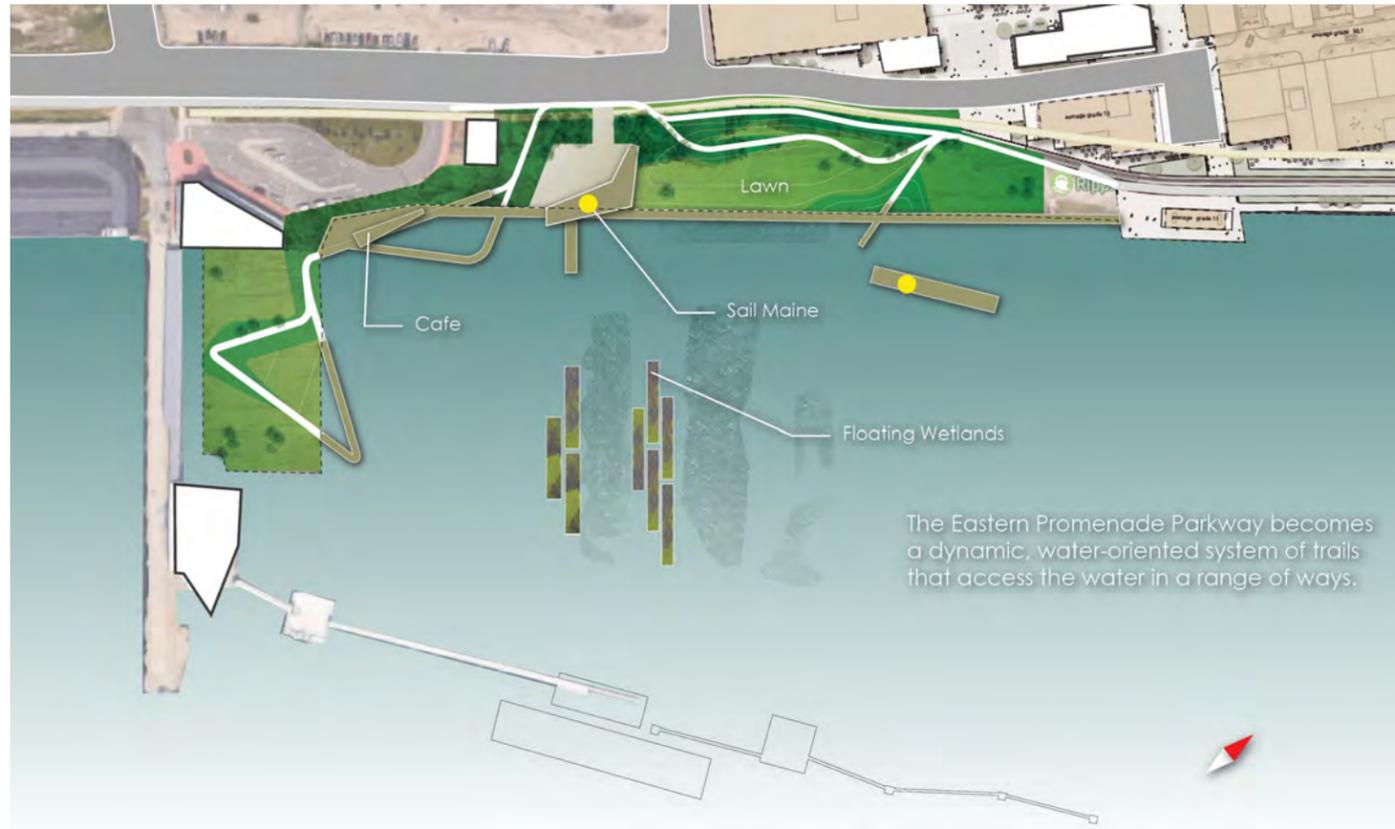
REBUILT BULKHEAD FOR ACTIVE USE
Photo Credit: Hargreaves Associates



WATERFRONT EVENT SPACE
Photo Credit: Do312



ARTICULATED SEAWALL FOR HABITAT
Photo Credit: SG3 Strategies



Early Option 3: Experiencing the Water

The scheme we called 'Experiencing the Water' proposed a system of pathways and trails branching off of the Eastern Promenade Trail system, inviting passersby to enter the site to experience the water. We imagined a range of active uses and a highly energized experience of the waterfront. This scheme built on an understanding of Portland's community as enjoying a unique balance of cultural richness and outdoor adventurousness -- that identifies strongly with the water, whether for industry, art, or adventure. This scheme brought visitors to the water in a range of ways, at a variety of speeds, for a full experience of this important aspect of Portland identity.

The site was built up in a landscape of hills that would make a ride or a stroll through the site more interesting, as they concealed and revealed new views of the water and across the bay, give opportunity for pausing on a hillside or exploring at the waterfront. A dendritic path system gave options for exploration to users of all ages and abilities.

Building development was concentrated at the knuckle of the site, where two existing buildings, the Ocean Gateway Receiving building and the CAT Ferry Ticket Office are situated. This arrangement left most of the site as open green space -- with a mix of lawns, trees, and gardens. The heart of the development area was the community sailing center, whose facilities included a small vehicular drop off that would also function as a site for maintenance of sail boats. Some of the sailing school's storage facilities were located on the water. There was consideration in this scheme of the possibility of utilizing the visitor center drop off for the sailing school.

Connected to the community sailing facility by a boardwalk, a proposed cafe would attract a flow of visitors throughout the day for sitting in a comfortable space with an expansive view of the water, or provide a stop-off point for cyclists, runners and strollers.



PLAYFUL PATHS ENGAGE THE WATER AND PROVIDE ASSORTED VIEWS
Photo Credit: West 8



Photo Credit: Base Landscape Architecture

Beyond the cafe, the trail system continued into Moon Tide Park, where it extended onto the water for fishing and a new vantage point for experiencing the bay. Moon Tide park was divided by the trail system to accommodate simultaneous uses -- weddings and events as well as passive recreation.

Out on the water and secured by the existing piles was a garden of floating wetlands for student sailors or kayakers to explore by boat. They would serve a water-cleansing or habitat-creating function, as a short-distance destination on the water, or as part of an on-water art exhibit.

Some members of the Workgroup preferred this scheme over others, but several issues were mentioned. Utilizing the piles to secure the wetlands was regarded as undesirable; there were concerns that people might try to walk on the wetlands. It would not be feasible to use the existing Ocean Gateway drop off for community sailing and boating access, as this lot becomes very busy at certain times of the year. All agreed that an active path system and some amount of topography would be desirable in the final scheme.



A VARIETY OF SPACES FOR SEEING AND TOUCHING THE WATER
Photo Credit: Simon Wood



Photo Credit: Hervé Abbadie



Early Option 4: Ecological Edge

Our final option naturalized the waterfront to bring the experience of the water that Maine is known for right to the heart of downtown. A rocky, wild waterfront with high ecological value, this scheme proposed complete removal of the existing piles and investment in the higher value habitat of wetlands, lushly vegetated uplands, and a differentiated edge. The coastline was pushed and pulled to create a dynamic edge, with tidal wetlands accessed by elevated boardwalk paths at the water's edge and upland meadows next to the city.

Sail Maine in this scheme was located adjacent to future 58 Fore development, with a minimal vehicular drop off accessed by the future Thames Extension and a waterside deck and pier for boat set up and maintenance. Concentrating community sailing activity at the northern edge of the site left the remainder of the park as a contiguous, naturalized open space.

The push and pull of the shoreline provided an opportunity for elevating the upland to protect the park and upland development in the event of storms. It maximized permeability and opportunity for development of ecologically valuable areas -- both for habitat and infiltration of stormwater.

Because this scheme proposed the most radical transformation of the site, additional study would be required to determine its feasibility, particularly in light of bathymetric data which shows a steep drop off from the bulkhead to the water. Wetlands and tidal marshes would be most successful with a generous area of rocks and vegetation to receive tidal changes.

Although some members of the Workgroup liked this scheme, several concerns arose. First, breaking down the bulkhead would pose a regulatory issue; upon subsequent



Photo Credit: Sally M. Littlefield

review, the team determined that it would not be possible to remove the bulkhead because it could not be justified as necessary for a water-dependent use -- and there was concern about the risk of contaminated fill at Moon Tide Park and in the larger site. Also, removal of the piles exposes the site to intensified wave action and eliminates any habitat value the piles currently have.

Other, smaller issues included the location of Sail Maine close to the 58 Fore development, the lack of sidewalks and infrastructure for accessing the space, the disconnectivity between the pathways within the tidal gardens, the absence of opportunity for vessel access, and the feasibility of creating floating wetlands and extensive bridges and structures out on the water.

A bigger issue with this scheme, however, was the overall simplification of the site, which would not provide the flexibility for programming offered by the other schemes and desired by the City. There is only one way to experience the water in this scheme, and only one landscape experience on the upland part of the site. Although the Workgroup appreciated the spirit of this scheme -- its drama and beauty -- it concluded that the demands for civic space and water-dependent uses were too great to allow this approach. It suggested that a naturalized area with a smaller footprint should be incorporated into the final scheme if possible.



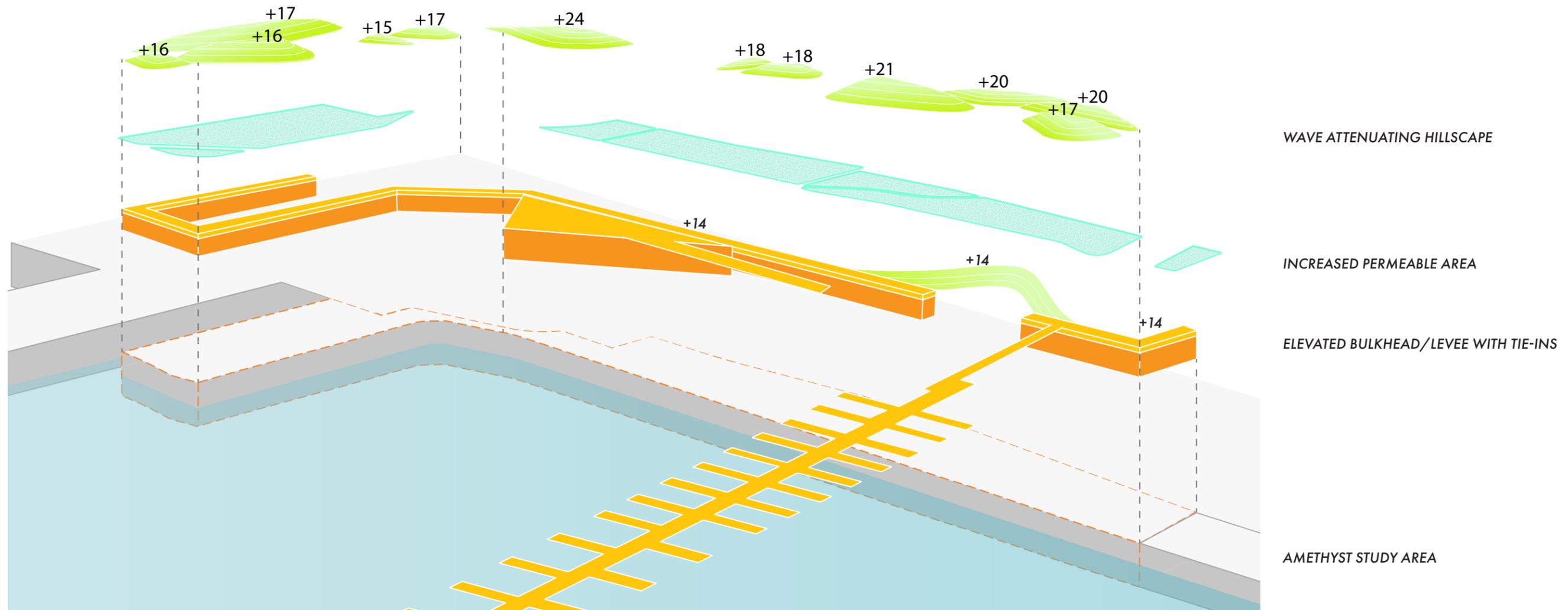
Photo Credit: Martin Rogers



Photo Credit: Normal Everyday Life.com



Photo Credit: Brett Boardman



Preferred Alternative

The Preferred Alternative combines elements of all four alternate schemes reviewed by the City Workgroup and Stakeholders. Elements pulled from different schemes include:

- Programmatic intensity across the site, with a focus on water-dependent uses
- Hills and paths interwoven with topographic variety for exploring and views
- Centralized community sailing location, as an extension from the bulkhead. Community Sailing could be accommodated on floating infrastructure, and may be explored in later design development
- A temporary berth -- located to preserve views to Fort Gorges and provide sufficient navigable space

- Multi-use plaza adjacent to the waterfront for parking/events and community sailing drop-off
- Naturalized edge with a reduced footprint
- Expansion of the 'knuckle' to maximize views
- Retention of piles for historic and ecological value
- An elevated boardwalk as a recreational spine that orients all activity towards the water
- Plaza linkage to new development at 58 Fore

What most distinguishes the preferred scheme from the prior alternatives is the extent to which it is driven by creating resilience at the Portland waterfront. In the preferred scheme, the bulkhead is rebuilt and elevated to +14, in order to protect against 100 year (+9.5), 500 year (+10.1), and Category I (+13) storms and hurricane

events. This constitutes a four-foot change in elevation over the water and does not account for sea level rise, with confident projections to increase storm elevations at a rate of 4 mm per year. Where the bulkhead is broken by a naturalized area, the landscape is built up around the inlet to provide continuity of the +14 elevation. Levee tie-ins are provided at 58 Fore and at the Ocean Gateway Receiving Building, but the southern location is more problematic due to existing conditions and the industrialization of the waterfront as it enters the harbor.

To address sea level rise and the increasing frequency of higher-category storms, the upland area is transformed into a landscape of hills up to +24 in elevation that provide wave attenuation for Category II and III

WAVE ATTENUATING HILLSCAPE

INCREASED PERMEABLE AREA

ELEVATED BULKHEAD/LEEVE WITH TIE-INS

AMETHYST STUDY AREA

hurricanes -- where storm surge can reach +26.3. Most of the year, the hills will serve to increase the perceived scale of the site, provide elevated views across the bay, and separate programmatic uses. They also have the potential to provide flood storage within the voluminous landforms.

Finally, overall site permeability is increased so that on-site water is managed without entering the city system. With high-value vegetation, it is also possible that off-site stormwater might be managed to reduce local risk of nuisance flooding common in the Casco Bay.



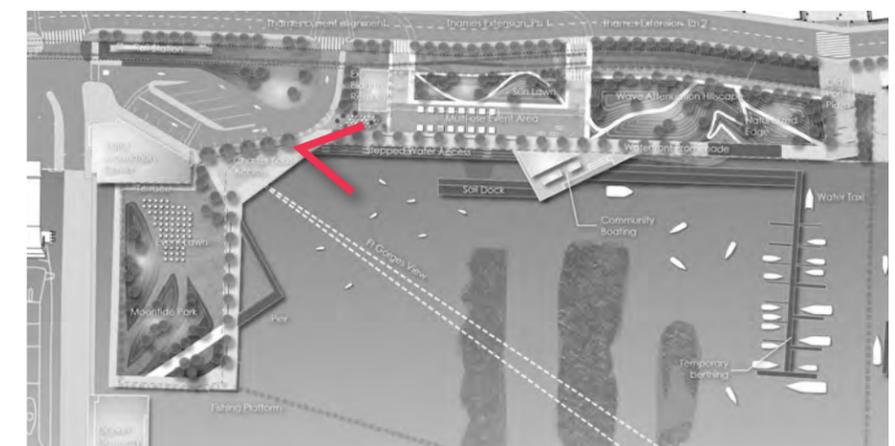
Boardwalk Promenade

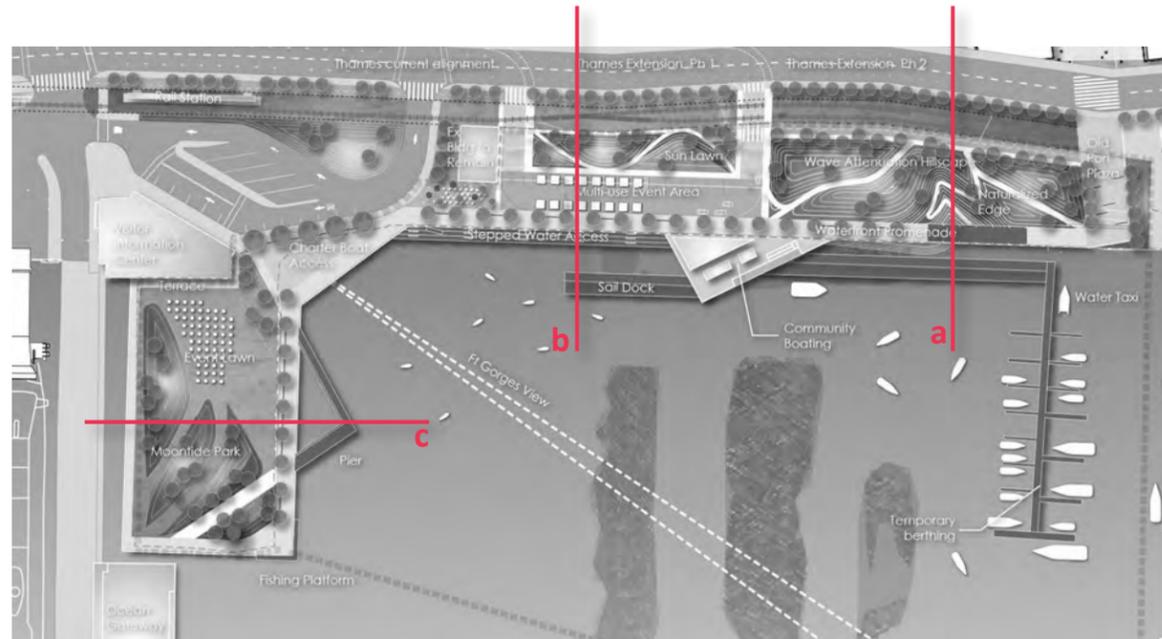
The boardwalk promenade links water-oriented recreational uses all along the waterfront. Elevated to +14, it protects against Category I hurricanes and creates a continuous connection between the various programs across the site, from the fishing pier at Moon Tide Park to the plaza connecting Portland Landing back to 58 Fore development. It is a promenade for people-watching and for taking in broad views of the bay.

With a high tidal fluctuation, getting close to the water is desirable and complicated; on its waterside, the boardwalk steps down to provide seating closer to the water itself. This serves as a great location for parents and visitors to watch student sailors on the water.

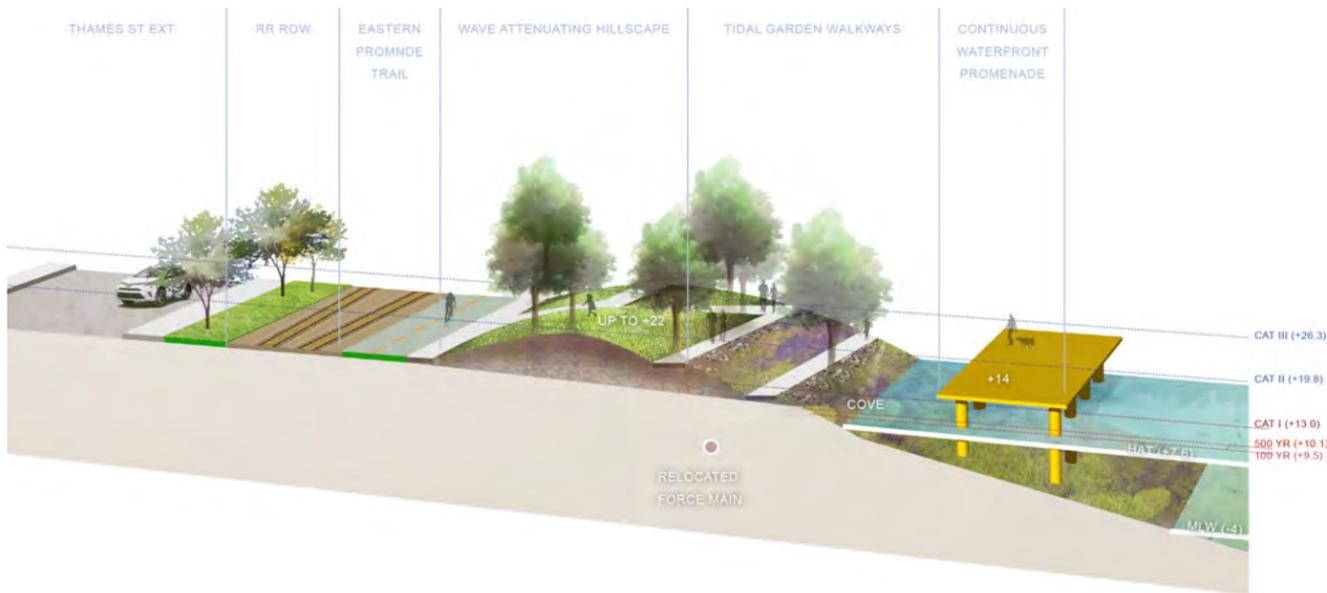
This view also shows the separation of sailing activity from motorized boating activity, which is concentrated to the north, adjacent to the planned 58 Fore Marina. The pile fields provide a buffer between these uses.

Stepped boardwalks will be subject to tidal inundation. Their use and maintenance, and the need to include railings, will require further study.





SECTION B: SHOWING FESTIVAL PLAZA AND STEPPED-DOWN SEATING



SECTION A: SHOWING TIDAL INLET AND WAVE ATTENUATING HILLS



SECTION C: WAVE ATTENUATING HILLS AT MOON TIDE PARK

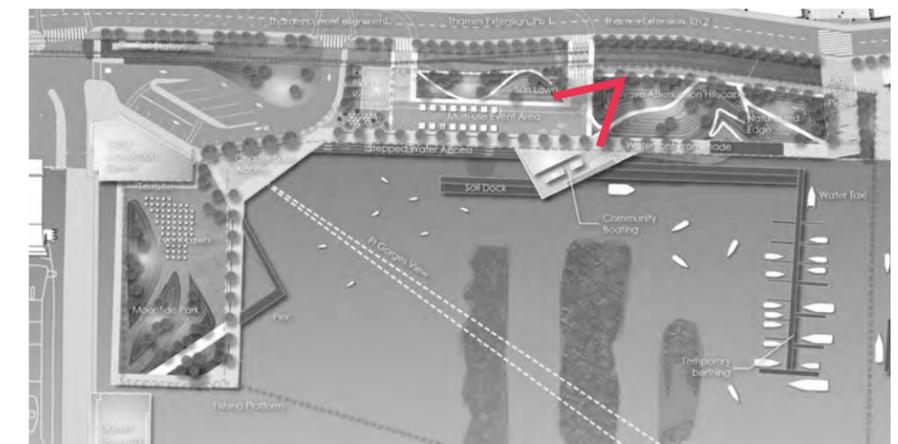


Multi-use Plaza

Consensus amongst the Stakeholders and City Workgroup about the need for parking and vehicular access led to the concept for a parking lot that would double as a multi-purpose plaza, with special paving to communicate pedestrian priority. Currently, some residents enjoy the ability to pull their cars up to the edge of the water to drink a cup of coffee or just look out to the bay. The proposed plaza is flexible to provide this kind of informal access to the water, while giving easy access for drop off to Sail Maine and boating facilities. On scheduled event days, the plaza can be transformed into a marketplace for local artists, a small concert stage with a waterfront backdrop, or a farmers market. On days when the space is needed for parking, the plaza will accommodate twenty-four cars.

Permeable pavers will allow infiltration of all stormwater that falls on the plaza, a system with high performance given the proposed elevation increase of the site and ability to specify a highly-suitable pavement profile.

This view captures simultaneous activity around the Sail Maine building from the elevated perspective of the wave-attenuating hills.

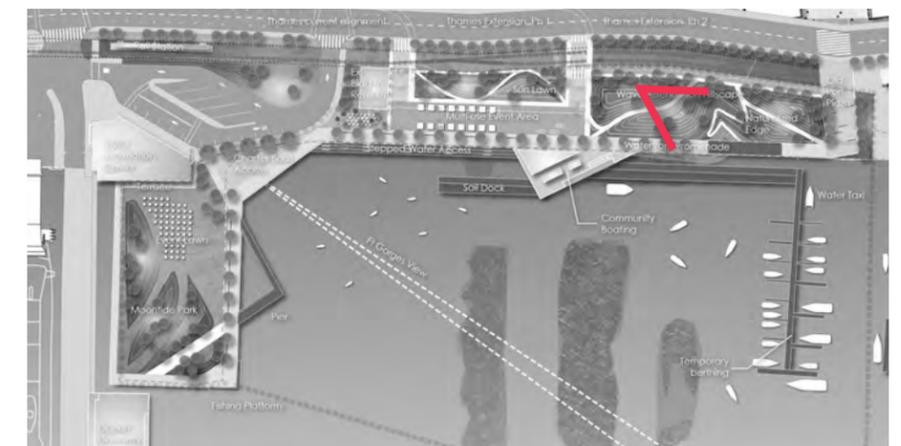




Wave-Attenuating Hills

The most visible element of the Preferred Alternative is its dramatic wave attenuating hills, which transform the waterfront, provide elevated views to the bay, and satisfy the City's desire for an 'iconic' public amenity on the Amethyst lot. The hills will serve as powerful reminders of the need for climate change adaptation in the Casco Bay -- while providing wave attenuation to properties inland in the event of high-intensity storms. The hills in this view frame the tidal inlet, where the shoreline is naturalized and pathways provide direct access to the water. In the far distance, the plaza connecting to development at 58 Fore Street is visible.

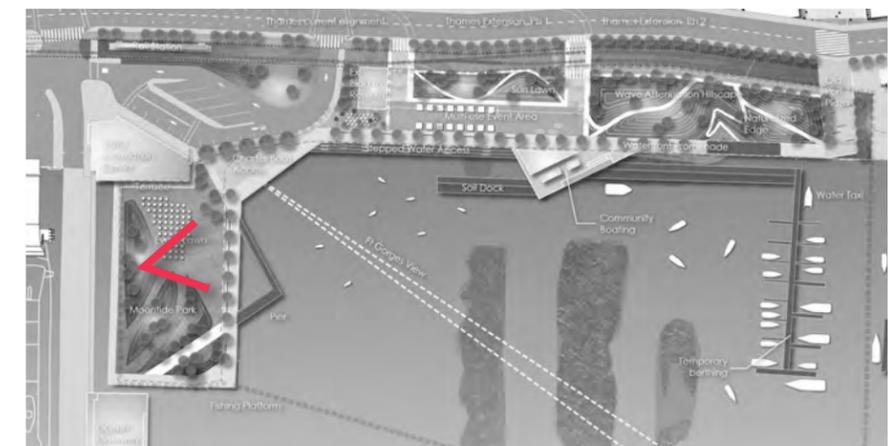
Creating the tidal inlet will require significant site adaptation. The existing bulkhead line is perforated and, for a portion of its length, replaced with this naturalized formation. Partial relocation of a force main is also required. Despite these complexities, the concept is highly-desirable to Stakeholder and Workgroup participants.





Moon Tide Park + Waterfront

Portland Landing will provide ample green space, access to the water, and flexible areas for events and activities. This image highlights the important view corridor across the historic piles and out to the Casco Bay which drove alignment of development on the water. In the foreground, the fishing pier extends out onto the water in a location known to be great for fishing.





Regulatory Review

The development proposal will involve significant regulatory oversight and approvals, which may include 12-18 months of permit application preparation and agency review periods. During the program refinement assignment, Stantec and City representatives met once with the representatives from the Maine Department of Environmental Protection (MeDEP) and U.S. Army Corp of Engineers. The mission of the meeting was to familiarize the regulators with the site and gauge regulatory acceptance of project goals and concepts for design.

Approaches in other Maine towns serve as worthwhile precedents. Bath is entering the beginning phase of

waterfront planning. Wiscasset has studied reuse of its remnant pile area. Bangor has employed sheet piling with ramps and floats for access. The following themes and uses were discussed in general terms:

- Boardwalks/piers: the idea of a boardwalk is generally acceptable if it is pile supported or cantilevered over existing “filled” areas (riprap extensions and existing pile fields) and for the purpose of a water-dependent use.
- Beach: Due to USACE regulations, a beach is not possible on this site. Such a use is considered unfavorable if the activity extends towards the water and if it results in a less stable shorefront.
- Fill in the intertidal area: Filling in the intertidal area is generally unacceptable unless there is no practicable alternative and it is for a water-dependent use.
- Fill in Moon Tide: Filling in around the perimeter of Moon Tide Park would likely be acceptable to repair the erosion issues and for public protection from exposed contaminated soil. The USACE finds this acceptable if for a water-dependent use.
- Shoreline softening: Naturalizing or softening the shoreline is considered to be generally unacceptable. Although the regulators understand the value of such an approach, regulations lean toward armoring, not

softening, the waterfront. The Corps questioned the viability of a soft shoreline under today’s regulatory environment. “Living shoreline” rule-making in Maine may change this assumption, providing opportunity to revisit certain elements of site design.

Observations:

1. Both agencies will apply the test of water-dependent use (WDU) to anything that is proposed. From DEP’s Rules c. 310(3)(W):\

Water-dependent Use: A use which cannot occur without access to surface water. Examples of uses which are water-dependent include, but are not limited to, piers, boat ramps, marine railways, lobster pounds, and marinas. Examples of uses which are not water-dependent include, but are not limited to, boat storage, residential dwellings, hotels, motels, restaurants, parking lots, retail facilities and offices.

The Maine DEP maintains a strict interpretation of this rule and does not consider opportunities such as marine education, present at Portland Landing, to be legitimately water-dependent. However, Jay Clement of the Army Corps of Engineers suggested there is flexibility even within the USACE standards, which are similar to the Maine DEP. Stantec recommends addressing this question with the DEP when design concepts for Portland Landing are more refined.

2. Both agencies agreed that aesthetic or even stormwater treatment “greening” activities that impact the oceanside would not likely pass an alternatives analysis. Cutting into the existing upland to soften could occur, but no expansion outward with fill to create an edge environment. The Workgroup feels strongly that “living shorelines” objectives remain a worthy goal within the project framework and the opportunity to create a pilot project related to stormwater treatment or similar should remain part of the overall development plan. Stantec supports this goal and recommends further agency dialogue to better understand the opportunities, particularly within

the site's upland zones, previously impacted riprap areas and historic pile fields.

3. Areas of existing riprap could be used to put new, water-dependent, pile supported structures.
4. Areas of existing piles could be used to put new, water-dependent, pile supported structures.
5. The path for both 3 and 4 is smoothed if existing piles in the new structure area are removed and replaced with fewer new piles.
6. Ramps and floats for public water-dependent uses will be a strong regulatory direction.

Regulatory summary

The following regulatory agencies and statutory sections will influence permitting oversight on proposed activities at the Portland Landing site.

Federal

- U.S. Army Corps of Engineers – Section 10 of the Rivers and Harbors Act and Section 404 Clean Water Certification

State

- Maine Department of Environmental Protection, Natural Resources Protection Act, Individual Permit
- Maine Department of Environmental Protection, Voluntary Response Action Program
- Maine Department of Environmental Protection, Chapter 500 Stormwater Management

Local

- City of Portland Planning Authority Site Plan Review, Shoreland Zoning approval, and Flood Plain Management
- Portland Harbor Commission (Harbor Master Port of Portland) - Marine Construction Permit

- An overall permitting timeline is anticipated to cover 6-12 months for applications and agency reviews. It will be imperative to include agency representatives early and often in the process thus affording them opportunity to understand the programming basis and technical designs for which approvals will be sought. Further, critical to the process will be public outreach and involvement, not only to satisfy regulatory requirements but to reduce potential for stakeholder or interested parties pushback during the course of agency review.

Rail Right-of-Way

- The Portland Landing site is bordered by an existing rail corridor along its western edge. Established crossings of the rail right-of-way will require specific permits licensing agreements.

Implementation Strategy

The Consultant Team prepared an opinion of probable cost for the development of the preferred design alternative. The total estimated value, inclusive of soft and hard costs, is approximately \$17,000,000, exclusive of interim facility construction due to phasing. Interim improvement will increase costs approximately. To create a vibrant and multi-purpose public space on 3.5-acres of urban New England waterfront, we find the estimated value to be consistent with investment in other locales.

The Amethyst lot planning and design process and the resulting preferred design alternative advanced the local discussion about the future of the site. There is great support among City representatives and stakeholders for the plan, its components, and its response to coastal vulnerability and resiliency. Key questions do arise at this critical juncture, including:

- *What are the alternatives to this strategy?*
- *How will the work be funded?*
- *Is phasing possible? What if we can only fund a portion of the plan? Will it be successful?*

What are the alternatives to this strategy?

The preferred design alternative addresses the primary project goals expressed by the City, The Study Workgroup, and key stakeholders. The proposed plan provides an array of water-dependent uses including access, transient boating, water taxi operations, fishing, and sailing instruction; advances resiliency and reduces flooding and wave vulnerability; remedies soil and structural conditions at Moon Tide Park; establishes a public waterfront event space; and creates a cohesive waterfront public space while sustaining stakeholder operations.

Of the estimated \$17,000,000 development cost, approximately \$1,200,000 are attributed to land and structural deficiencies at Moon Tide Park and select pile removal that must be addressed by the City of Portland.

Funding Sources

The City of Portland will need to consider state, federal and private/public funding sources to realize the Portland Landing Plan. As a coastal community with vulnerable infrastructure (marine port, rail beds) and land uses and the probability that significant coastal storm events will occur, we recognize the risk that areas of the downtown Portland waterfront face – to human health and well-being, economic vitality, and commerce. The renovation of the Amethyst lot to Portland Landing represents a comprehensive response to potential risk and upgrade to Downtown's coastal resiliency within the limits of the study area. The proposed measures may be eligible for a host of funding sources targeted for at-risk coastal communities. The implementation schedule includes an outline of recommended phases and potential funding sources for each phase.

Maine Department of Environmental Protection

The Maine Department of Environmental Protection oversees the Revolving Loan Funds program. The program offers low-interest loans to improve municipal and quasi-municipal wastewater treatment infrastructure to foster high-quality, safe and sustainable wastewater facilities. The Portland Landing site contains a large stormwater outflow. Efforts to improve the quality of stormwater discharge at this location may qualify for revolving loans.

Northeast Regional Ocean Council (NROC)

The Northeast Regional Ocean Council (NROC) is a state and federal partnership that facilitates the New England states, federal agencies, regional organizations, and other interested regional groups in addressing ocean and coastal issues that benefit from a regional response. It is NROC's mission to provide a voluntary forum for New England states and federal partners to coordinate and collaborate on regional approaches to support balanced uses and conservation of the Northeast region's ocean and coastal resources. NROC builds capacity through a small grants program to improve the region's resilience and response to impacts of coastal hazards and climate change.

National Oceanic and Atmospheric Administration (NOAA) Regional Coastal Resilience Grants

These grants are being used to fund projects that are helping coastal communities prepare for and recover from extreme weather events, climate hazards, and changing ocean conditions. The focus is on comprehensive regional approaches that use science-based solutions and rely on collaborative partnerships to ensure success. NOAA provides funding awards and competitive grants through the Regional Coastal Resilience Grants program. Awards are made for project proposals that advance resilience strategies; disaster preparedness; environmental and habitat restoration; and hazard mitigation planning.

Successful proposals demonstrate regional collaboration among stakeholders, leveraged and/or matched resources, and economic and environmental benefits for coastal communities. Eligible applicants include nonprofit organizations, institutions of higher education; regional organizations, private entities; and government entities. Award amounts typically range from \$500,000 to \$1 million with cost sharing through cash or in-kind matches typically at 50% of the award amount.

U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant (CDBG)

The Community Development Block Grant (CDBG) program is flexible and provides communities with resources to address a wide range of unique community development needs. The CDBG program provides annual grants on a formula basis to 1209 general units of local government and States. The CDBG program provides financial assistance to eligible municipalities by providing affordable housing, suitable living environments, and expanded economic opportunities in low and moderate income communities. CDBG funding may be applied for floodproofing and elevating residential and nonresidential buildings; perhaps applicable to resiliency measures proposed for Portland Landing to protect existing upland structures.

U.S. Department of Housing and Urban Development (HUD) CDBG Disaster Recovery (CDBG-DR)

HUD provides flexible grants to help cities, counties, and States recover from Presidentially-declared disasters, especially in low-income areas, subject to availability of supplemental appropriations. The Portland Landing site is not currently eligible, though future storm events may call this option into play.

Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation (PDM) Program

The PDM program provides funds to states, territories, tribal governments, communities, and universities for hazard mitigation planning and implementation of mitigation projects prior to disasters. The PDM program provides an opportunity to reduce disaster losses through pre-disaster mitigation planning and the implementation of feasible, effective, and cost-efficient mitigation measures to reduce overall risks to populations and facilities.

Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP)

The HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is opportunistic, fostering consideration of added benefits in the recovery process. Vulnerability of the study site brings this program into focus.

Federal Emergency Management Agency (FEMA) Flood Mitigation Assistance (FMA) Program

The FMA program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to States, Territories, federally-recognized tribes and local communities for projects and planning that reduces or eliminates long-term risk of flood damage to

structures insured under the NFIP. FMA funding is also available for management costs. Funding is appropriated by Congress annually.

FEMA requires state, tribal, and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for HMA mitigation projects.

U.S. Army Corps of Engineers (USACE)

The U.S. Army Corps of Engineers (USACE) Civil Works Program helps to manage the Nation's water and related land resources for commercial navigation, flood risk management, environmental restoration, and allied purposes. Civil Works programs are generally administered by a nationwide distribution of 38 USACE field offices (districts) with oversight provided by eight regional offices (divisions). Civil Works includes six primary mission areas that, for operational and performance management purposes, are defined by the USACE as business programs. The USACE provides 100% funding for floodplain management planning and technical assistance to states and local governments under several flood control acts and the Floodplain Management Services Program (FPMP). Specific programs used by the Corps for mitigation are as follows:

Section 205 – Small Flood Damage Reduction

Projects: This section authorizes the USACE to study, design, and construct small flood control projects in partnership with non-Federal government agencies. Feasibility studies are 100% federally-funded up to \$100,000, with additional costs shared equally. Costs for preparation of plans and construction are funded 55% with a 35% non-federal match. In specific cases, the non-Federal share for construction could reach 50%. There is a maximum federal expenditure for any given project, in past years approaching \$7 million.

Section 205 – Floodplain Management

Services: This section authorizes the USACE to provide technical services and planning guidance necessary to support effective floodplain management. Types of studies conducted under FPMS include floodplain delineation, dam failure, hurricane evacuation, flood warning, floodway, flood damage reduction, stormwater management, floodproofing, and inventory of flood prone structures. Subject to funding availability, this work is 100% federally funded.

Section 14 – Emergency Streambank and Shoreline Protection:

This section authorizes the USACE to construct emergency shoreline protection work to protect public facilities such as bridges, roads, buildings, sewage treatment plants, wells, and non-profit public facilities such as churches, hospitals, and schools. Cost sharing mirrors Section 205 projects, noted above. There is a maximum federal expenditure for any given project, in past years approaching \$1.5 million.

Section 208 – Clearing and Snagging Projects:

This section authorizes the USACE to perform channel clearing and excavation with limited embankment construction to reduce nuisance flood damages caused by debris and minor shoaling of rivers. Cost sharing mirrors Section 205 projects above. The maximum federal expenditure for any project in past years has been \$500,000.

IMPLEMENTATION SCHEDULE

Phase	Item	Approximate Cost	Interim Facilities	Primary Funding Source	2018		2019				2020				2021				2022				2023					
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Phase	1A	\$2,750,000		NOAA																								
				City of Portland																								
	1B	\$2,550,000		City of Portland																								
				Maine DEP Revolving Loan, USACE-Section 208 (select pile removal)																								
	1C	\$2,100,000	\$100,000	City of Portland																								
				FEMA-PDM, USACE																								
	2A	\$1,400,000	\$100,000	Structure by private sector																								
				Access facilities by City of Portland																								
	2B	\$2,185,000		City of Portland																								
				User fees, taxi services																								
3A	\$300,000		City of Portland																									
			Program fees, NROC, FEMA-PDM																									
3B	\$4,750,000		City of Portland																									
			NROC, HUD-CDBG, FEMA-PDM																									
4	\$850,000		City of Portland																									
			NOAA (habitat creation)																									
5	\$115,000		Public funding limited																									
			Primarily private sector, HUD-CDBG																									

 Design
 Construction

Note: Federal Emergency Management Agency (FEMA) Flood Mitigation Assistance (FMA) Program may be considered for design phase services, to adapt a hazard mitigation plan for the study area and/or greater downtown vicinity.

Additional Sources

Potential additional federal, state and local funding sources to support the project exist. The following provides a brief summary of existing and future potential funding opportunities for Portland Landing.

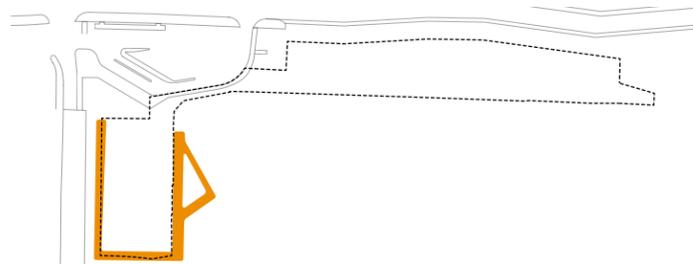
- USEPA Brownfields (BF) Funding.
- The Maine Department of Economic and Community Development (DECD) may provide an additional source of funding for remediation of impacted sediments within the harbor areas.
- Maine Coastal and Estuarine Land Conservation Program (CELCP) grant funding.

- Resiliency / Infrastructure Grants: Post Super Storm Sandy and Hurricane Katrina, there have been many funding opportunities to support the development and construction of resiliency intervention measures to protect coastlines from future violent storm events associated with global climate change and sea level rise. Among these include NOAA Coastal Zone Management Act Section 306/306A and 309 program opportunities and National Coastal Zone Management program.
- National Fish and Wildlife (NFWF) Grants: Grants have been awarded by this federal agency which

- reduced communities vulnerabilities to storms, sea level rise, flooding and erosion through strengthening natural ecosystems.
- Maine Coastal Program - Shore and Harbor Planning Grants and Coastal Communities Grants.
- U.S Fish and Wildlife Service - Boating Infrastructure Grant Program (BIG).
- Maine Bureau of Parks and Land - Boating Facilities Fund.

Is phasing possible? What if we can only fund a portion of the plan? Will it be successful?

The true benefits of the proposed plan are realized when all aspects of the plan are constructed. However, we must be cognizant of the financial realities and the possibility that funding may be limited. The schematic design alternative may be implemented in phases, each phase building on the infrastructure and success formed in the previous phase. Phasing strategy and anticipated benefits gained are as follows:

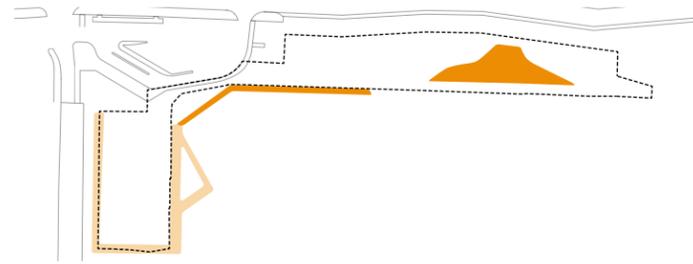


Phase 1A: Moon Tide Plaza Perimeter and Fishing Pier

Stabilize perimeter of Moon Tide Park and construct fishing pier structure.

Opinion of cost: \$2,750,000

Benefit: Fulfills a primary need to address deteriorating conditions of the park's perimeter. A fishing pier will appeal to the abundance of coastline anglers in Portland in walking distance from downtown.

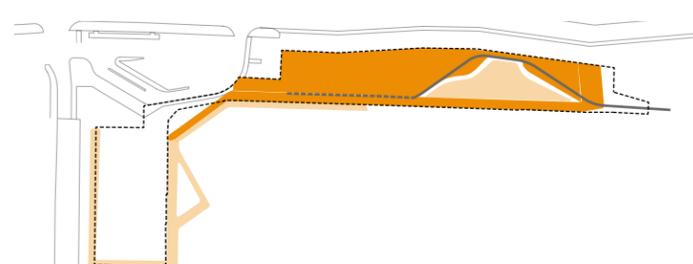


Phase 1B: Raise Bulkhead and Create Stepped Access to Water

Raise and reconstruct bulkhead for entire site frontage. Construct stepped seating along waterfront and naturalized shoreline at the north cove.

Opinion of cost: \$2,550,000

Benefit: Establishes baseline flood and surge protection against a Category 1 flood event. Critical tie-ins to adjacent parcels to the north and south of the Amethyst lot should be addressed to ensure contiguous surge protection. Early implementation will consolidate pile installation and bulkhead construction in Phase 1 (Phases 1A-B). Stepped seating will provide access to the water's edge and to water taxis and other marine vessels.

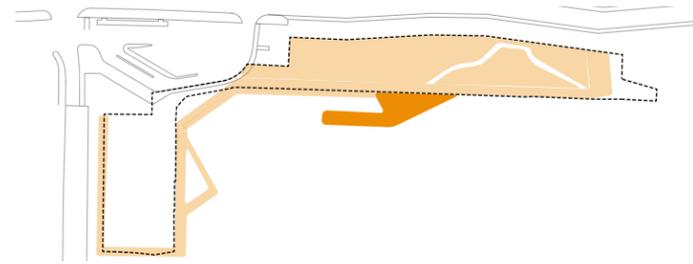


Phase 1C Utilities, Raise Grade, Interim Paths and Lighting, Waterfront Rail

Install all utilities and relocate sanitary force main. Backfill upland to increase base elevation. Provide interim pathways for site and through connectivity. Install waterfront rail. Install interim security lighting on newly-installed electrical system.

Opinion of cost: \$2,100,000
Interim Facilities allowance: \$100,000

Benefit: Establishes interim pick-up/drop-off loop and infrastructure for future upgrades. Creates a functional site, but will have an interim appearance.

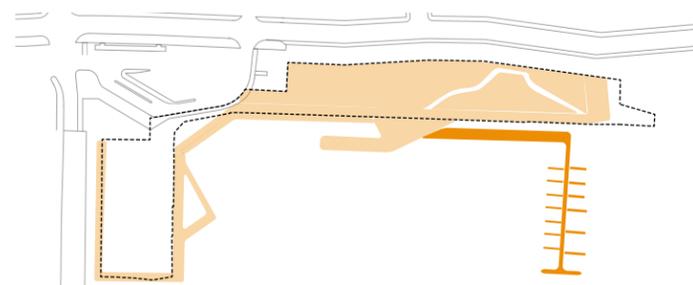


Phase 2A Community Boating Facility and Interim Drop-off and Pick-up Area

Construct community boating facilities with interim patron drop-off/pick-up facilities. Creating access to the site for community boating at an early phase is ideal; however, this program can be independent of phase, subject to project funding.

Opinion of cost: \$1,400,000
Interim Facilities allowance: \$100,000

Benefit: Provides a facility for a key user group and water-dependent activity. Early implementation of this facility will minimize down-time, as previous phases of work will disrupt existing operations. Community boating will bring an initial critical mass to the site. Improvements will rely on private funding sources and will provide facilities for over 4000 annual participants with extended seasonal operation.

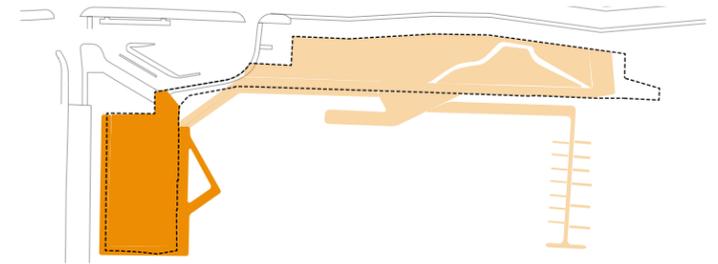


Phase 2B Transient Docks

Construct transient docks.

Opinion of cost: \$2,185,000

Benefit: Provides recreational facilities for a large water-dependent recreational contingent. Transient docks spur waterfront and downtown economic activity.

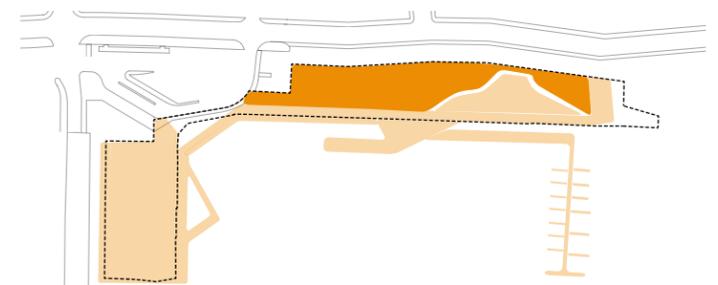


Phase 3A Moon Tide Park Landscape

Construct Moon Tide Park landform, hardscape and landscape.

Opinion of cost: \$300,000

Benefit: There is flexibility in the timing of these improvements. Moon Tide Park is the front porch for the Ocean Gateway terminal as well as an event space and is a logical starting point for all landscape improvements for the entire study area.

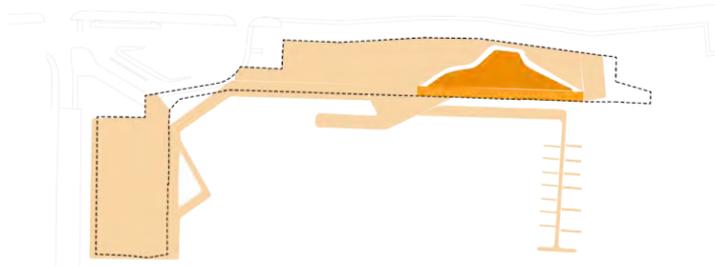


Phase 3B Portland Landing Landscape

Construct all site landform, landscape and hardscape (pathways and event space) and continuation of Eastern Promenade Trail through the project site. Install any functional art pieces and all site lighting.

Opinion of cost: \$4,750,000

Benefit: Final landscape enhancements will establish the sense of place for Portland Landing, as a continuation of the finished work at Moon Tide Park. Landform will create the resiliency measures to complement the increased bulkhead height and all finishes will define the character of the site – durable, complementary to downtown and beautiful.

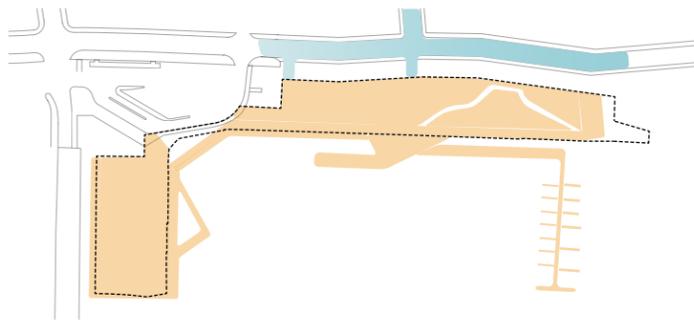


Phase 4 Pedestrian Bridge over North Cove

Construct Pedestrian walk over north cove.

Opinion of cost: \$850,000

Benefit: An elective item, yet an identifying feature for Portland Landing providing an exciting over-water link to public space and new development to the north of the site.



Phase 5 Perimeter Streetscape, Connections, Eastern Promenade Final Link, and Rail Access Control

Construct permanent streetscape improvements and connections to Portland Landing from the Ocean Gateway terminal, Thames Street and 58 Fore Street.

Opinion of cost: \$115,000

Benefit: With or without the implementation of Amethyst lot (Portland Landing) improvements, adjacent streets will likely be renovated to accommodate new residential, commercial and office development in the vicinity. These costs may be shared between the private sector, primary funding service and the City of Portland. Timing of the implementation should be coordinated with the completion of adjacent off-site development.

Revenue Sources

With desired facilities in place, we envision recreation programs, organized events, and permit fees as sources of revenue. Revenue gained may offset staff, maintenance, operations, capital and bonding costs that would otherwise be incurred by the City of Portland. Programming may focus on a variety of seasonal activities, some available through voluntary fee-based access, and continuation of fee-based services and space lease fees. Examples of revenue-generating activities include:

- City-sponsored youth camps focused on marine education
- Dock fees (commercial and recreational boating)
- Transient dock fees
- Sponsorships (events, amenities, structures)
- Event permit fees (parking, patron entry, space rental)
- Vendor permits (food concessions, pop-up events)

Conclusion

The Amethyst lot is an underutilized expanse of unsightly pavement on the Portland's waterfront with community boating facilities, open space with remedial restrictions, and remnant piles on Casco Bay from the previous historic Grand Trunk Piers. The site is located within the Eastern Waterfront redevelopment district and contains approximately three-acres of uplands and ten-acres of adjacent submerged lands within the Fore River at the mouth of Portland Harbor. Adjacent land uses include the Ocean Gateway marine passenger terminal, a waterfront trail, rail right-of-way, and the Portland Company complex and emerging development to the west. The proposed master plan envelops current site uses, recognizes increasing coastal vulnerability, and provides for flexibility in use to serve a broad spectrum of activities and visitors.

The future Portland Landing (the Amethyst lot) will be the City's signature waterfront public space accessible from the heart of downtown, the Eastern Promenade,

new development on its borders, and visitors arriving by water. Reimagined through this master planning process, participation by stakeholders, and the vision of City leadership, Portland Landing repurposes the current vacant lot, to capture the beauty of the space, establish water-dependent uses, and create a linked assembly of active, civic waterfront space.

This planning process began in 2017 with assessment of site conditions, preparation of design alternatives through stakeholder participation, and development of a preferred design option, presented herein. As a result, a vision for Portland Landing has emerged to bring vibrancy to the City's waterfront, integrate upland and submerged lands as a cohesive space, and commemorate the City's rich culture. This Master Plan for the redevelopment of the site considers community context, recreation and economic needs, operational sustainability, capital and maintenance cost, and resiliency to yield a comprehensive strategy for phased implementation.

The Master Plan presents a vision. Subsequent steps include adoption by City of Portland Boards and Commissions, allocation of funding, design, permitting and construction. Though many steps remain, the Plan represents a significant milestone in the redevelopment of the long-neglected space.

