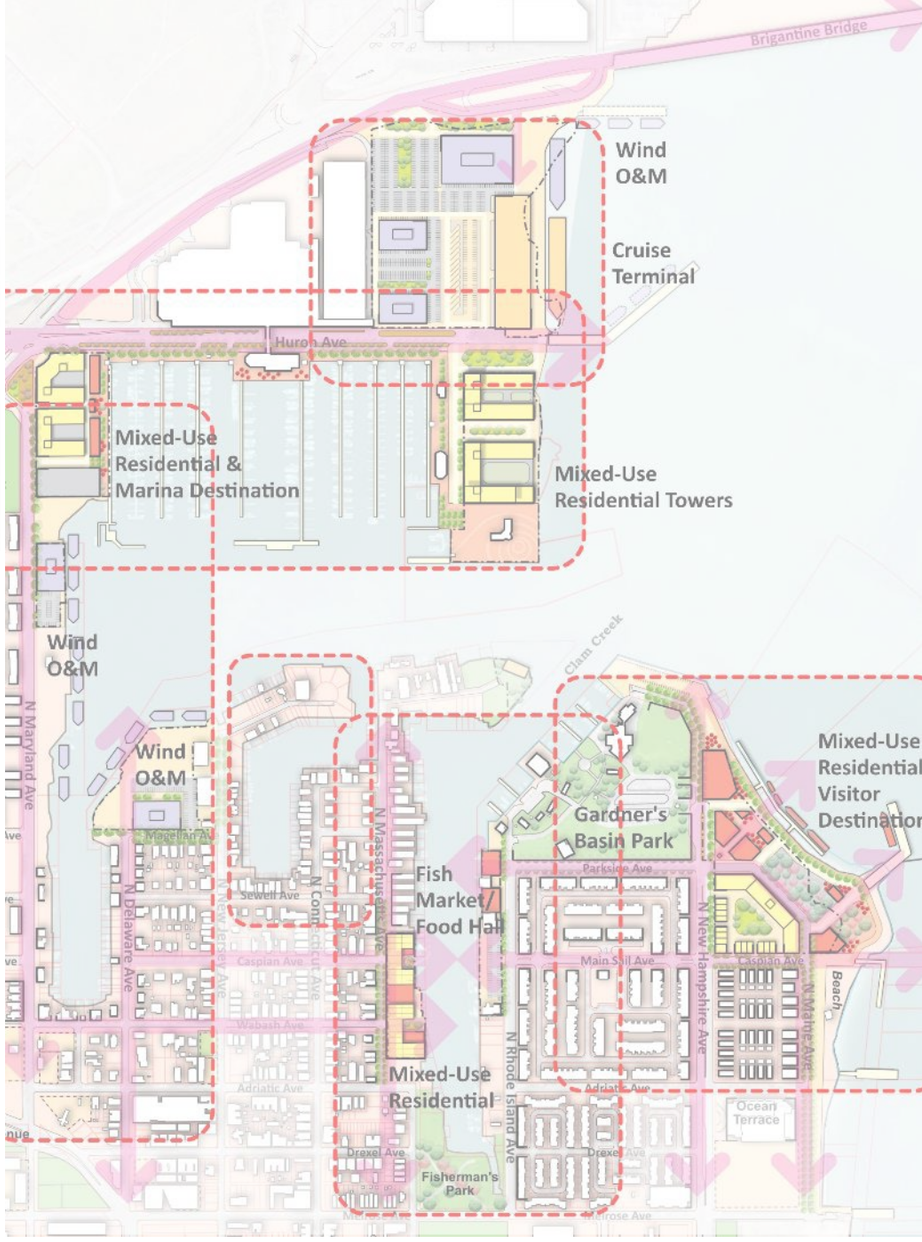
Atlantic City Harbor Strategic Resilience Plan & Economic Development Scenarios

January 2023



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(Image source: www.marinas.com)

Executive Summary

Repositioning Atlantic City Harbor as a regional base for the Blue Economy

During the ACCR Resilience Scenarios development, the Blue Economy was identified as a key strategy in maintaining the region's economic resilience. The Blue Economy, which the World Bank defines as the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs," includes established traditional ocean industries such as fisheries, tourism, and maritime transport, as well as emerging activities like offshore renewable energy.

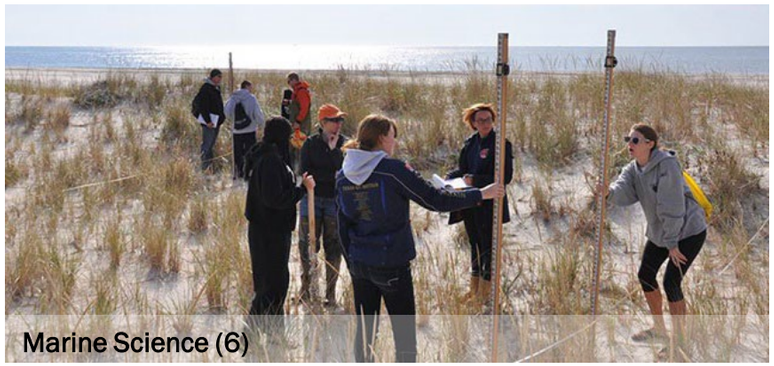

Commercial fishing (1)

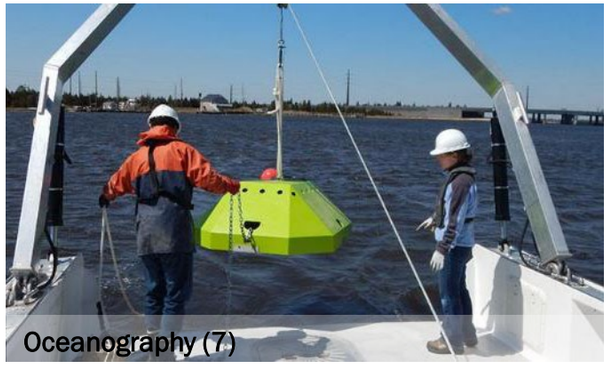

Offshore wind (2)

Entertainment (3)


Recreation (4)


Kayaking (5)


Marine Science (6)


Oceanography (7)

(1) Image: Gardner's Basin, Atlantic City, NJ. Photo by Perkins Eastman Architects, August 2022
(2) Image: Australis Energy Offshore Windfarms, Source: Arup.com
(3) Image: Charter Atlantic City Cruises "Cruisn1". Source: www.atlanticcitycruises.com
(4) Image: Atlantic City Parasail, 2016. Source: Max Reil, www.PressofAtlanticCity.com
(5) Image: Kayak Tours in Virginia, virginia.org. Photo by ©Sam Dean
(6) Source: Stockton University, Marine Science Research
(7) Source: Stockton University, Oceanography

Executive Summary

Repositioning Atlantic City Harbor as a regional base for the Blue Economy

With the Atlantic City Harbor's long-term goal of pivoting toward the Blue Economy, Atlantic City Harbor was identified as one of the region's most important strategic resources. It not only offers the region's one protected harbor but also enjoys the closest proximity to the wind farms. Atlantic City Harbor also has an established identity and role as a destination for the commercial seafood industry and recreational boating.

The Strategic Resilience Plan and Economic Development Scenarios is comprised of two parts. the first part offers scenarios for the future development of Atlantic City Harbor to best take advantage of its diverse offerings and opportunities. The second part includes an assessment of other nearby potential sites for operations and maintenance facilities for the wind industry.

Aerial view of the Atlantic City Harbor (Source: Google Earth)

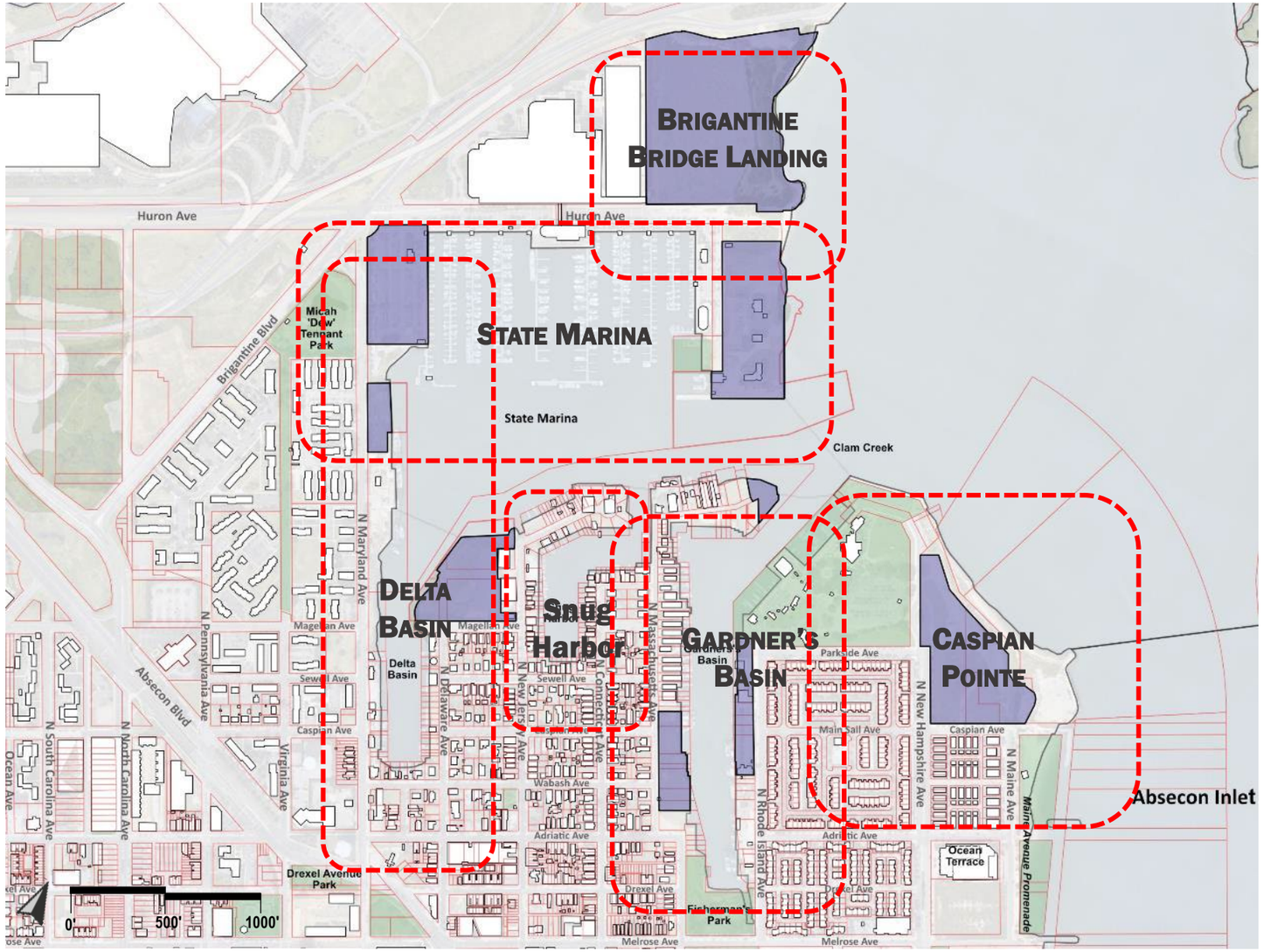
Executive Summary

Atlantic City Harbor's Six Places

The Plan sees Atlantic City Harbor as six different places, each with its own characteristics, opportunities, and constraints. The Strategic Resilience Plan offers a range of scenarios that explores the development potential of each subarea based on their unique advantages and qualities and identifies their highest and best use both from a land use perspective and from the perspective of maximizing the waterside advantages.

Each scenario features a wide variety of uses, from Offshore Wind operations and management (O&M) to commercial seafood, food and beverage, and residential development.

The Plan leverages investment in Wind O&M facilities and other development initiatives to improve the shoreline. It also shows how Atlantic City Harbor can accommodate larger City economic development objectives, such as attracting a new cruise ship terminal while preserving the area's existing character and scale, most notably the Bungalow Park residential neighborhood.



Atlantic City Harbor's Six Places

Executive Summary

Atlantic City Harbor's Six Places

This builds on Atlantic City Harbor's history of accommodating a diverse range of uses, including the Bungalow Park residential neighborhood, commercial fishing, as well as popular visitor destinations. Each demonstrates how the different uses can work together in a way that minimizes conflicts and maximizes potential.


Snug Harbor, view from Connecticut Avenue (1)


State Marina (2)


Bungalow Park (3)

Atlantic City Aquarium (4)


Pier at the Inlet, Atlantic City NJ, c.1910 (5)

(1) Photo by Perkins Eastman Architects, 8/19/2022
(2) Image: Golden Nugget Farley State Marina. Source: www.marinas.com,
(3) Photo by Perkins Eastman Architects, 8/19/2022
(4) Source: Atlantic City Aquarium, www.facebook.com/AtlanticCityAquarium/
(5) Source: www.donnaelias.com, photographer unknown

Executive Summary

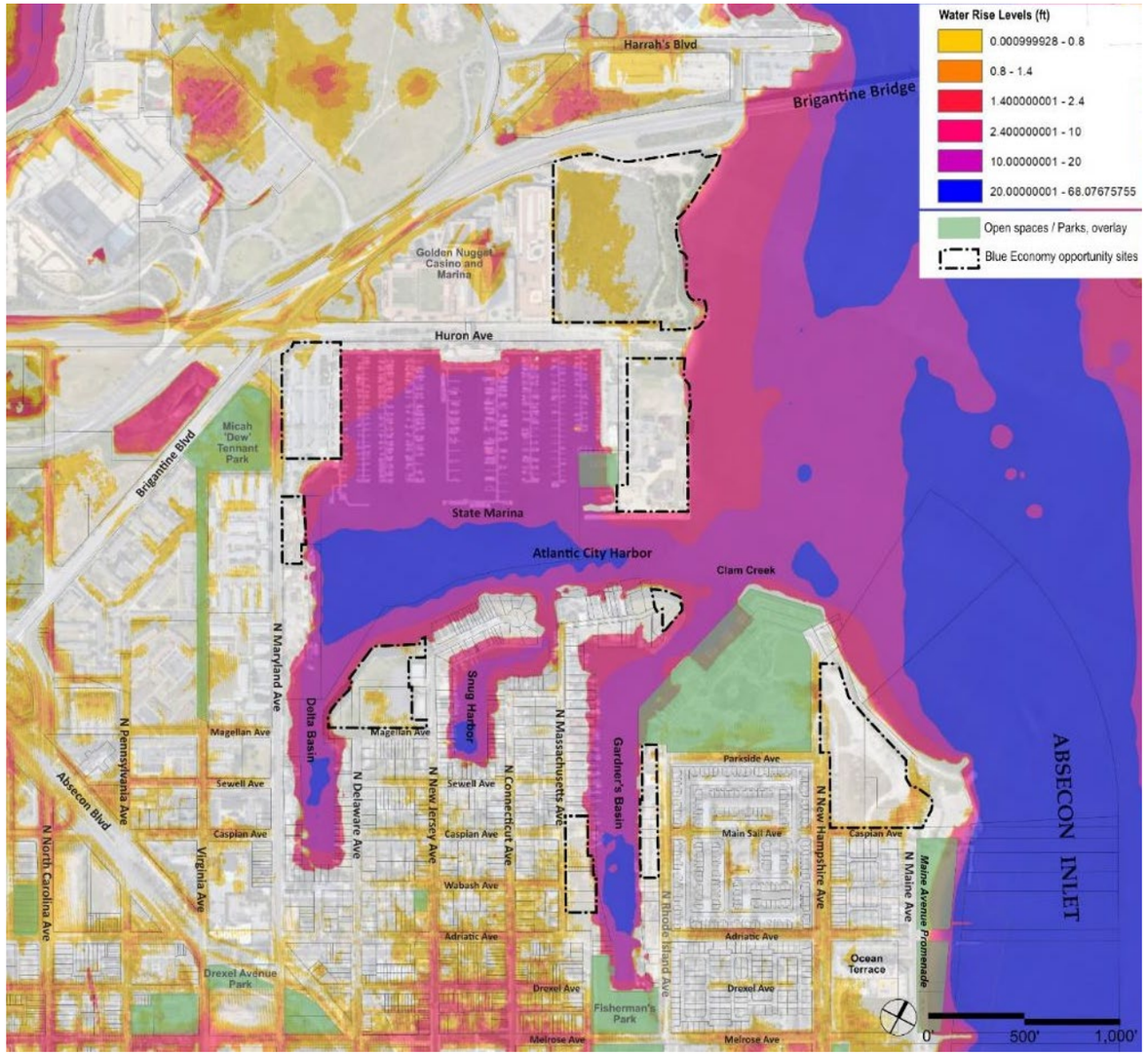
Enhancing the Harbor's Resilience

The existing shoreline along the Harbor's six subareas is largely bulk-headed. Projections completed by the WSP/Perkins Eastman/CDM Smith team in 2022, indicate that these bulkheads provide near-term protection to the upland neighborhoods. However, certain areas, such as the neighborhood streets accessing Bungalow Park, are susceptible to stormwater flooding during major rain events. The Gardner's Basin and Delta Basin shorelines are subject to inundation during extreme storm events and future sea level rise.

The scenarios put forward a strategy of leveraging the anticipated investment in Wind O&M facilities and other development initiatives to improve the shoreline infrastructure.

Stormwater management within the Atlantic City Harbor area will likely grow in importance. Much of the area will benefit after the completion of the Baltic Ave Canal and drainage improvements in the Bungalow Park.

Note: The 2030 and 2070 flood conditions referenced in the 2022 Resilient NJ Atlantic County Coastal Region Regional Resilience and Adaptation Action Plan were based on the 2020 Resilient NJ Risk Assessment Methodology. NJDEP is now conducting public engagement on proposed updates to several rules based on the most recent sea-level rise projections and recommending higher resilience standards and longer planning horizons. The New Jersey Protecting Against Climate Threats (NJPACT) Resilient Environments and Landscapes (REAL) regulatory reform proposal incorporates climate change considerations, like sea level rise, into the environmental land use rules. As a result, the AC Harbor Strategic Resilience Plan should be reviewed and assessed in consideration of the most current regulatory development as the plan recommendations may progress in the future.



Atlantic City Harbor, Flood Risk Map for 2030: Projections of water rise levels in legend

Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

Executive Summary

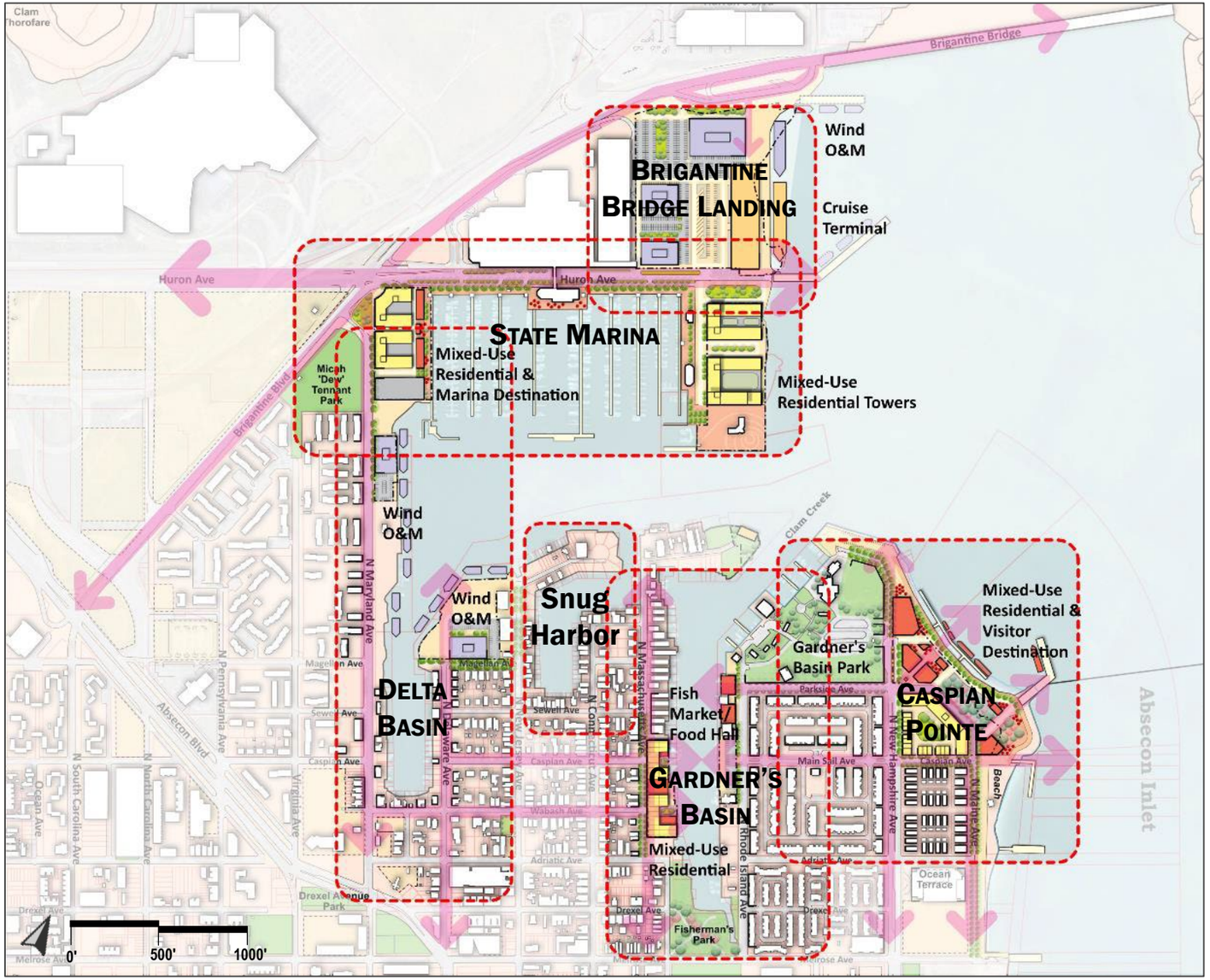
Six Places of Atlantic City Harbor

Gardner's Basin and Caspian Pointe

Gardner's Basin is the historic heart of Atlantic City Harbor. It offers a sense of authenticity, an intimate scale, and opportunities for active water uses that can position it as an alternative destination for visitors to the region. The park and aquarium draw 100,000 visitors annually. Future development can take advantage of these numbers and Gardner's Basin's unique character and scale while also capitalizing on the deeper water found at Gardner's Basin.

Delta Basin

Delta Basin, which enjoys the fewest conflicts with adjacent land uses and better access than the other areas in the basin and, as such, is best positioned for Wind O&M. This assessment is confirmed by the decision of Atlantic Shores and Ørsted to locate their O&M facilities on the west and east sides of Delta Basin respectively. Due to adjacent activities in the harbor and existing water depths, Wind O&M facilities located on Delta Basin would be supported by smaller Crew Transfer Vessels (CTVs).



Economic Development Scenario for Atlantic City Harbor

Executive Summary

Six Places of Atlantic City Harbor

State Marina and Brigantine Bridge Landing

The Plan proposes leveraging the marina to create an address for new multifamily ‘second home’ residential development on the east and west ends of the marina. It also includes a longer term vision for redevelopment of the Coast Guard site should the Coast Guard decide to vacate its existing facility.

The State Marina would be able to take advantage of the presence of the Golden Nugget’s adjacent parking garage, leverage the resources the Wind O&M can bring to bear to undertake larger scale dredging, and Huron Avenue which is already established as visitor corridor carrying visitor oriented vehicular traffic.

Three Development Scenarios for the State Marina and the Brigantine Bridge Landing sites

Why Atlantic City Harbor?

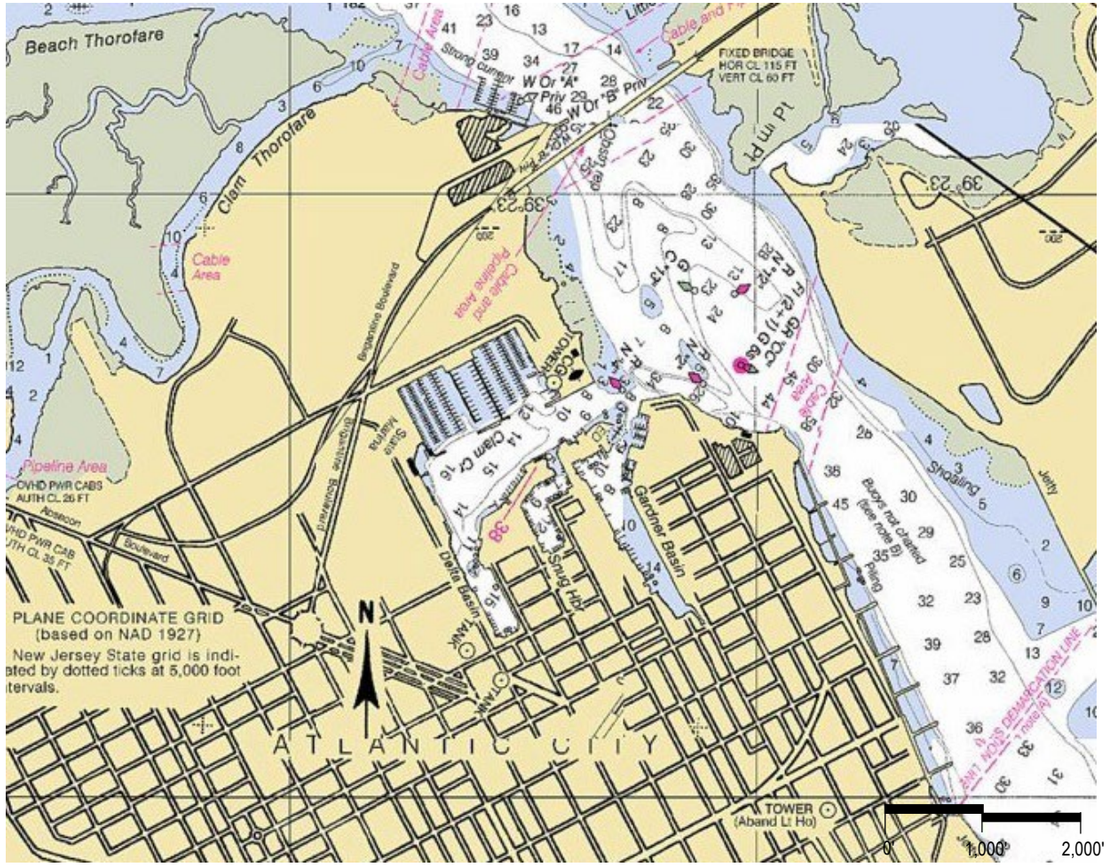
Potential for Off-Shore Wind Operation & Management (O&M) Facilities

1. Strategic location

Ørsted's lease area and project boundaries

Source: "Ocean Wind Offshore Wind Farm, Construction and Operations Plan", Volume I (March 2021, Ørsted)

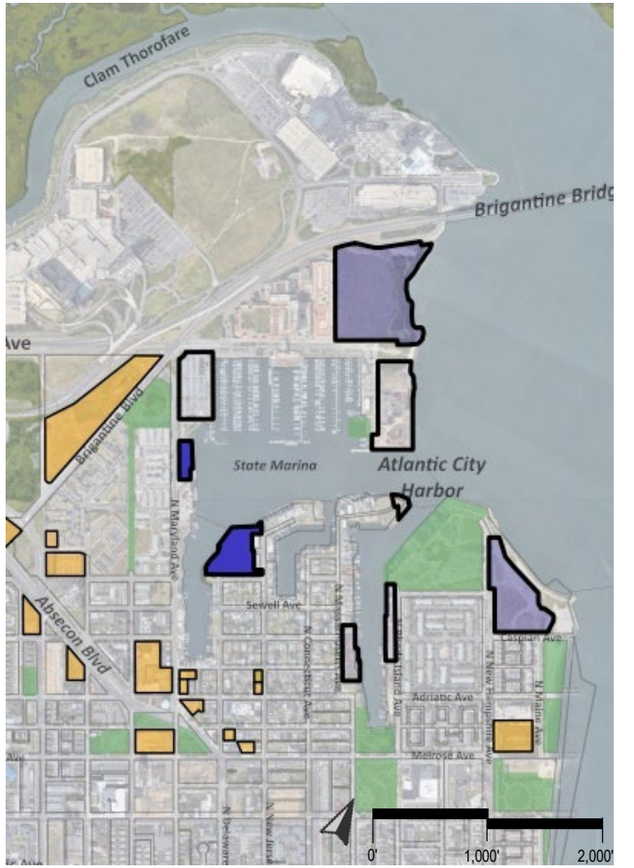
2. Availability of a protected harbor



Atlantic City Absecon Inlet Sounding Plan (Soundings in "feet")

Source: NOAA, East Coast United States sounding map

3. Available potential sites



Atlantic City Harbor Blue Economy opportunity Sites

- Potential O&M Sites
- Leased O&M Sites
- Supply Chain & Support Sites
- Blue Economy Development Sites

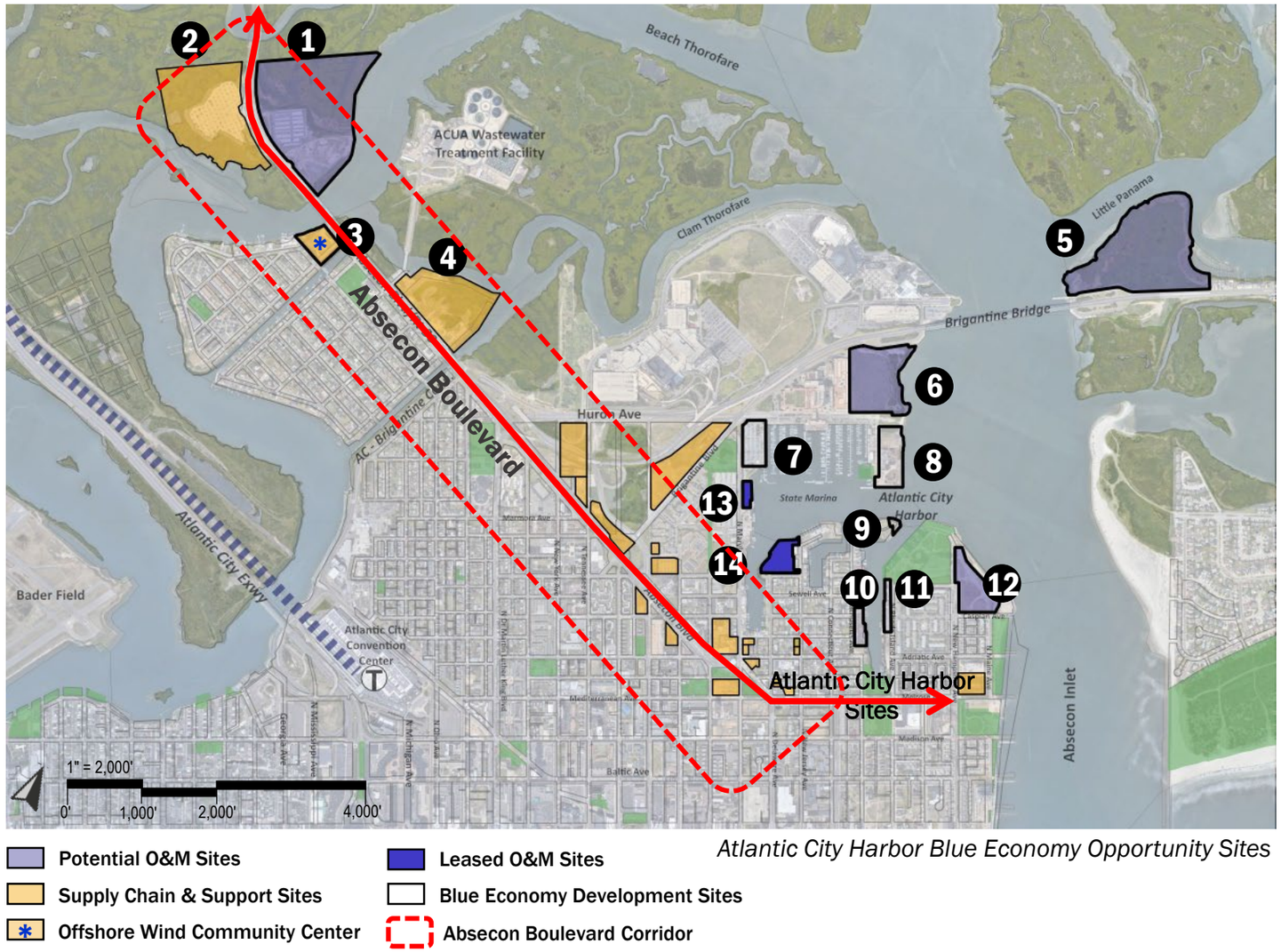
Executive Summary

Wind O&M Sites

Part 2 of the Plan includes an assessment of 12 sites - five sites, within the Harbor, and seven in the Back Bay – with respect to the suitability for Wind O&M operations. The sites were evaluated regarding the site area, adjacent and on-site land-use compatibility, road and waterway access, and environmental impact.

Due to constraints including wetlands and bridges, and potential conflicts with adjacent neighborhoods, one site, 2141 Absecon Boulevard, emerged as a strong potential candidate for Wind O&M, with several other sites nearby sites identified as potential sites for supporting uses such as administrative, storage, community education.

Limited water depths found in the Back Bay and within Atlantic City Harbor make the waterside access to most sites possible only with smaller vessels (CTVs), with the exception of Caspian Point, and the MGM site, which, with significant dredging, will have the capacity to accommodate larger vessels, so-called Service Operation Vessels (SOVs).



Atlantic City Harbor Blue Economy Opportunity Sites

Executive Summary

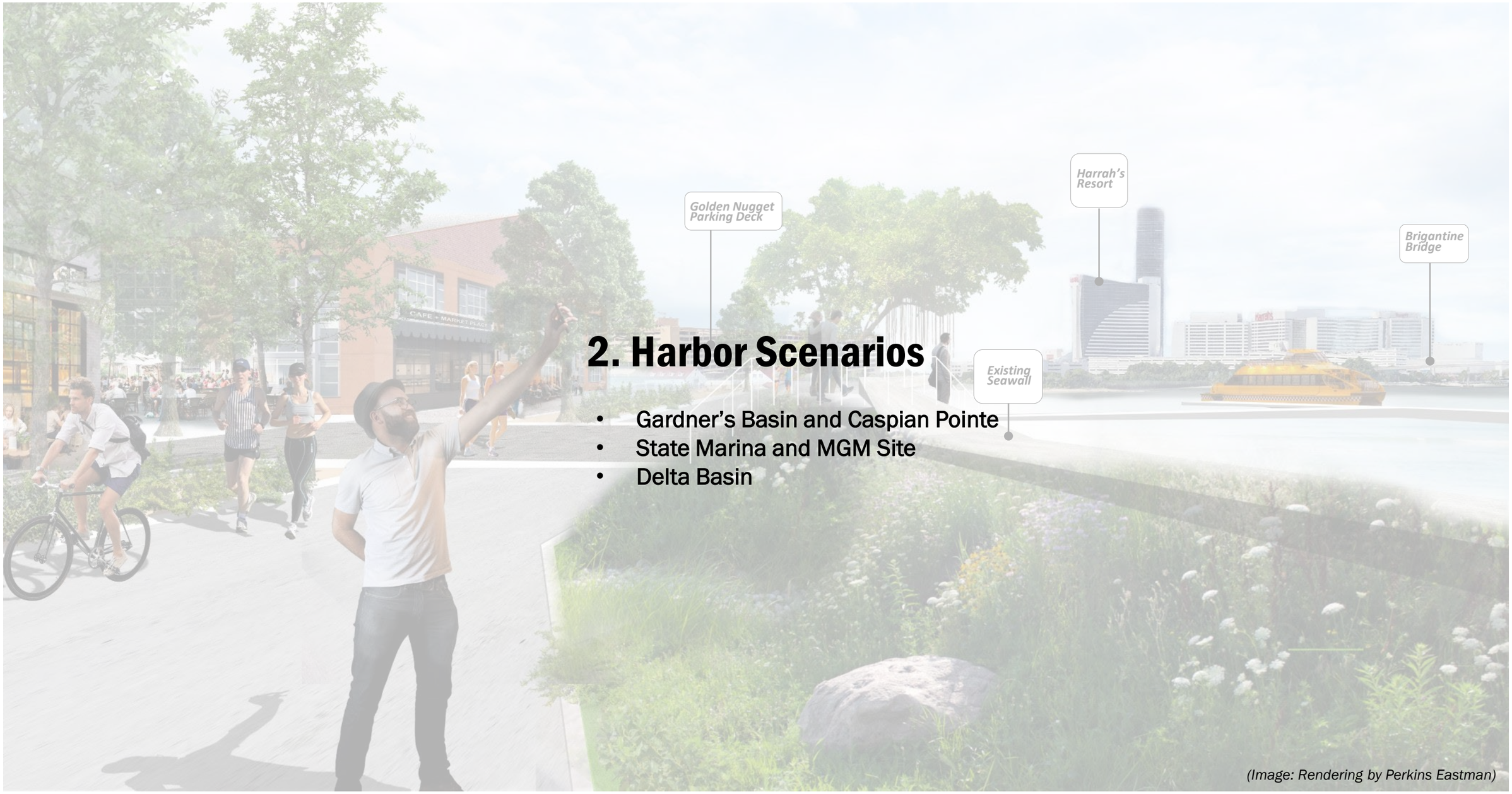
Wind O&M Sites

Four sites along Absecon Boulevard may evolve into a corridor oriented around wind-industry uses.

Absecon Boulevard Corridor Sites on the Back Bay
Background image: Google Earth

2. Harbor Scenarios

- Gardner's Basin and Caspian Pointe
- State Marina and MGM Site
- Delta Basin



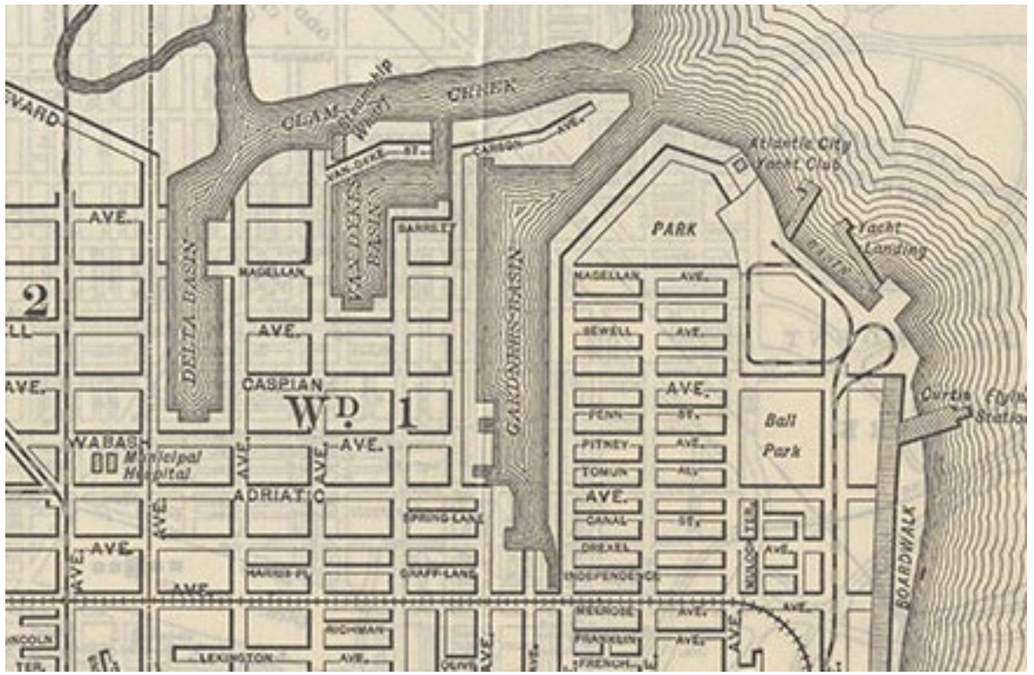
(Image: Rendering by Perkins Eastman)

An established destination

- Gardner's Basin is an established destination associated with commercial fishing and visitor excursions
- Gardner's Basin Park and Aquarium attract 100,000 visitors every year.
- Commercial fishing has been integral to the Harbor's identity.
- The harbor has historically featured a mix of uses, including residential, industrial, and recreational, located 'cheek by jowl.'

Gardner's Basin, Atlantic City, c. 1976
Source: PressofAtlanticCity.com

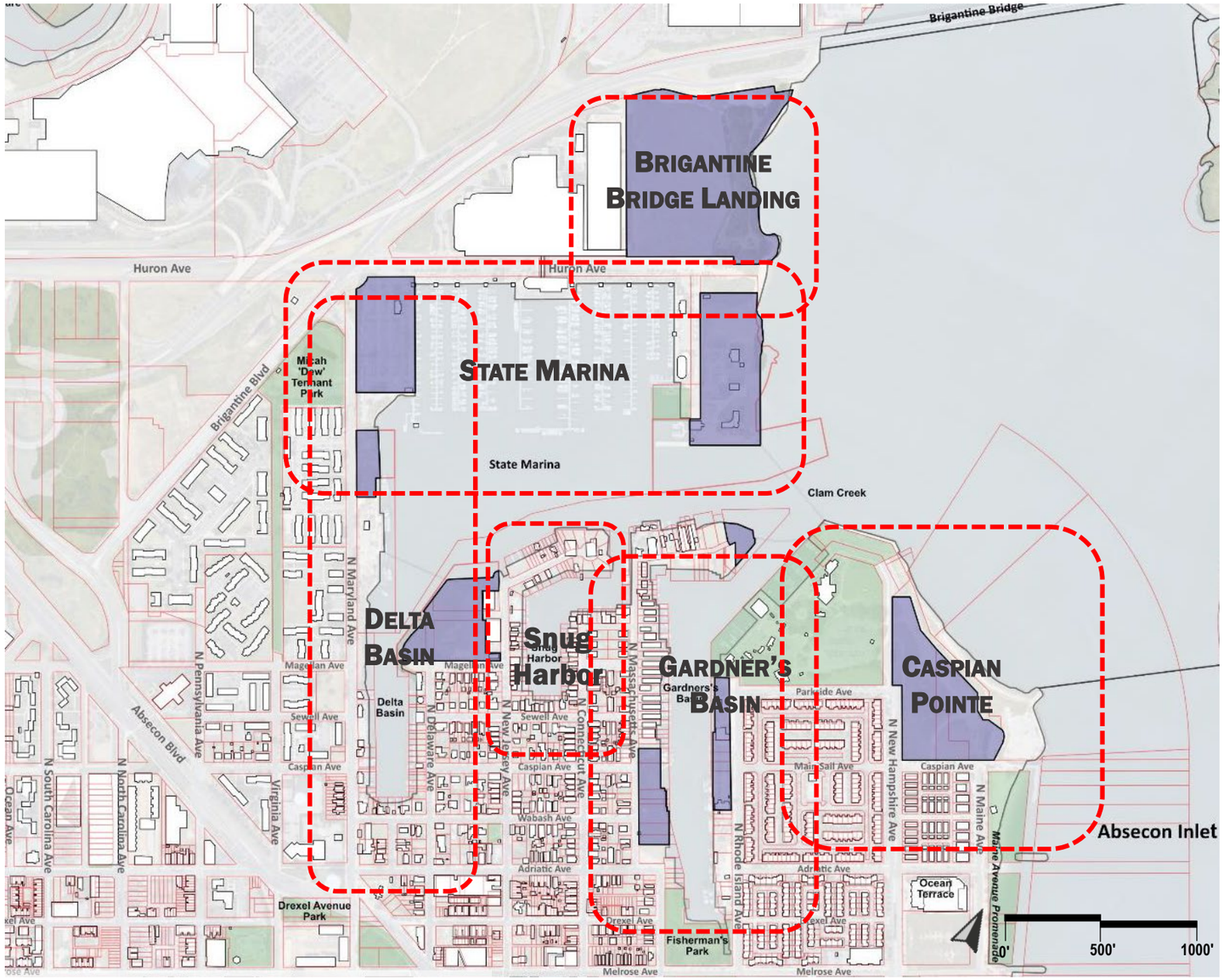
Historic photo of the Harbor Area
Source: PressofAtlanticCity.com



Map of Atlantic City, N.J c.1920
Source: www.FreeLibrary.org, Map: Rand McNally & Co. - Publisher

Atlantic City Harbor's Six Places

- The Plan sees Atlantic City Harbor *as six different places*, each with its own characteristics, opportunities, and constraints.
- Scenarios explore the development potential of each subarea based on their unique advantages and qualities
- The recommendations identify each area's *highest and best use both from a land use perspective* and the perspective of *maximizing the waterside advantages.*



Map of Atlantic City showing the six key places

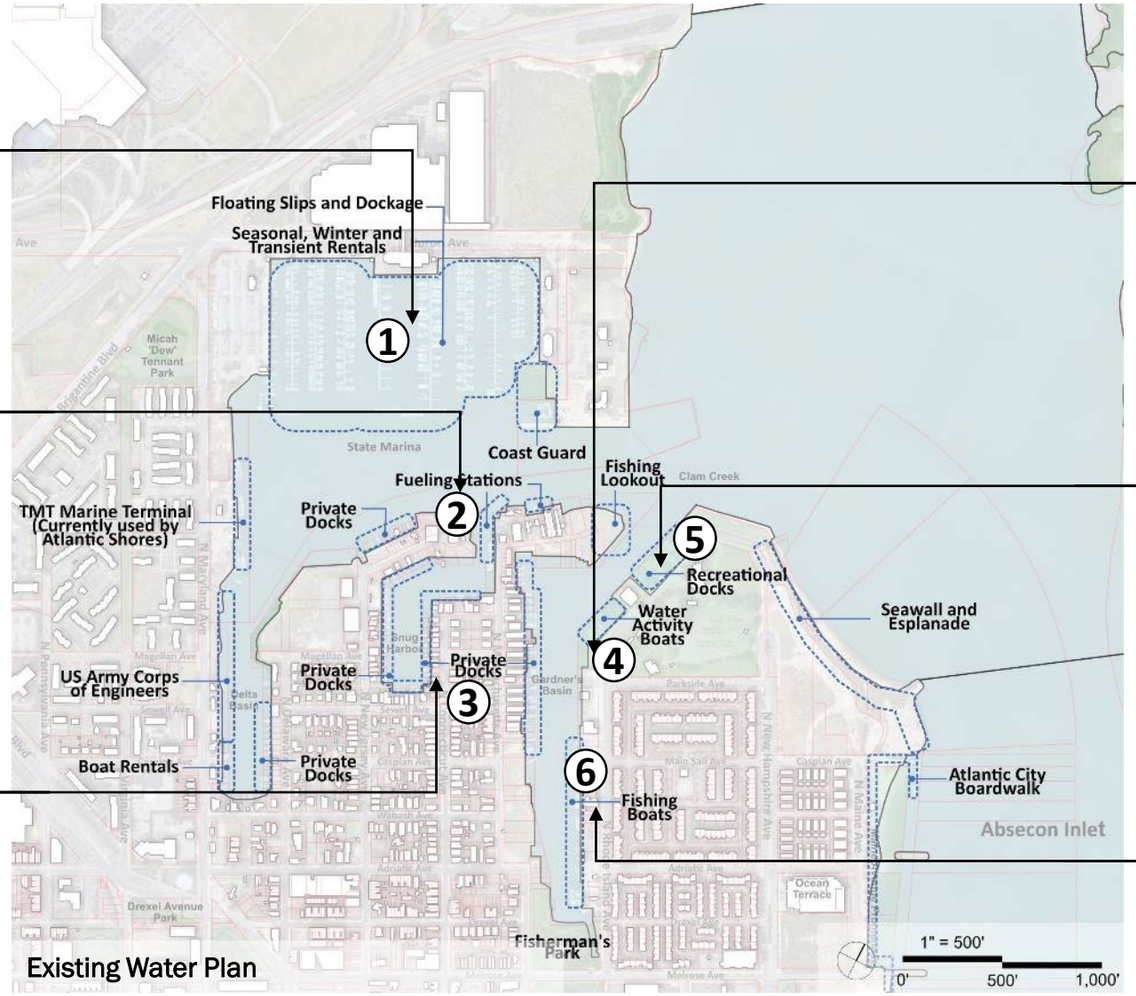
Current Reality: the Harbor

Atlantic City currently accommodates a wide range of boating and maritime activities

1. Pleasure Boats

2. Fueling Station

3. Private Docks



4. Tour Boats

5. Parasailing

6. Clam Boats

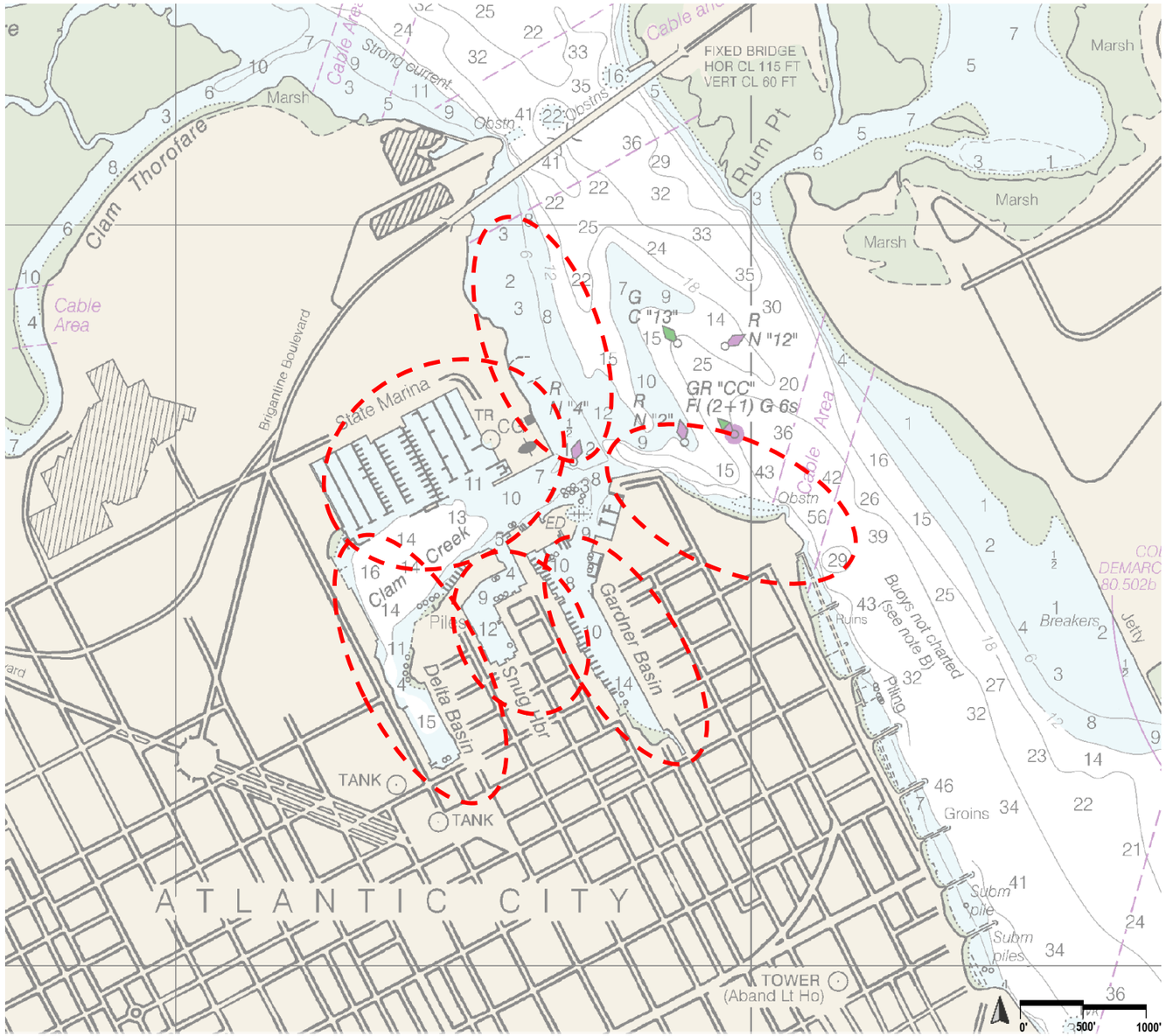
(1) Source: marinas.com; (2) Photo: Perkins Eastman; (3) Photo: Perkins Eastman; (4) Source: Atlantic City's Hidden Gem, shorelocalnews.com; (5) Source: AtlanticCityParasail.com; (6) Photo: Perkins Eastman

Current Reality: Water Depths

Large portions of the Atlantic City Harbor and adjacent Absecon Inlet have existing water depths to accommodate a diverse set of potential uses like:

- Wind O&M vessels
- Cruise ships
- Water Taxis

Frank S. Farley State Marina (Source: www.marinas.com).



Absecon Inlet Sounding Plan with the Six Places Highlighted(Soundings in 'feet' at Mean Lower Low Water)

Source: www.usharbors.com/2012/07/local-guide-atlantic-city-navigating-absecon-inlet/

Harbor Water Plan

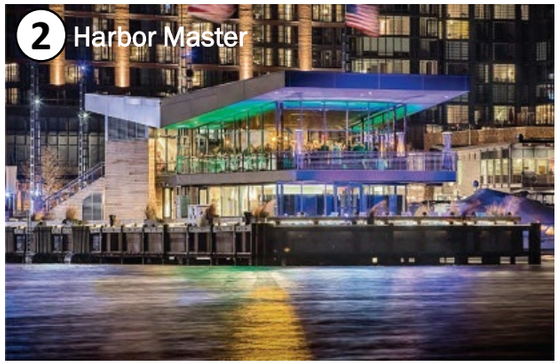
Potential new additions to the Blue Economy

Potential new uses based on existing and interested stakeholders: Offshore wind daily vessels, cruise ships, water taxis, excursion vessels, commercial fishing vessels, and a harbor master to manage the additional future activity.

1 Crew Transfer Vessel (CTV)

Source: Atlantic Shores Offshore Wind, Construction and Operations Plan, September 2021

2 Harbor Master



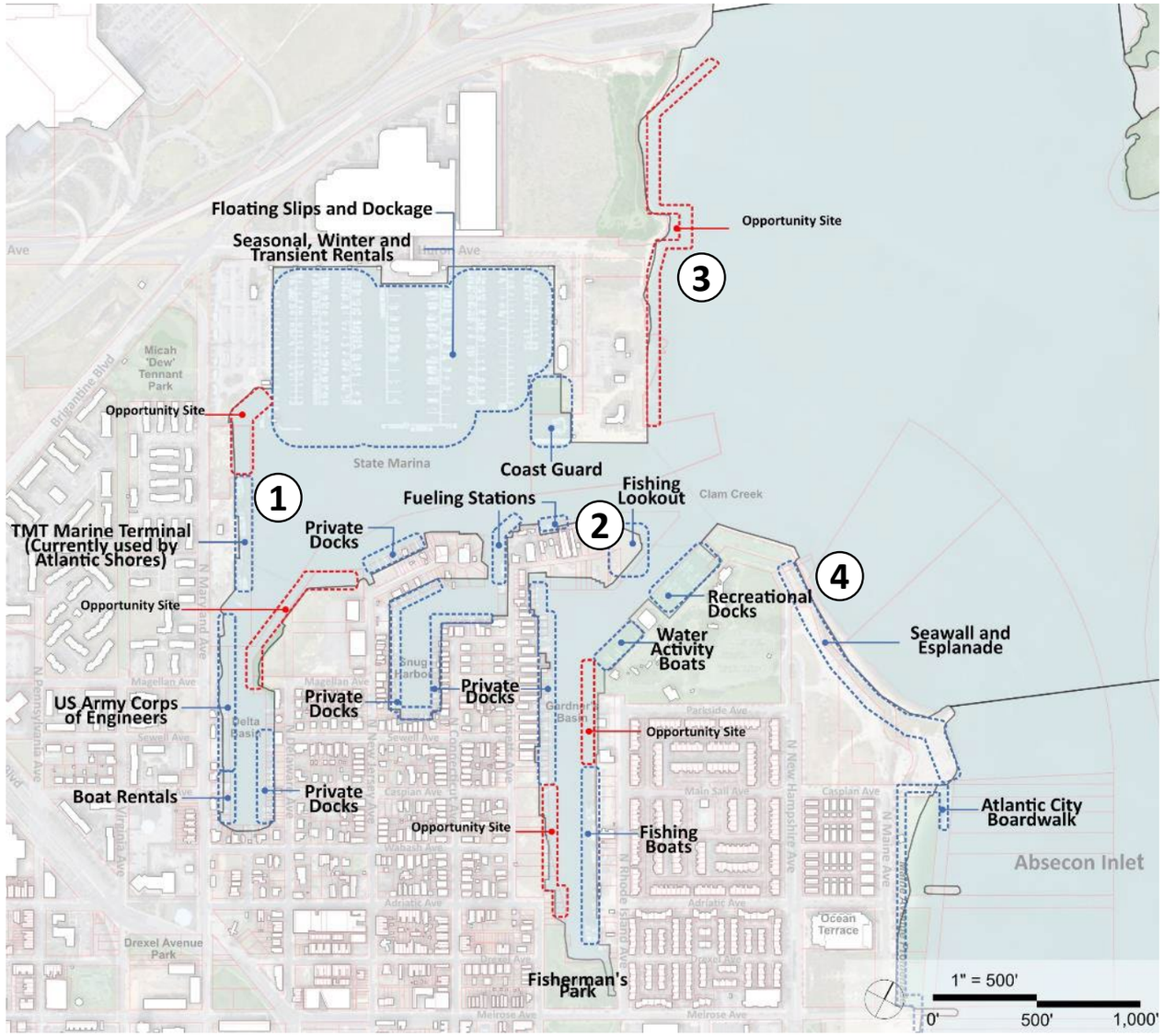
Project: The Wharf Dockmaster building, Perkins Eastman

3 Cruise Ship

Source: www.victorycasinocruises.com

4 Water Taxi

Source: www.lauraperuchi.nyc

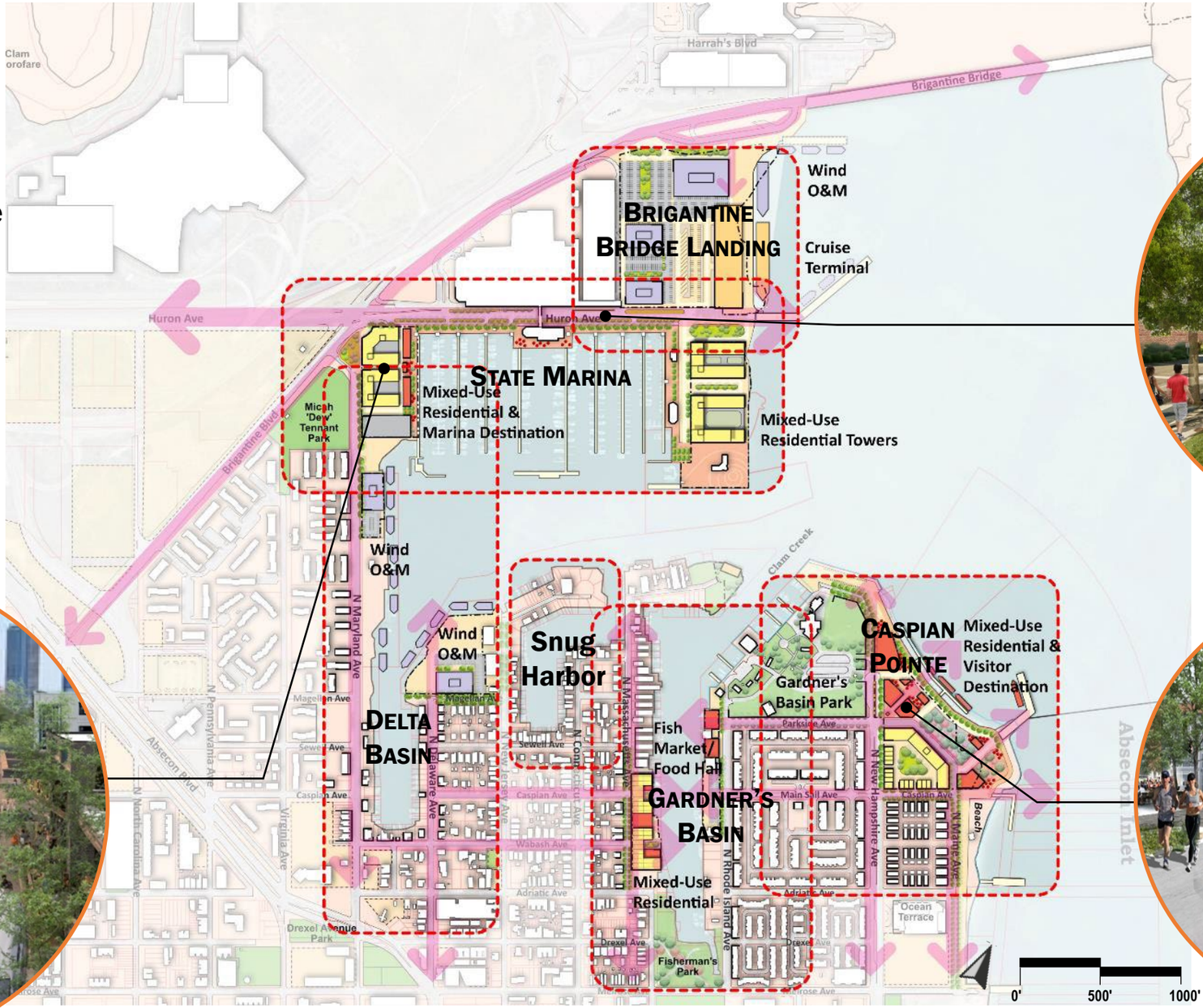


Proposed Water Plan

Harbor Vision

The Strategic Resilience Plan offers a range of scenarios that leverage the unique advantages and qualities of the Harbor's Places

- Delta Basin
- Gardner's Basin and Caspian Pointe
- State Marina and Brigantine Landing



Economic Development Scenario for Atlantic City Harbor with rendered views of three key places

Gardner's Basin and Caspian Pointe

Source: Google Earth

Caspian Pointe and Gardner's Basin

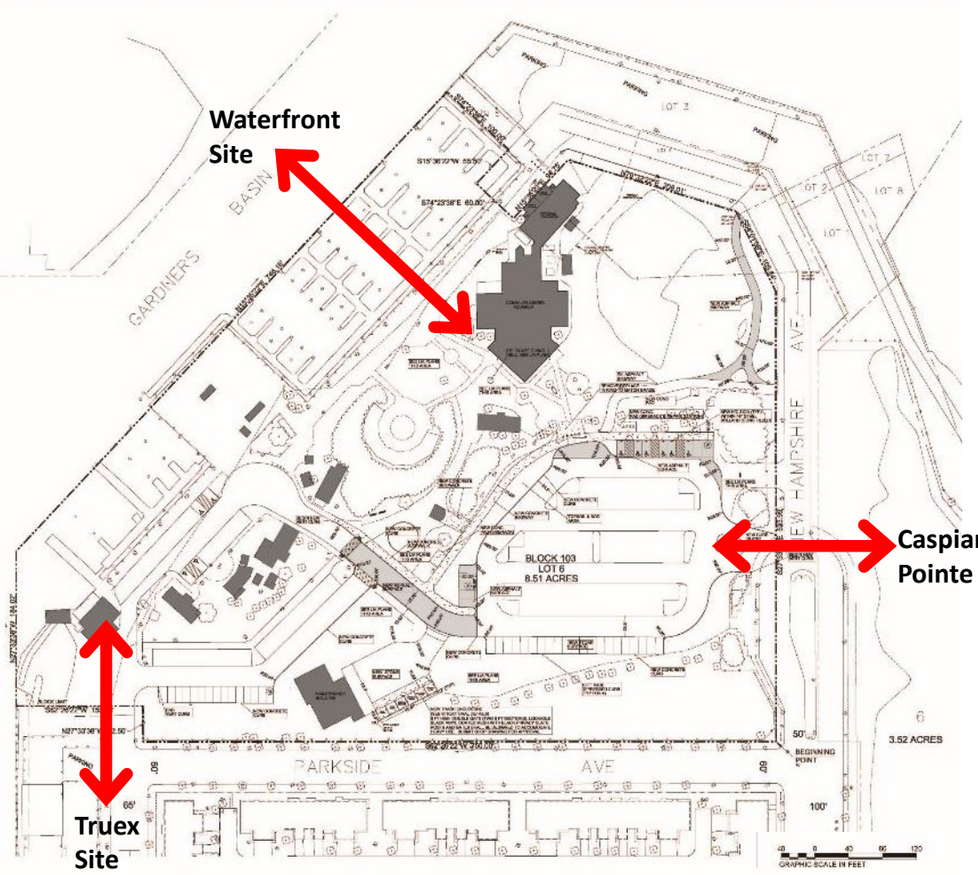
- Established **historic identity.**
- Gardner's Basin Park and Aquarium attract **100,000 visitors** every year.
- **Good vehicular access** via Rhode Island Avenue, New Hampshire Avenue, and Maine Avenue.
- Opportunity for the Truex Site, Caspian Pointe site, and Waterfront Site to leverage the established destination through Food & Beverage, Recreation, and Retail uses.

Outdoor seating area of a restaurant at Gardner's Basin

Photo: John Russo, 2021 (www.pressofatlanticcity.com)

Aquarium at Gardner's Basin Park

Source: Atlantic Christian School, (www.acseht.org) March 2019



Gardner's Basin: Aquarium Renovations & Park Improvements Site Plan, 2022

Source: Arthur W Ponzio Co & Associates Inc.

Caspian Pointe and Gardner's Basin

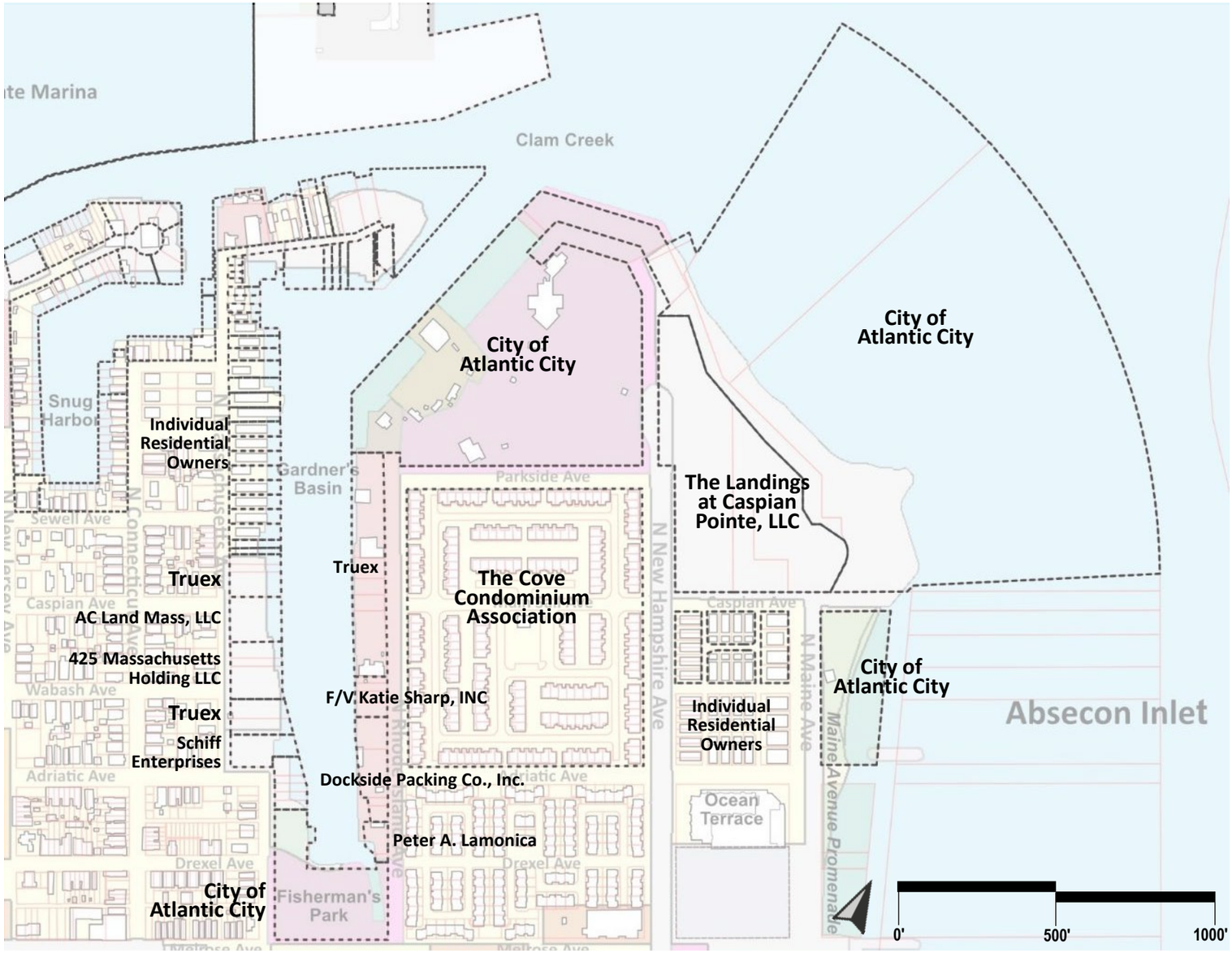
Land Ownership

Gardner's Basin

- East side:
  - ownership is consolidated
  - land-use is largely commercial
- West side:
  - ownership more varied.
  - Individual residential owners to the north
  - private developers to the south.
- The Truex family owns land on both sides of the basin

Caspian Pointe

- The waterfront, park and beach adjacent to the site are owned by the City.
- Large opportunity parcel controlled by Landings at Caspian Pointe



Map showing land ownership for parcels along Gardner's Basin

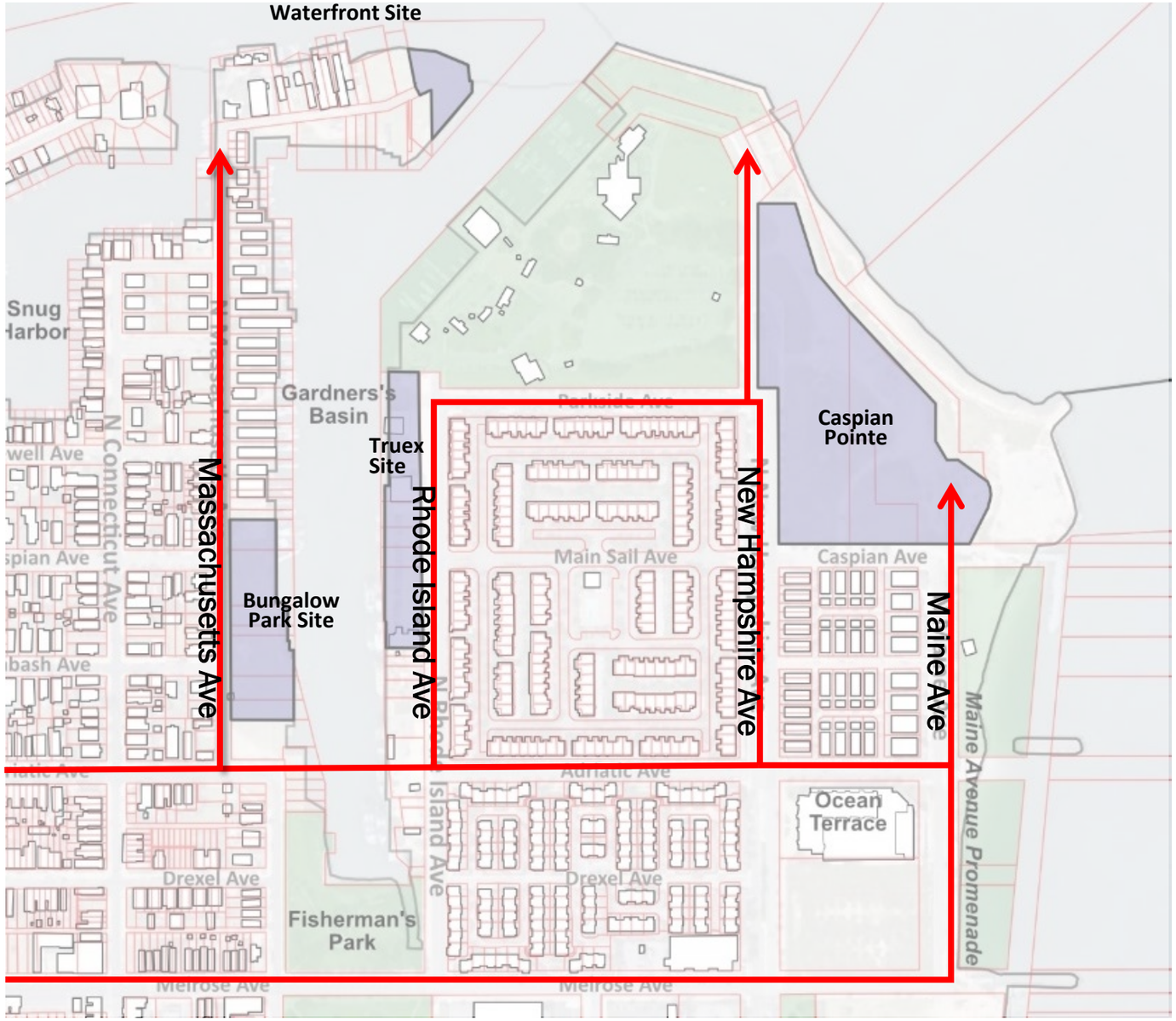
Caspian Pointe and Gardner's Basin

Access

- The Truex and Caspian Pointe Sites enjoy good access via, Rhode Island Ave (65' wide ROW), and New Hampshire Ave (100' wide ROW), respectively.
- Massachusetts Ave's narrow width (40' wide ROW) makes the Bungalow Park site less appropriate for industrial uses.

Rhode Island Avenue (Source: Google Earth Street View)

New Hampshire Avenue (Source: realtor.com)



Site Access Diagram Gardner's Basin and Caspian Pointe

Caspian Pointe and Gardner's Basin

Resilience Strategy

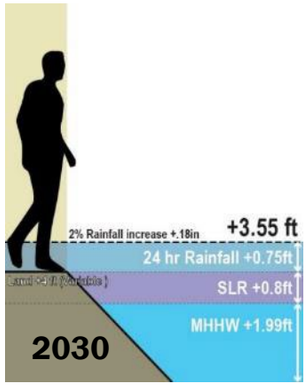
1. As the Harbor starts accommodating a wider range of vessels, and increased traffic, central coordination, such as a harbor master, may be required

2. Resilience strategy would be incremental; potentially employing loan and incentive programs

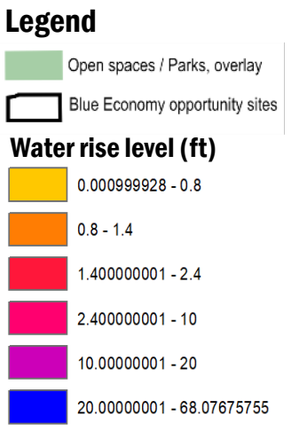
3. Leverage investment in new development to improve shoreline protection

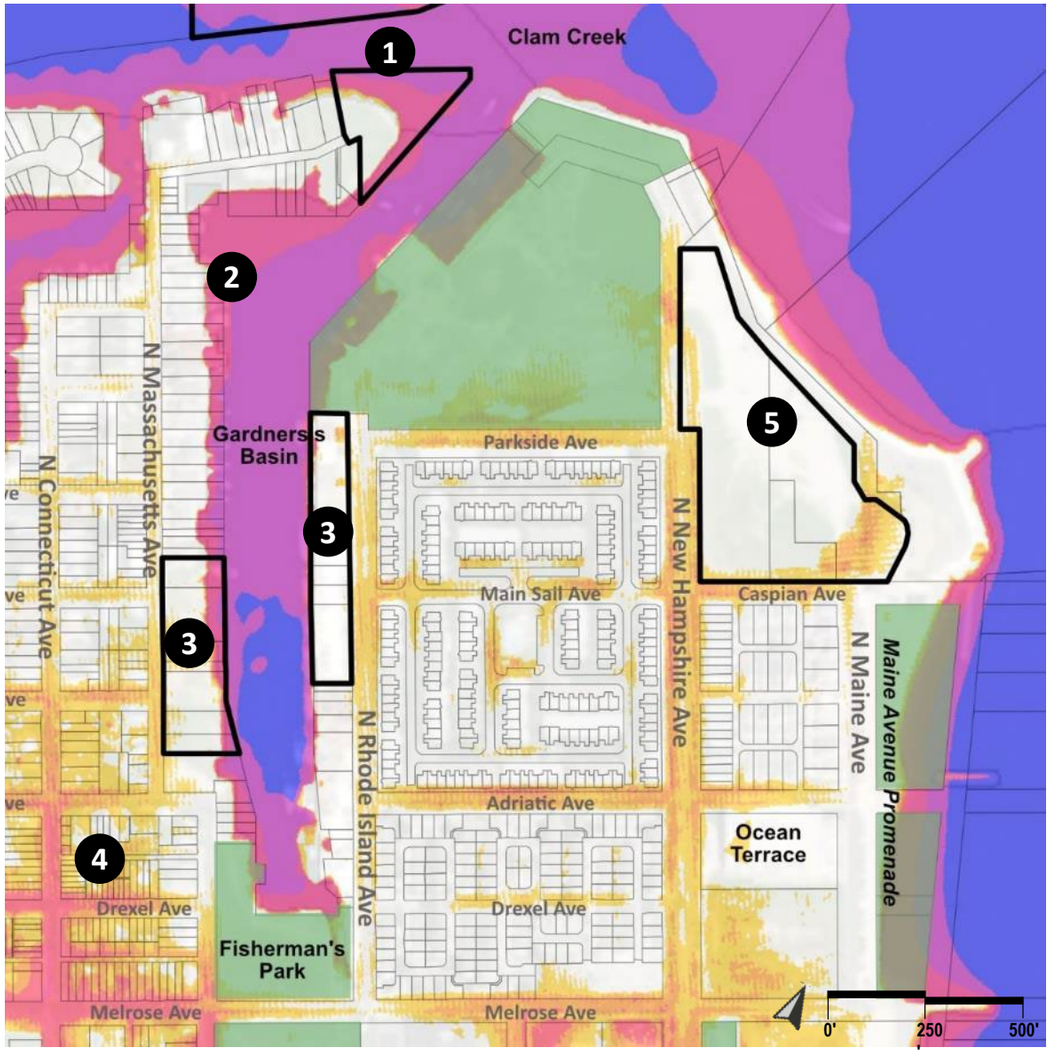
4. The City of Atlantic City is conducting a feasibility study to improve drainage in the Bungalow Park neighborhood. Stormwater flooding is anticipated to be mitigated by the Baltic Ave Canal drainage improvements.

5. Leverage recent shoreline improvements to attract new commercial development



Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)





Caspian Pointe and Gardner's Basin area, Flood Risk Map for 2030

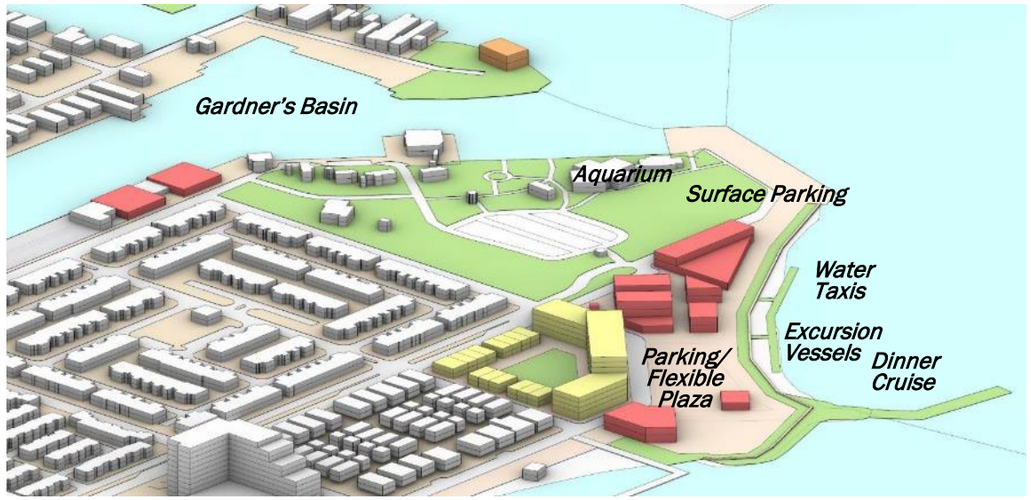
Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

Scenario 1: Mixed-Use Visitor Destination

Gardner's Basin and Caspian Pointe

Mixed-Use Visitor Destination

- **New commercial, and visitor-oriented uses on the landings at the Caspian Pointe** site to complement visitor-oriented water-side programming and leverage existing visitor traffic at Gardner's Basin Park.
- New residential development on Caspian Avenue adjacent to existing residential uses



Aerial view of Gardner's Basin and Caspian Point Scenario 1

Gardner's Basin and Caspian Pointe Scenario 1

Scenario 1: Mixed-Use Visitor Destination

Gardner's Basin and Caspian Pointe

Water Plan

- Visitor-oriented water-side uses such as ***dinner cruise boats, excursion vessels, and water taxis*** to take advantage of the **deep drafts** in this area.

Water Taxi

Source: www.lauraperuchi.nyc


Excursion Vessel

Source: www.electracruises.com


Dinner Cruise

Source: www.newyorkwelcome.net

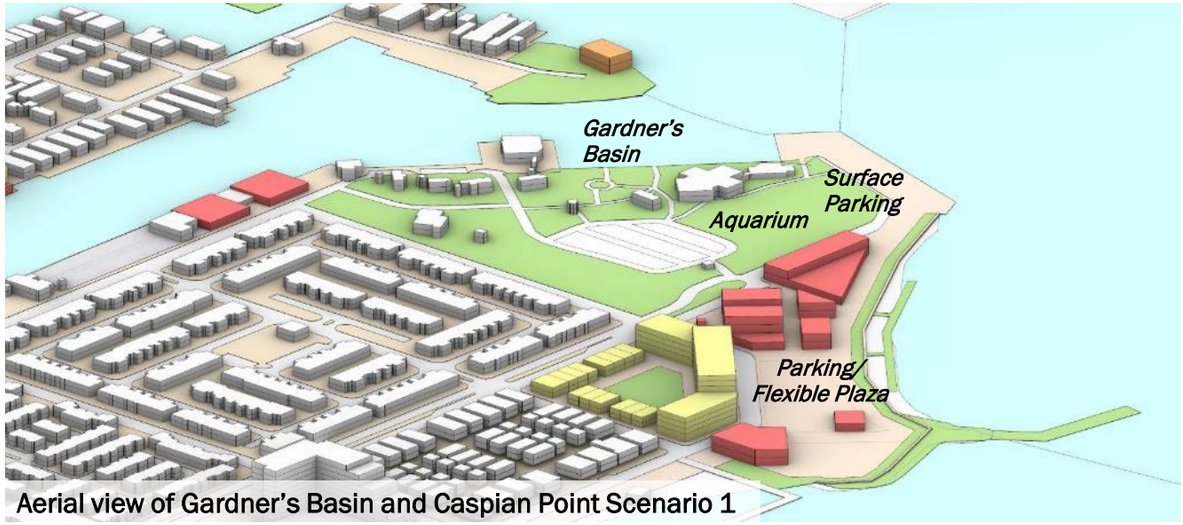
Scenario 1 Water Plan for Caspian Pointe

Scenario 1: Mixed-Use Visitor Destination

Gardner's Basin and Caspian Pointe

Land Side

F&B destination featuring local fresh food markets which can serve as an amenity for the adjacent residential neighborhood as well as the regional visitors.



Aerial view of Gardner's Basin and Caspian Point Scenario 1


Pike's Place Market, Seattle *(1)*

Public Market, Granville Island, Vancouver *(2)*

Bridges Restaurant, Granville Island, Vancouver *(3)*

(1) *www.travelbranyik.com*
(2) *www.papercitymag.com*
(3) *vancouver-canada.ca*

Changes to the Shoreline

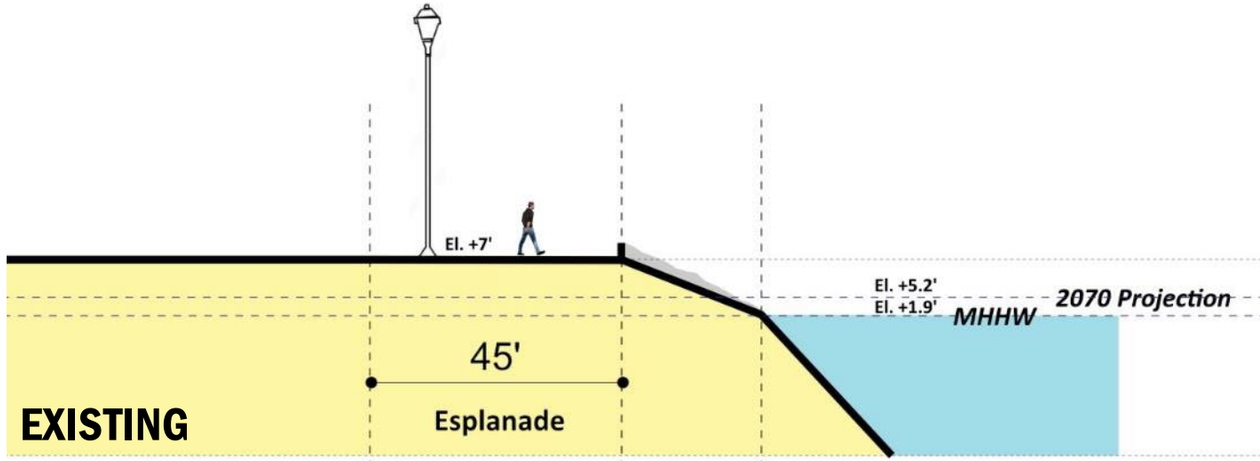
Gardner's Basin and Caspian Pointe

45' WIDE ESPLANADE

- Caspian Pointe Bulkhead and Boardwalk Revitalization project recently completed by the City of Atlantic City, FEMA, and the US Army Corps of Engineers
- Elevated walkway protected by a rock seawall

Existing Conditions at Caspian Pointe.
Source: Google Earth Street View

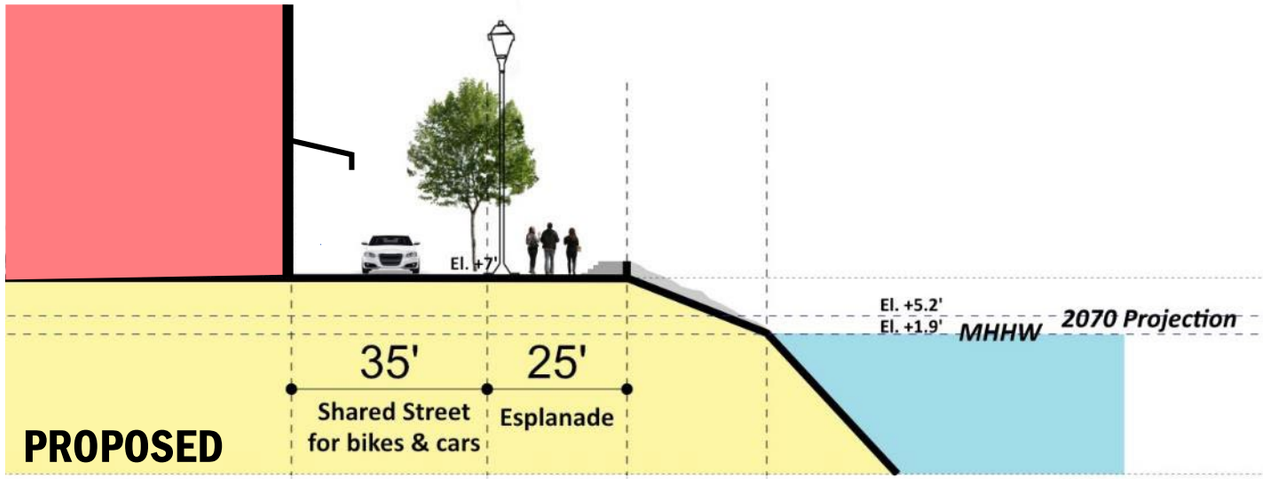
**Sections based on available flooding projection data (NAD 1983) and elevation assumptions*



Section showing existing shoreline condition at Caspian Pointe

Shared Street Concept

Example of a shared street, at the District Wharf, Washington, D.C.
Source: Perkins Eastman



Section showing proposed shared street and adjacent development at Caspian Pointe

Scenario 1: Mixed-Use Visitor Destination

Gardner's Basin and Caspian Pointe

Rendering showing the proposed shared street and adjacent market at Caspian Pointe

Scenario 1: Mixed-Use Visitor Destination

Gardner's Basin and Caspian Pointe

Summary

Transportation & Access:

- New Hampshire Ave traffic planning to dedicate access to/from the proposed residential buildings
- Parkside Ave traffic to serve retail uses between Caspian Pointe and Gardner's Basin Park

Infrastructure Modification :

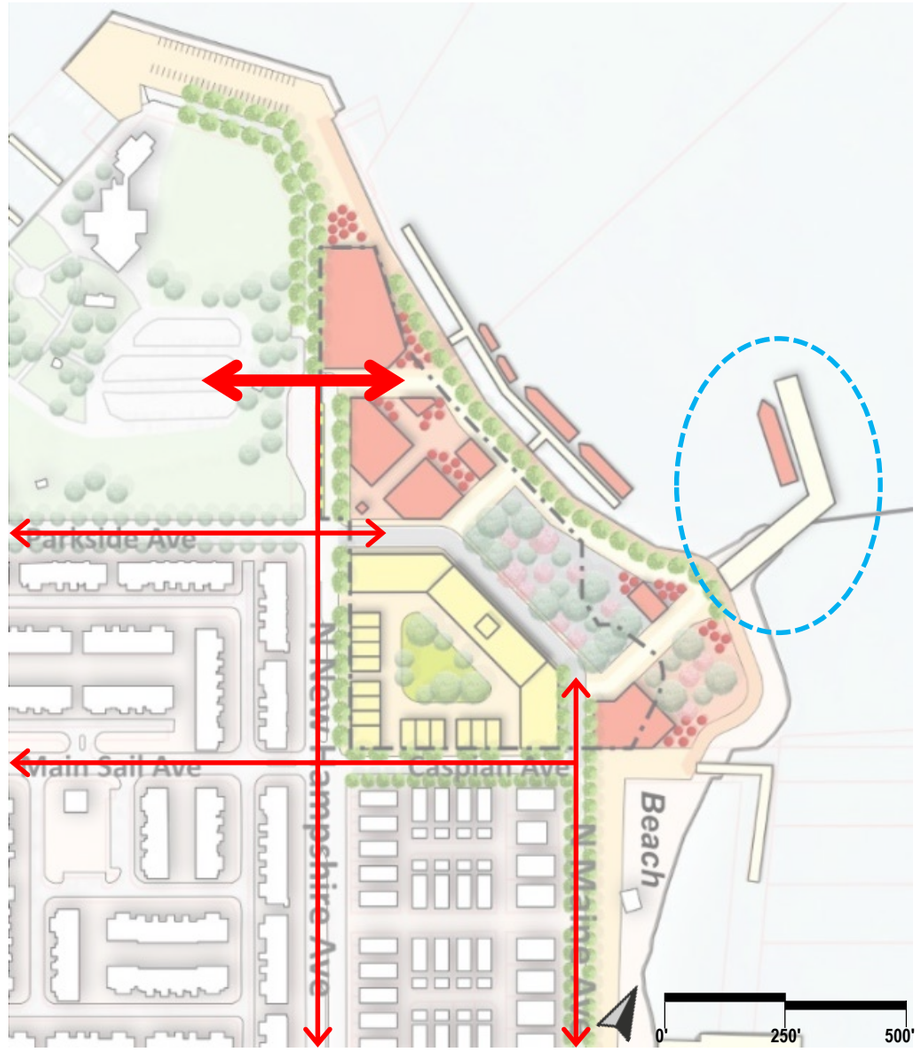
- New Pier for recreational /commercial boats

Land-Use & Zoning:

- Current zoning ("NE-Inlet") accommodates mid-rise residential and waterfront commercial uses

Environmental Impact:

- Minimal flooding risk inland to manage with stormwater systems
- Additional shoreline protection measures to consider for extreme storms



Scenario 1 for Caspian Pointe

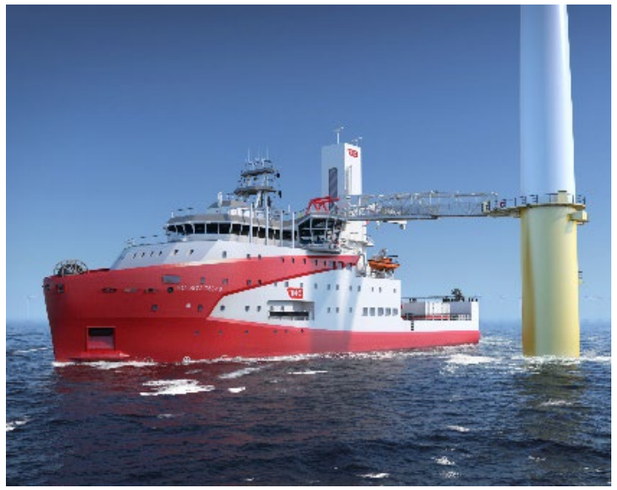
Scenario 2: Wind O&M/ Commercial Seafood Destination

Gardner's Basin and Caspian Pointe

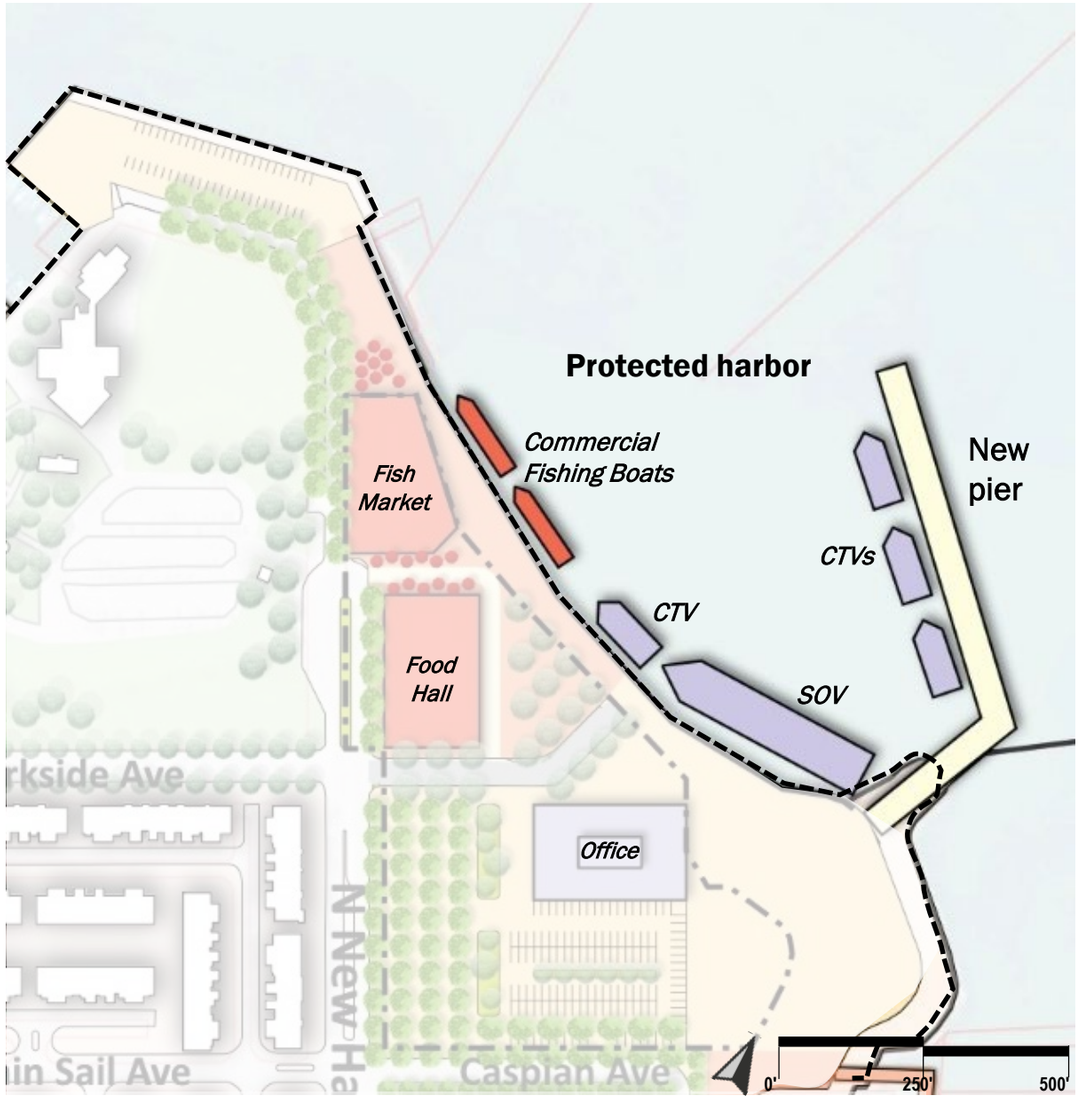
Water Plan

- Existing deep drafts in this area offer a unique opportunity within Atlantic City Harbor to accommodate **large SOVs** for off-shore wind O&M.
- A new pier extending off Caspian Point could create a new protected harbor to dock SOVs as well as offer an additional prime location for commercial fishing boats

Commercial Fishing Vessel (Photo by Leigh Trail)



Off-shore Wind SOV (Source: IHC Offshore Energy)

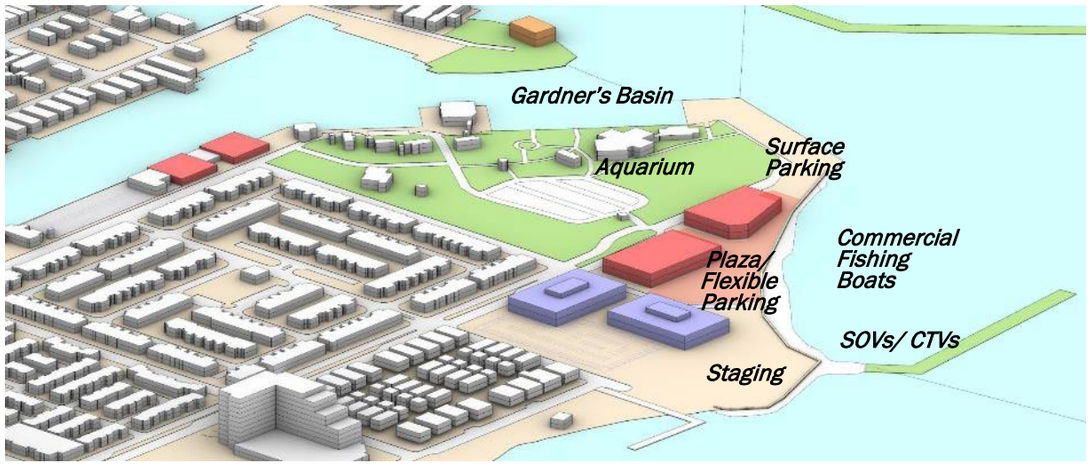


Proposed Water Plan for Scenario 2 for Caspian Pointe

Scenario 2: Wind O&M/ Commercial Seafood Destination

Gardner's Basin and Caspian Pointe

The expanded water-side programming provided by the new harbor can provide a catalyst to attract water-related commercial uses on the Landings at the Caspian Pointe site.



Aerial view of Gardner's Basin and Caspian Point Scenario 2

Gardner's Basin and Caspian Pointe Scenario 2

Scenario 2: Wind O&M / Commercial Seafood Destination

Gardner's Basin and Caspian Pointe

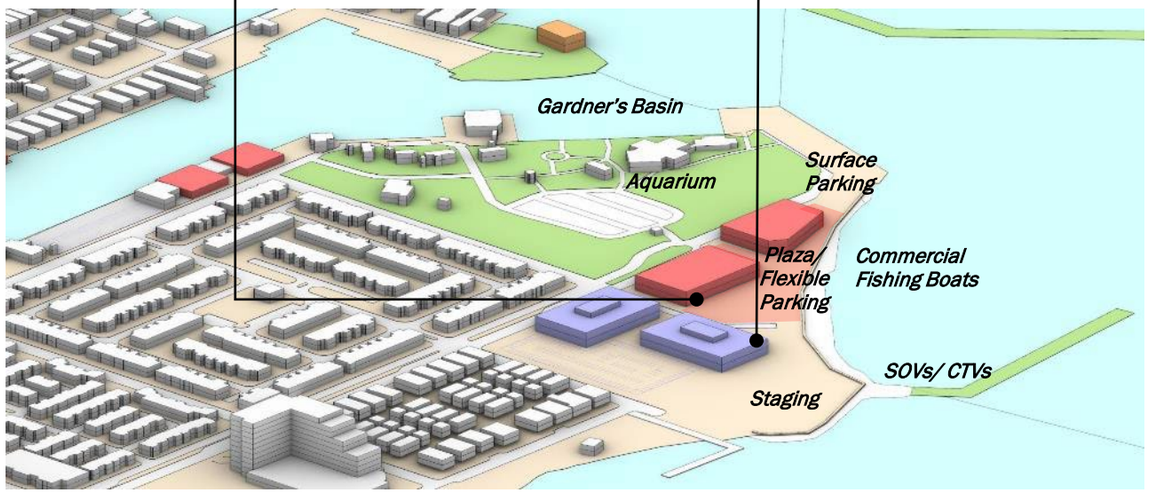
Land Side

- Potential fresh fish market can:
  - provide a local retail outlet for commercial fishing businesses and potentially other Atlantic County produce
  - alleviate local food dessert

- The public access to the waterfront may be realigned along New Hampshire Avenue

- An allée of trees can provide an enhanced experience, and a buffer between the existing residential and the proposed office uses.

(1) www.pikeplacemarket.org
(2) www.tbrnewsmedia.com
(3) www.strongtowns.org



Aerial view of Gardner's Basin and Caspian Point Scenario 2

Proposed public access accommodating new Wind Facility

Scenario 2: Wind O&M / Commercial Seafood Destination

Gardner's Basin and Caspian Pointe

Summary

Transportation & Access:

- New Hampshire Ave traffic planning to organize service access to O&M facility
- Caspian Ave traffic to serve retail uses between Caspian Pointe and Gardner's Basin Park
- Public pedestrian access to the waterfront would be re-routed via an allée along New Hampshire Ave

Infrastructure Modification :

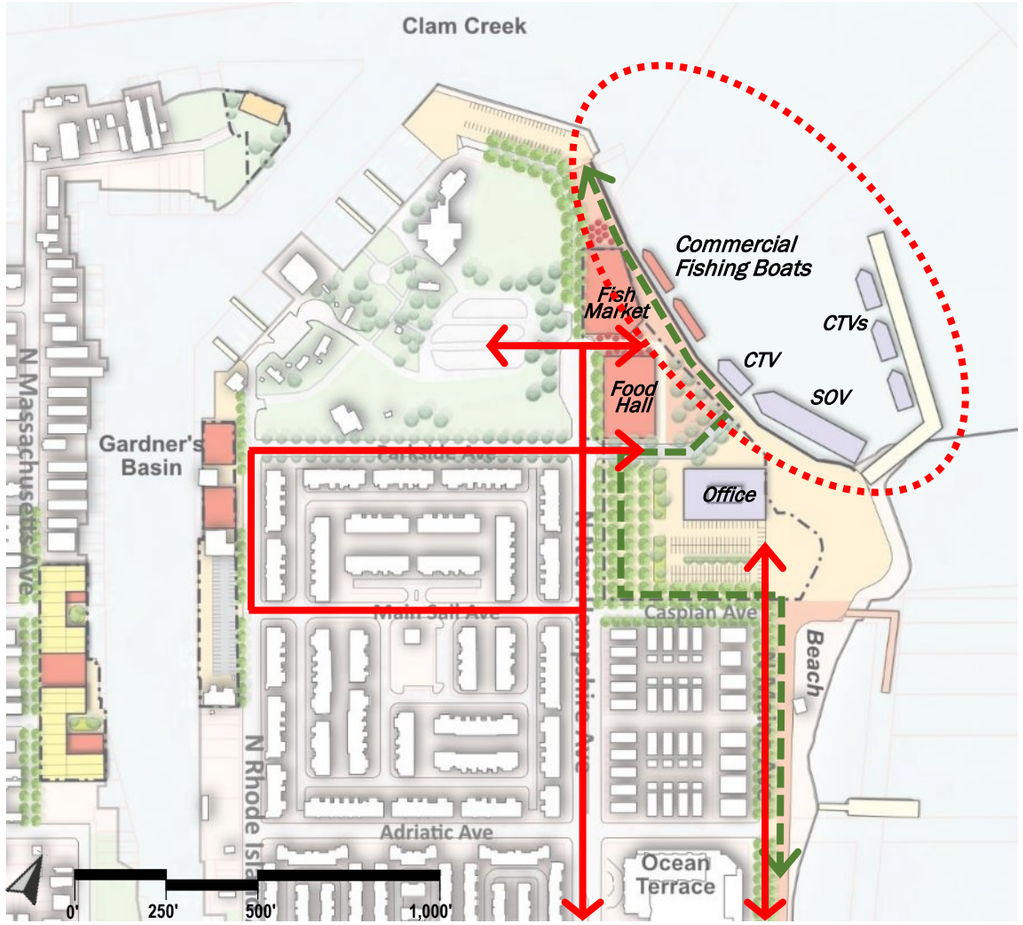
- Breakwater for SOVs serving the O&M Facility as well as fishing boats
- Shoreline modifications to accommodate industrial and commercial fishing programming

Land-Use & Zoning:

- "NE-Inlet" zoning designation to accommodate O&M Facility and waterfront commercial buildings

Environmental Impact:

- Minimal flooding risk inland to manage with stormwater systems
- Additional shoreline protection measures to consider for extreme storms



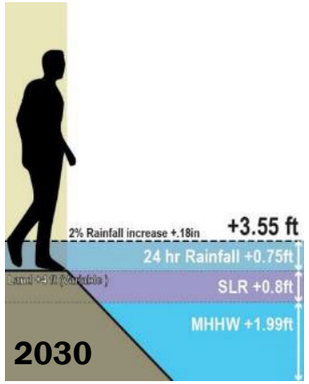
Gardner's Basin and Caspian Point Scenario 2

Stormwater Management & Shoreline Protection

Gardner's Basin and Caspian Pointe

Flood Risk Near-Term (2030) Projections:

- Minor flooding along the Delta Basin, the Snug Harbor, and the Gardner's Basin shoreline that sits at a low elevation; raised bulkhead is recommended for protection.
- Flood risk along Melrose Avenue at the intersections of New Jersey Avenue and North Connecticut Avenue could impact access to Bungalow Park. The drainage capacity of the existing and planned stormwater management systems should be checked.
- Average elevation in the Bungalow park streets and the ground is between 6 and 7-ft, so the 3.55-ft water depth does not indicate significant flooding



Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)

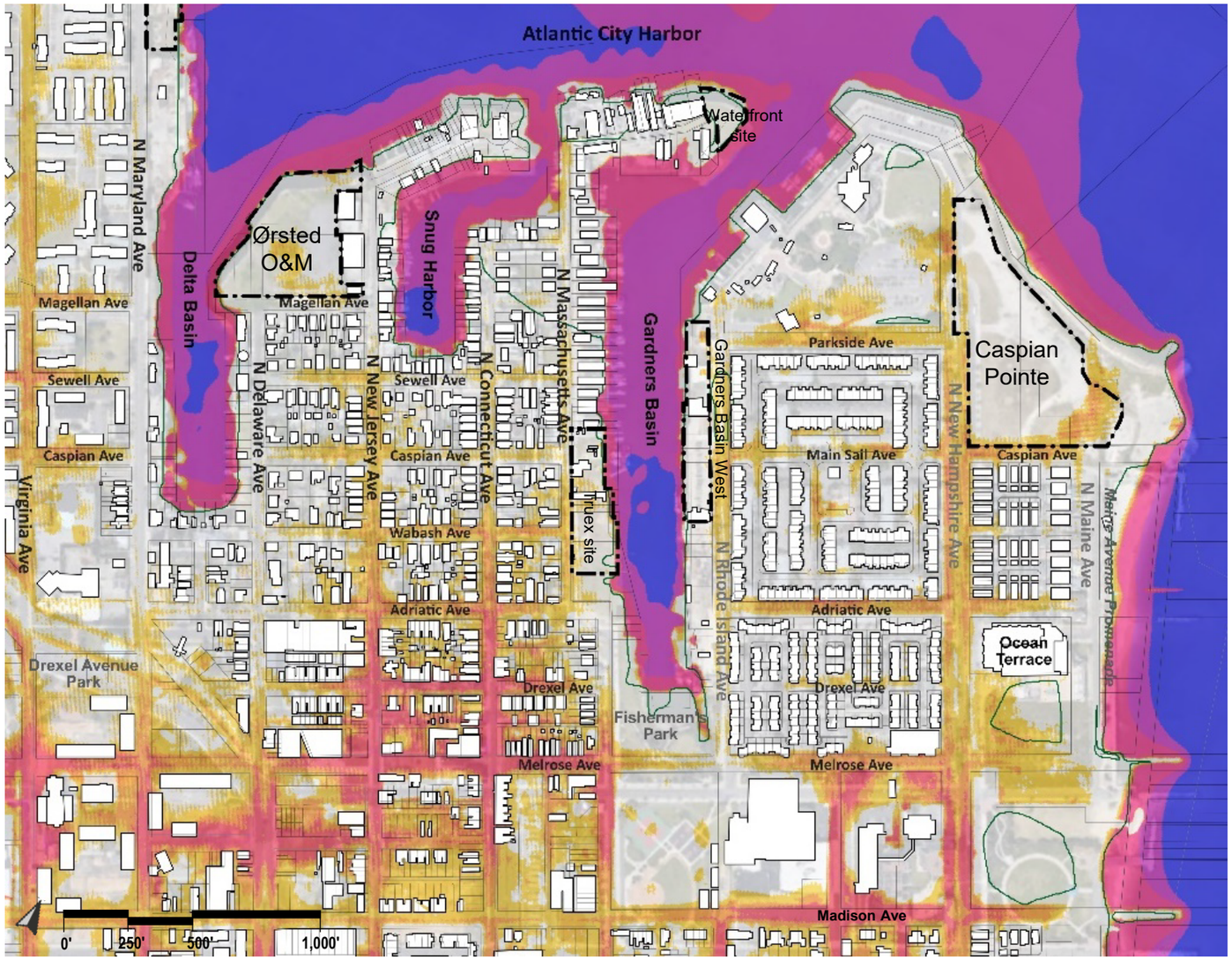
Legend

Topography contour interval 5ft

Building footprints

Water rise level (ft)

- 0.000999928 - 0.8
- 0.8 - 1.4
- 1.400000001 - 2.4
- 2.400000001 - 10
- 10.00000001 - 20
- 20.00000001 - 68.07675755



Atlantic City Harbor, Flood Risk Map for 2030

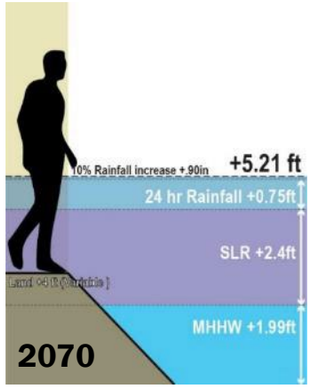
Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

Stormwater Management & Shoreline Protection

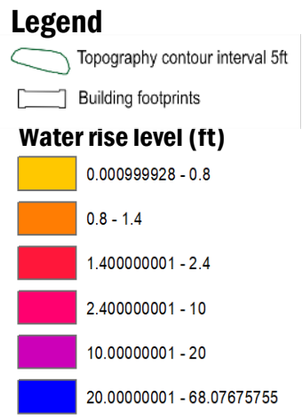
Gardner's Basin and Caspian Pointe

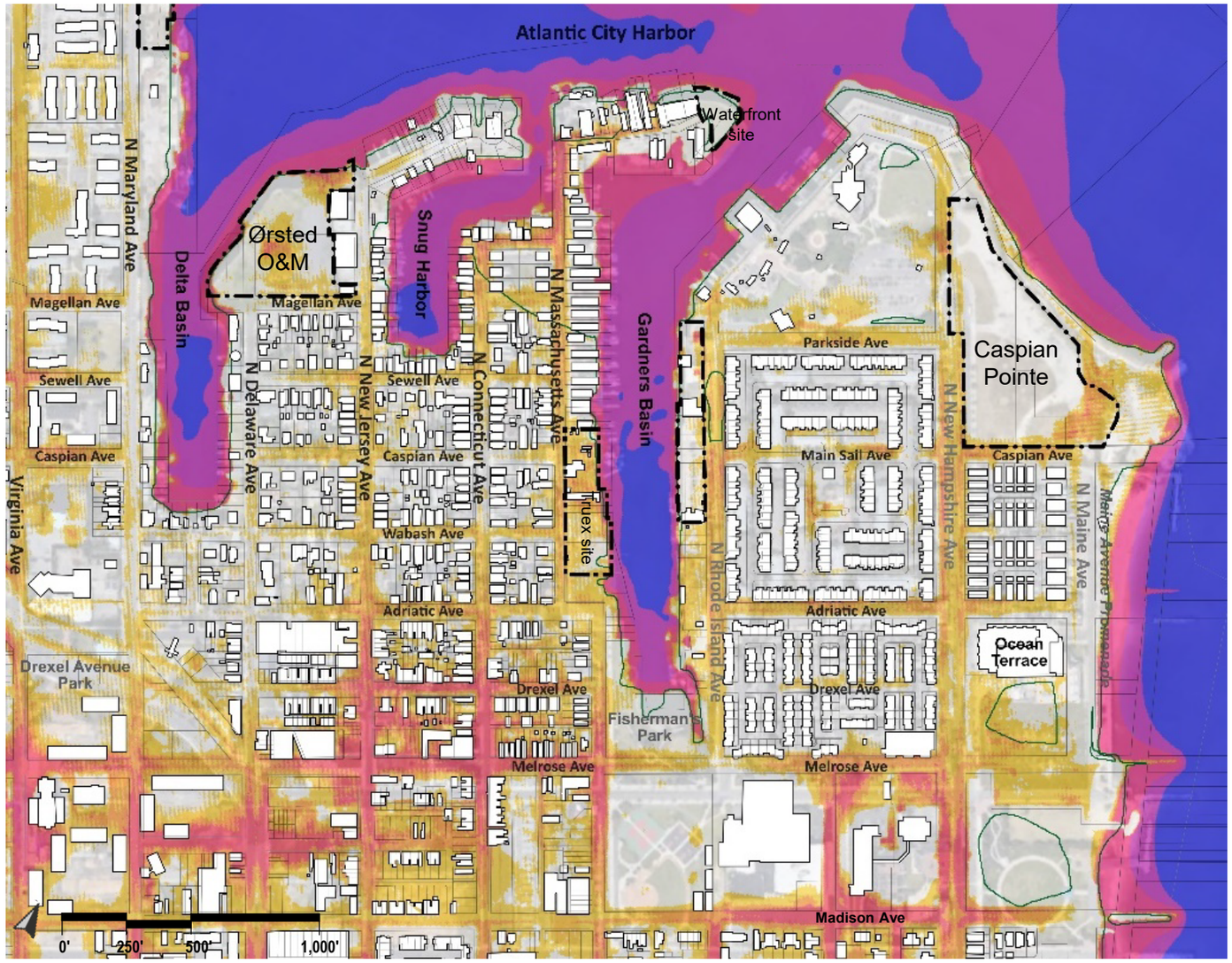
Flood Risk Long-Term (2070) Projections:

- Minor flooding along the Snug Harbor, and the Gardner's Basin shoreline; raised bulkhead is recommended for protection.
- Flood risk along Melrose Avenue at the intersections of North New Jersey Avenue and North Connecticut Avenue could impact access to Bungalow Park. The drainage capacity of the existing and planned stormwater management systems should be checked.
- Average elevation in the Bungalow park streets and the ground is between 6 and 7-ft, so the 5.21-ft water depth does not indicate a significant risk for flooding.



Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 2.4-ft Sea Level Rise (SLR)





Atlantic City Harbor, Flood Risk Map for 2070

Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

State Marina and Brigantine Bridge Landing

Source: Google Earth

State Marina and Brigantine Bridge Landing

- The State Marina is a unique regional asset.
- It is not currently being leveraged to create upland value
- Access to the neighboring sites is excellent via Maryland Avenue and Huron Avenue,
- As the front door for the Golden Nugget, Huron Avenue can be leveraged for future developments at adjacent sites.
- Golden Nugget hotel and parking garage are assets that can be leveraged for a potential cruise ship terminal.
- **Maryland Avenue site**
  - Located at the gateway to the Harbor.
- **AC Holdings site**
  - Features a large waterfront as well as good inland access, and as such, has good potential for O&M use.
  - Shallow existing drafts. Dredging required for O&M boats would also benefit the potential Cruise Terminal.

Diagram showing the role of Huron Avenue as a development corridor

Image source: southernboating.com

Huron Avenue 'scene' at the Golden Nugget drop-off

Source: www.golden-nugget.hotels-atlantic-city.net/

State Marina and Brigantine Bridge Landing

Land Ownership

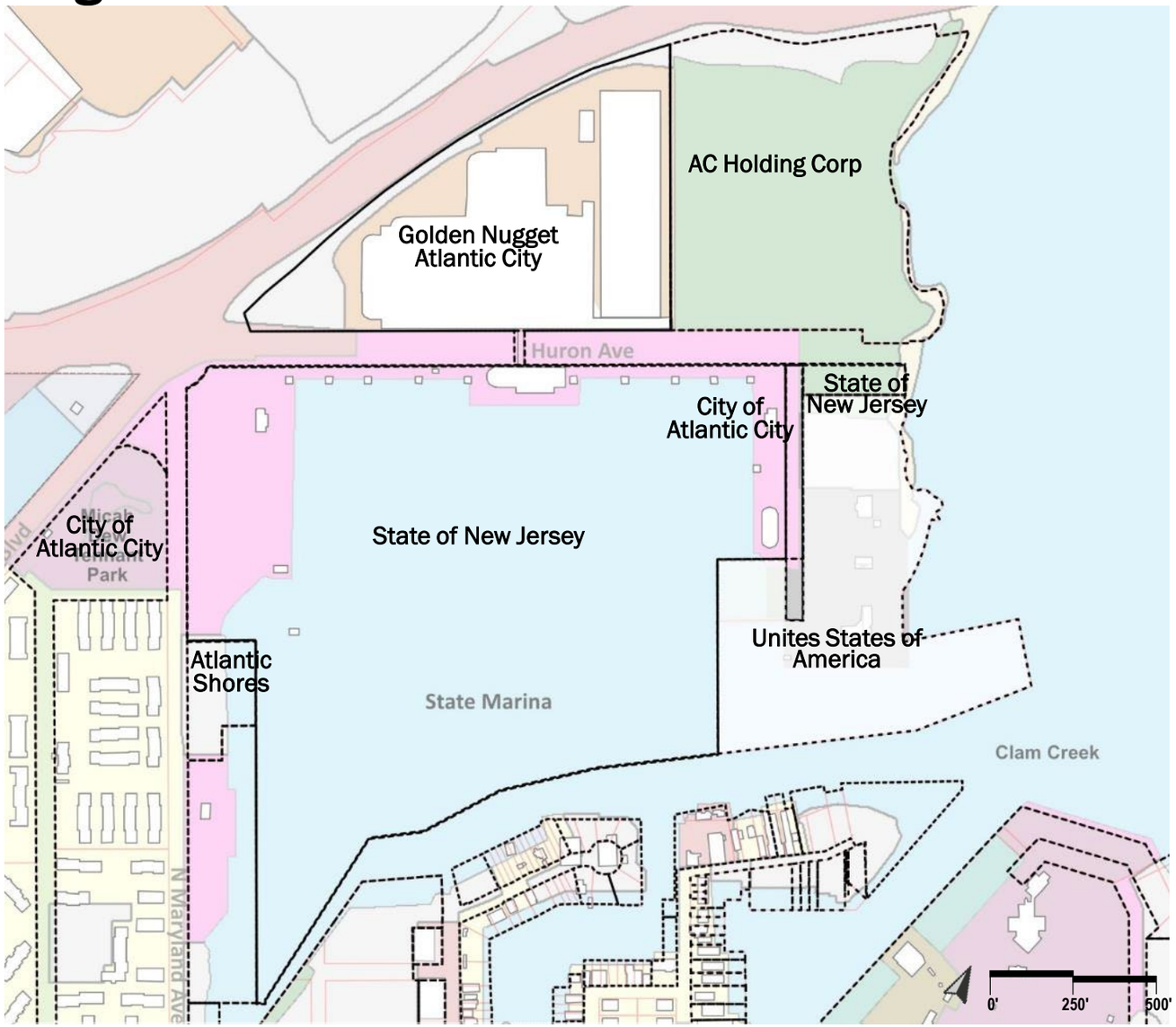
- Features three of the largest parcels on the Harbor.
- Ownership controlled by Federal, State, and City, with one privately owned parcel, controlled by AC Holding Corp.

Existing Buildings, Coast Guard Air Station (CGAS) Site

Source: Helis.com

Chart House Seafood at Golden Nugget Hotel & Casino, State Marina

Source: Chart House Atlantic City, NJ



Map showing land ownership for parcels along the State Marina

State Marina and Brigantine Bridge Landing

Site Access

- Excellent access to the Coast Guard site, MGM Site, and Maryland Avenue Parking Lot site via Huron Ave and Maryland Ave site
- The AC Holdings site also has potential back-of-house access from Brigantine Blvd and Harrah's Boulevard

Aerial photo showing access to the MGM Site via Brigantine Boulevard underpass

Source: Google Earth

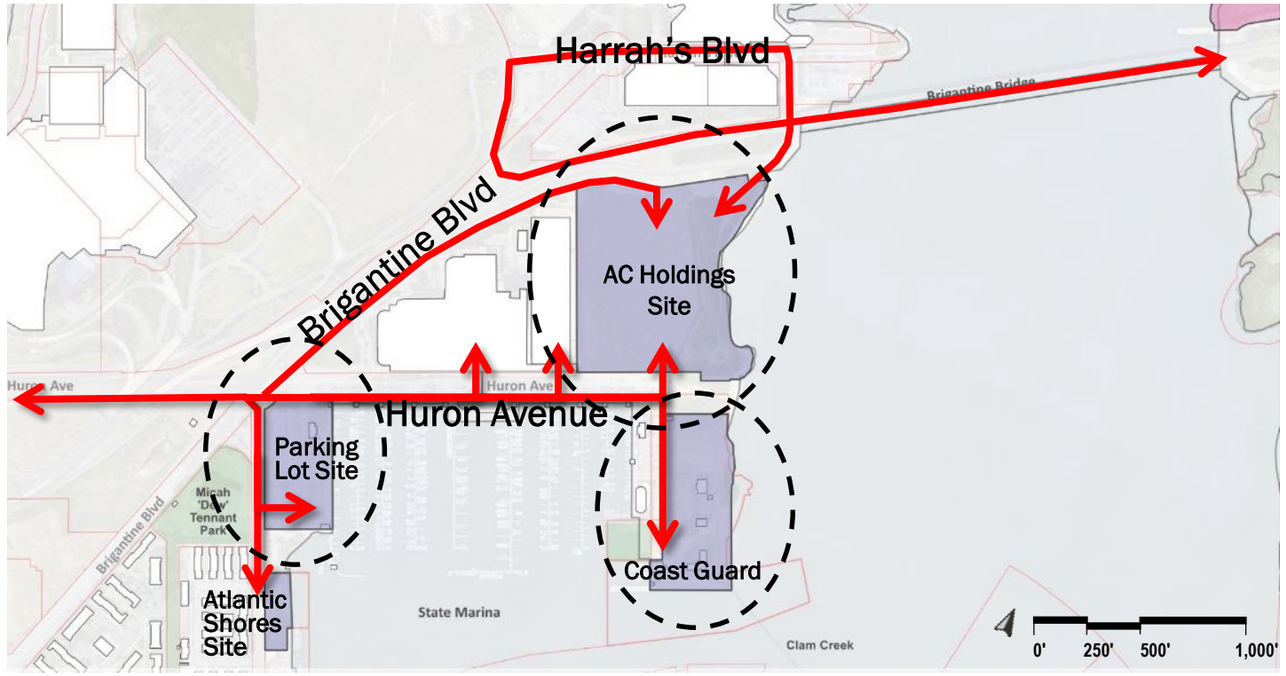


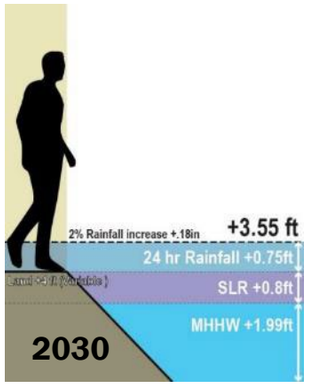
Diagram showing the Opportunity Sites and the access from the State Marina and Brigantine Bridge Landing

Huron Avenue looking north (source: www.travelagewest.com)

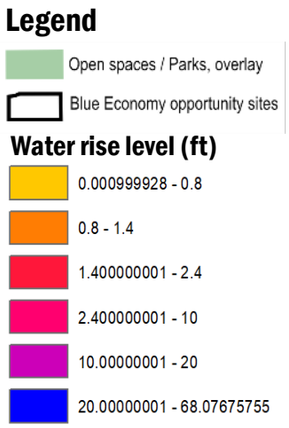
State Marina and Brigantine Bridge Landing

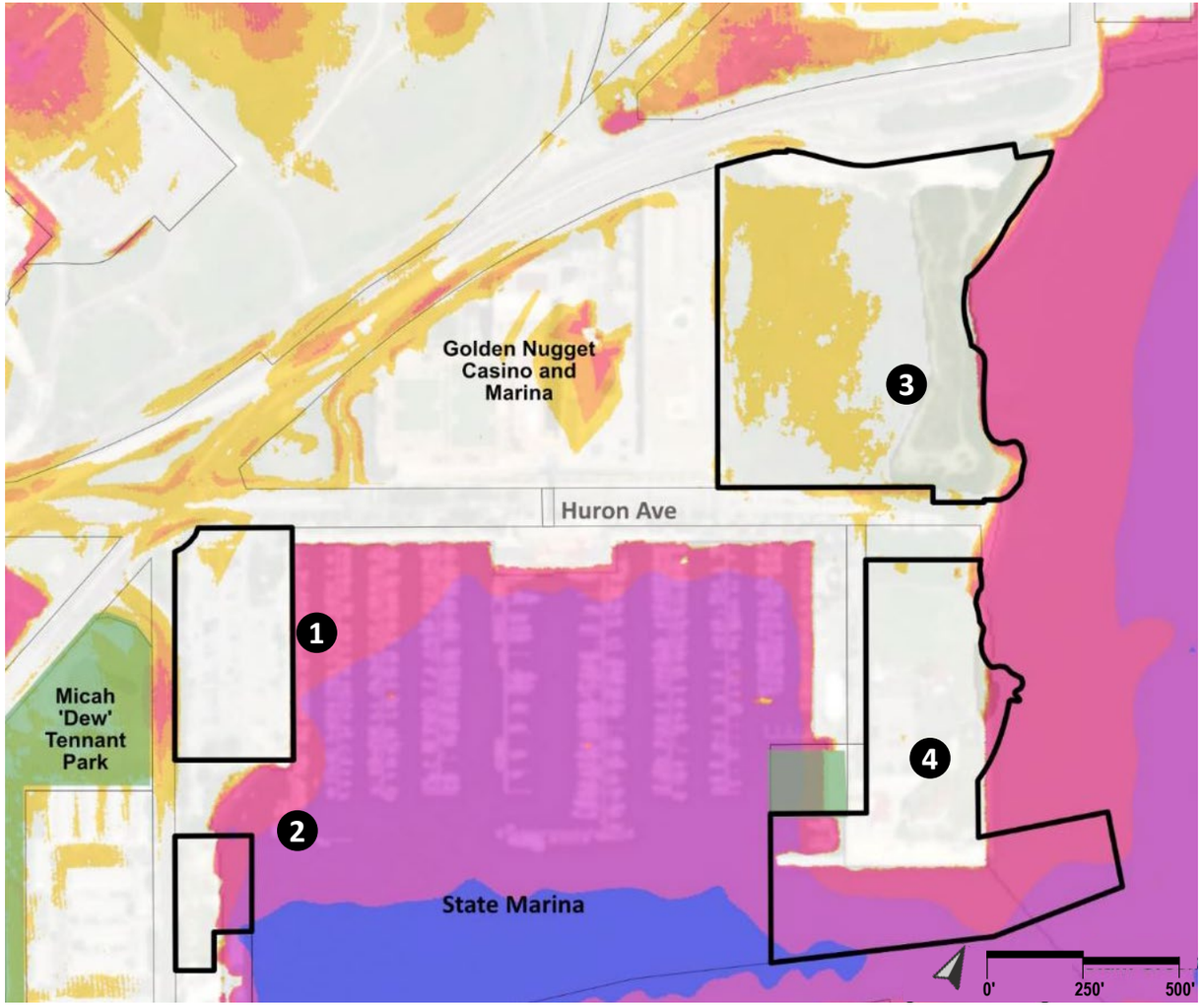
Resilience Considerations

1. Natural shoreline is marginally protected. Consider improving bulkheads as necessary.
2. Leverage investments to elevate buildings and improve bulkhead protection
3. No stormwater improvements are proposed yet
4. Natural shoreline is marginally protected. Consider improving bulkheads as necessary.



Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)





State Marina and Brigantine Bride Landing: Flood Risk Map for 2030

Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

Scenario 1

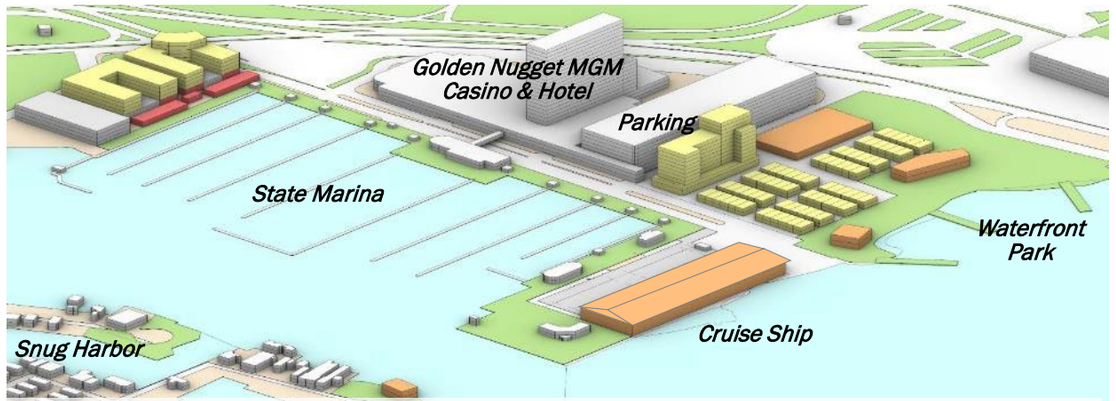
State Marina and Brigantine Bridge Landing

MGM Site:

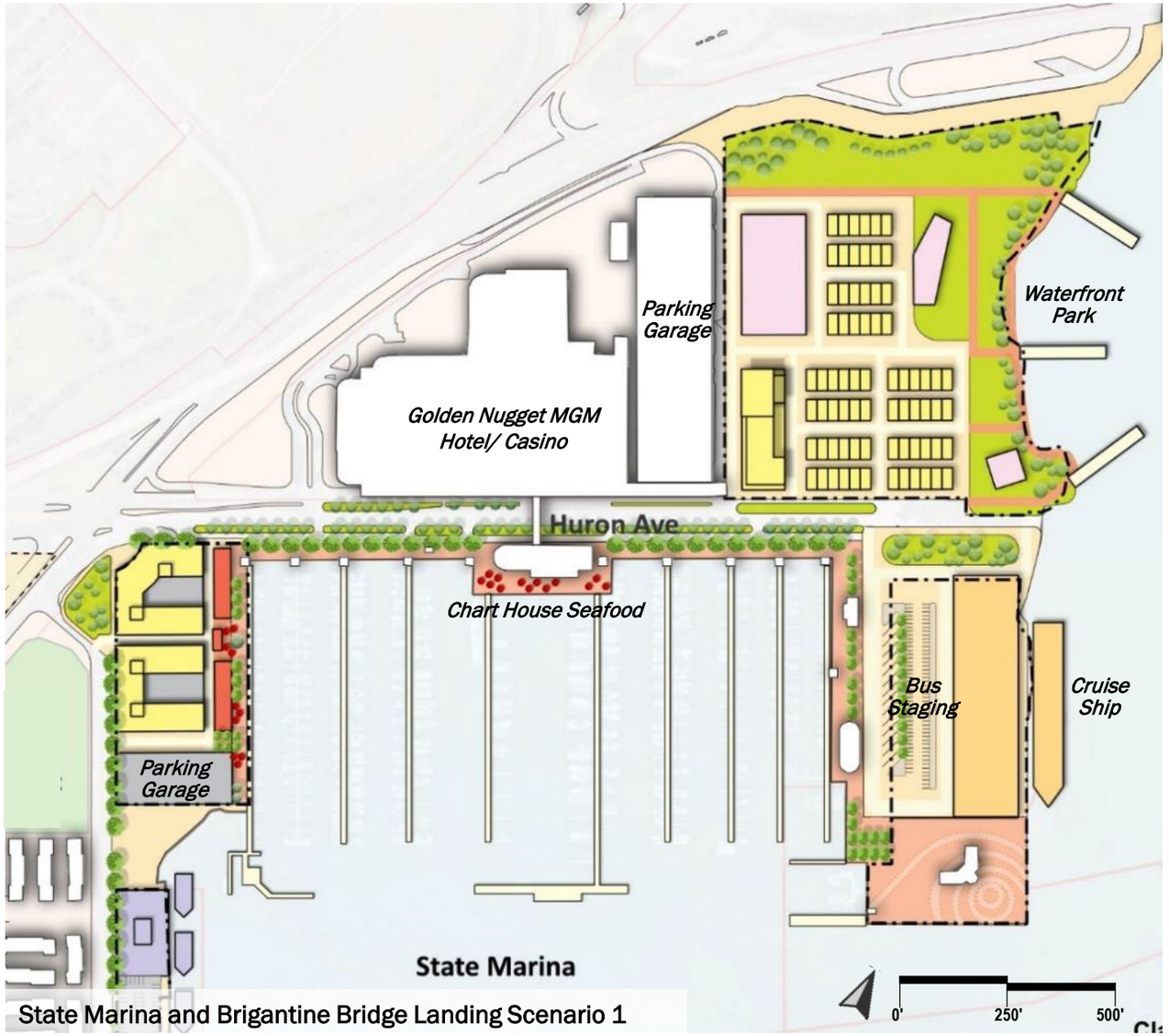
- Boraie Residential proposal at MGM site

Coast Guard Site:

- Cruise Ship terminal leverages adjacent parking garage, hotel, and casino
- Dredging required solely to create a Cruise Ship berth



Aerial view of State Marina and Brigantine Bridge Landing Scenario 1



State Marina and Brigantine Bridge Landing Scenario 1

Scenario 1

State Marina and Brigantine Bridge Landing

Land Side

MGM Site:

- Low-density residential development

Coast Guard Site:

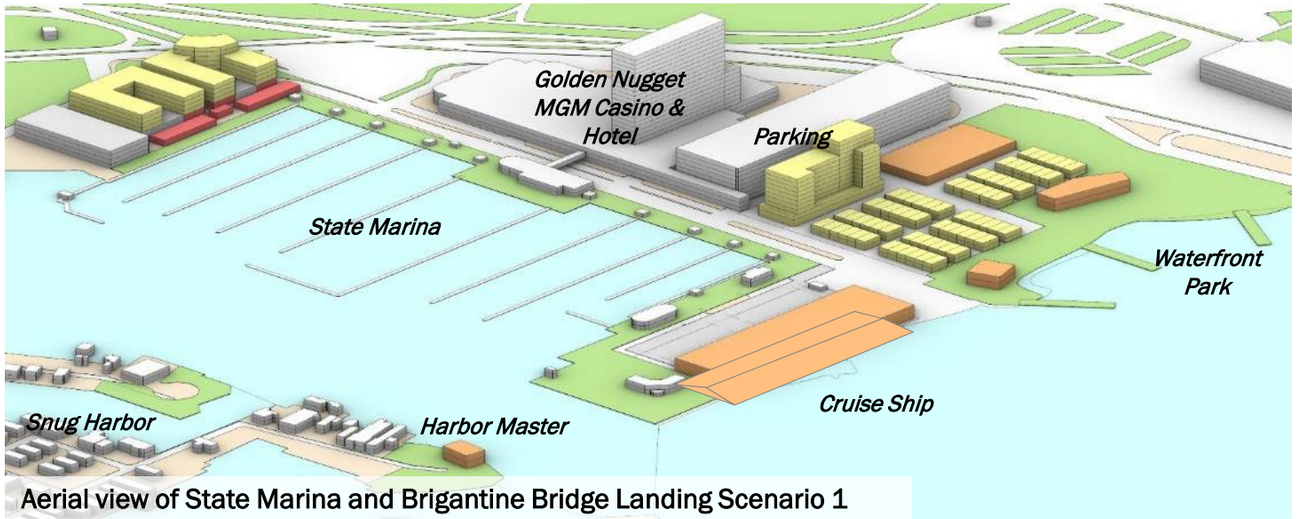
- Cruise Ship terminal with ample area for bus staging and surface parking

Parking Lot Site:

- A promenade along the marina with mixed-use development leveraging the views of the location and location at the harbor gateway

Boraie Development Residential Proposal for the MGM Site (Source: Boraie Development LLC)

Cape Liberty Cruise Port, Bayonne *(source: Eric Kiefer, www.patch.com)*



Aerial view of State Marina and Brigantine Bridge Landing Scenario 1

Scenario 1

State Marina and Brigantine Bridge Landing

Water Side

MGM Site:

- Waterfront Park with wetland programming

Coast Guard Site:

- Cruise Ship Terminal

Parking Lot Site

- Waterfront Promenade in the form of a shared street environment, leveraging the site's location on the marina

District Wharf, Washington D.C.
(Project: Perkins Eastman)

Chart House Seafood
(Source: Chart House, Atlantic City)

"Oasis of the Seas" Cruise
(Source: www.royalcaribbean.com)

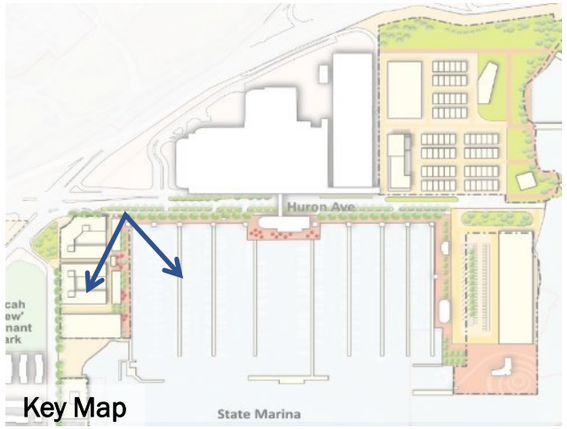
Hunter's Point Waterfront Park
(Project: Weiss | Manfredi)

The Promenade and the Parking Garage

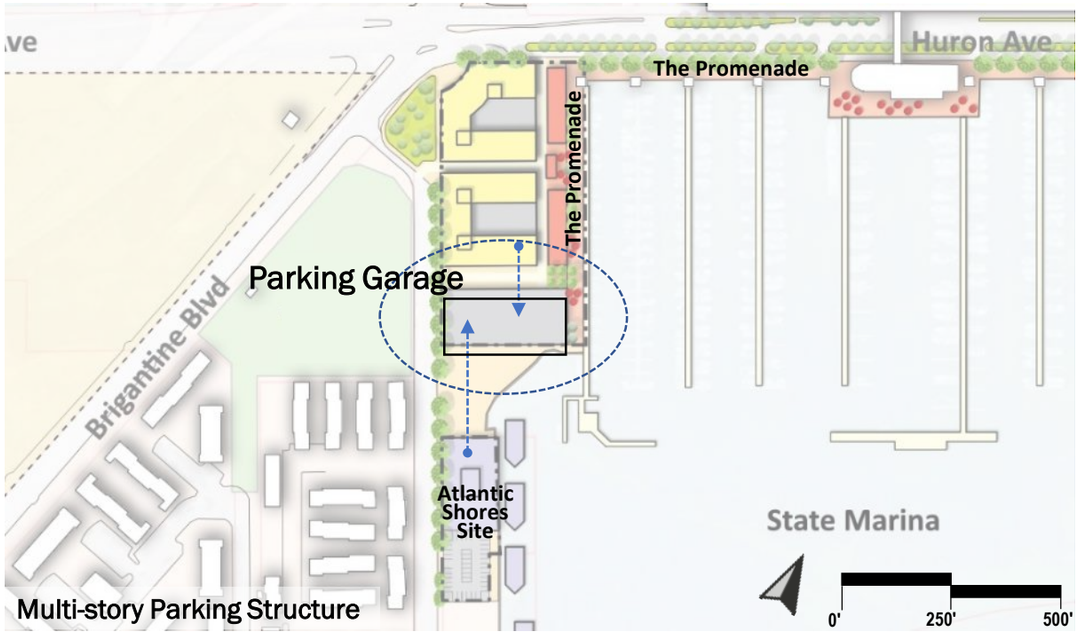
State Marina and Brigantine Bridge Landing

- Mixed-use development and promenade leverage the views and placemaking potential of the State Marina, the harbor at large
- New multi-story parking garage at the south side of the Parking Lot site can offer shared parking for employees of the adjacent Atlantic Shores O&M facility and new development on the Maryland Ave site.

Existing Parking Lot *(source: Google Earth)*



Key Map



Multi-story Parking Structure

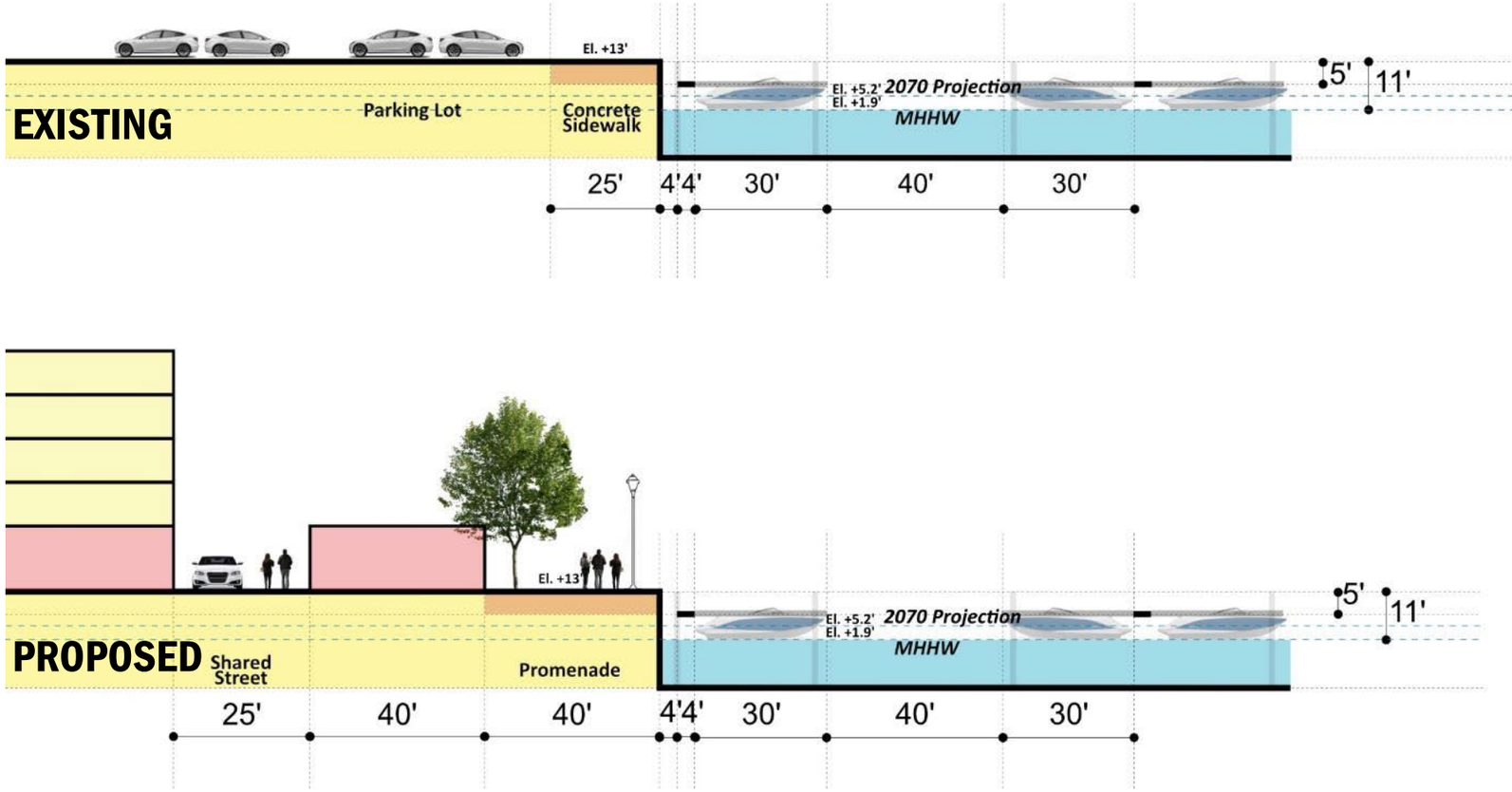
Rendering illustrating the potential for a new shared street and mixed-use development on the Maryland Avenue site

Maryland Ave Parking Lot

State Marina and Brigantine Bridge Landing

- The access to the waterfront is proposed to be enhanced with a 40’ wide promenade, used actively by pedestrians and bikers.
- The existing 25’ wide concrete sidewalk provides access to the boats but doesn’t leverage its location on the marina.

Maryland Avenue Parking Lot (top view) with a key to the site section line
Background image: Google Earth



**Sections based on available flooding projection data (NAD 1983) and elevation assumptions*

Scenario 1 (Huron Avenue)

State Marina and Brigantine Bridge Landing

Transportation & Access:

- Huron Ave traffic planning to organize access to/from residential blocks on MGM site;
- Occasional cruise arrivals need additional circulation arrangement

Infrastructure Modification/ Planning :

- Coast Guard site may need breakwater for cruise terminal

Land-Use & Zoning:

- “Marine Commercial” zoning designation to accommodate cruise terminal & high-rise residential

Environmental Impact:

- Designated wetlands on MGM site requiring to follow the state permission protocol
- Inland of MGM site to benefit from “raised block” due to minimal flooding risk

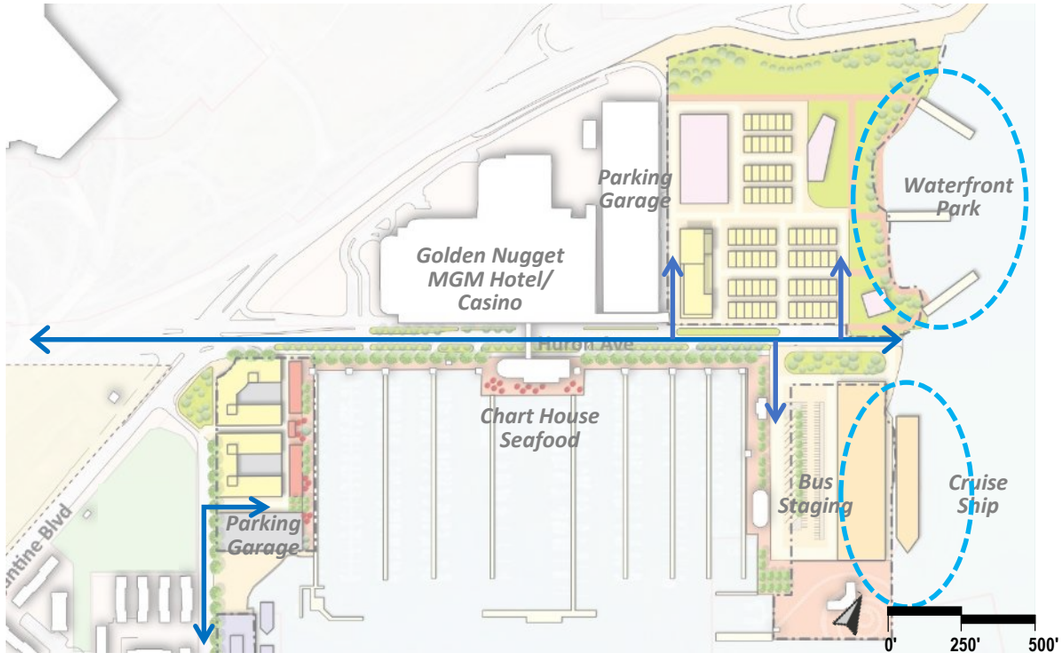


Diagram showing transportation and access to the State Marina, Brigantine Bridge Landing, and the Maryland Avenue parking lot, based on Scenario 1

Scenario 2

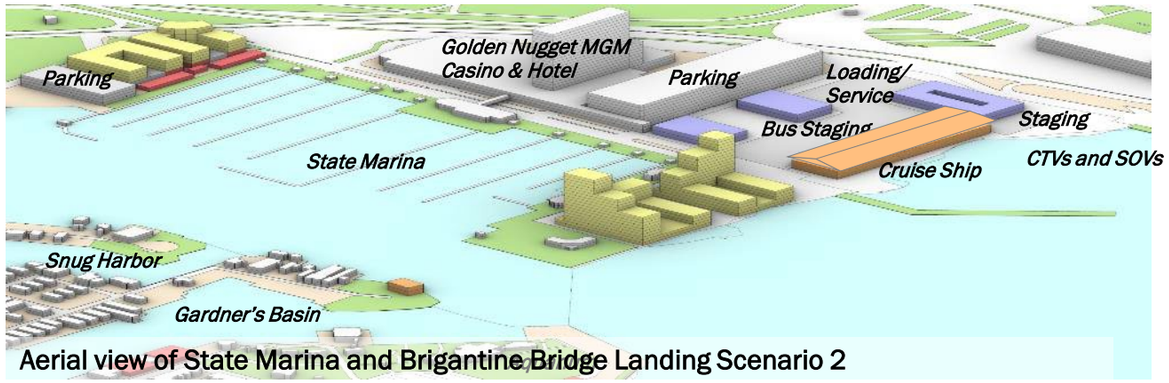
State Marina and Brigantine Bridge Landing

MGM waterfront:

- Dredging by Wind farm operator can create berth for larger SOV vessel as well as an adjacent Cruise Terminal
- Hotel, casino and large parking garage enhance the cruise terminal feasibility

Coast Guard Site:

- Higher density / high value residential development at Coast Guard site, leveraging 360 degree views



Aerial view of State Marina and Brigantine Bridge Landing Scenario 2

State Marina and Brigantine Bridge Landing Scenario 2

Scenario 2

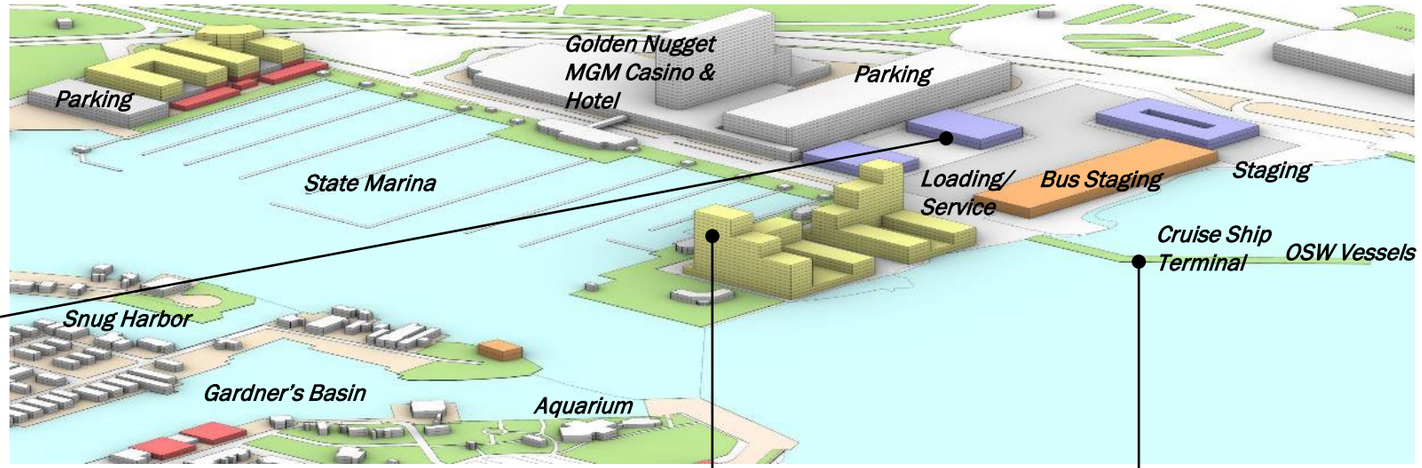
State Marina and Brigantine Bridge Landing

MGM waterfront:

- Large O&M facility feasible with warehouse, office and staging areas
- Cruise terminal with ample area for bus staging and surface parking

Coast Guard Site:

- High-value residential towers



O&M Base precedent (The Netherlands)

Image: Ørsted O&M Base in Vlissingen, The Netherlands. Source: https://orsted.nl/news-archive

Luxury Residential

Image: Miami Beach Marina. Source: RCI Group

Cruise Ship Terminal

Image: Cape Liberty Cruise Port. Source: Eric Kiefer, www.patch.com

Scenario 2

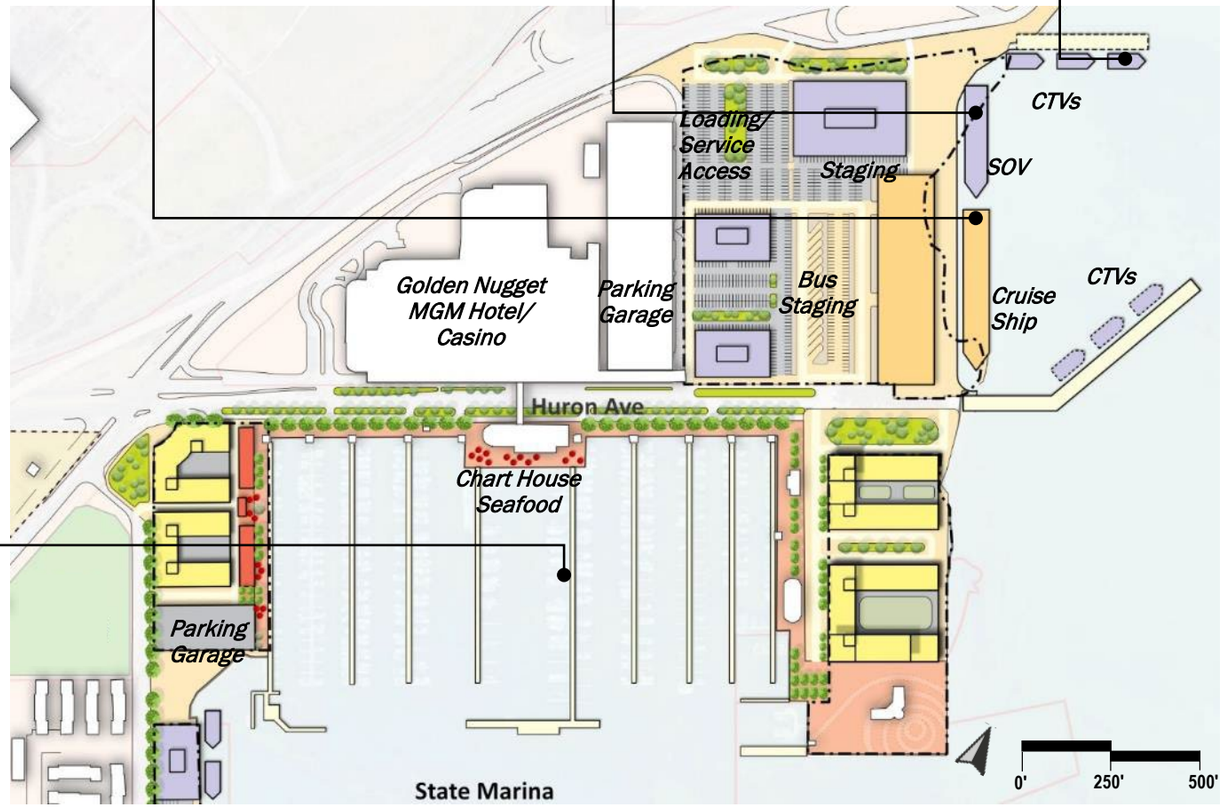
State Marina and Brigantine Bridge Landing

Water Plan

MGM waterfront: Service Operation Vessels (SOVs), Crew Transfer Vessels (CTVs) and Cruise Ship

Coast Guard Site: Waterfront Plaza south of proposed towers and adjacent to existing Coast Guard Building

Parking Lot Site: Proposed waterfront promenade



Huron Avenue

State Marina and Brigantine Bridge Landing

Existing Huron Avenue (source: Google Earth)

Rendering of Scenario 2 looking northeast on Huron Avenue

Scenario 2

State Marina and Brigantine Bridge Landing

Summary

Transportation & Access:

- Huron Ave traffic planning to organize access to/from high-rise residential blocks on the Coast Guard site;
- Brigantine Ave traffic planning to accommodate dedicated access for O&M uses
- Occasional cruise arrivals need additional circulation arrangement

Infrastructure Modification/ Planning:

- MGM site to have breakwater for cruise terminal

Land-Use & Zoning:

- “Marine Commercial” zoning designation to accommodate cruise terminal, high-rise residential, and O&M facility

Environmental Impact:

- Designated wetlands on MGM site requiring to follow the state permission protocol
- Inland of MGM site to benefit from “raised block” due to minimal flooding risk

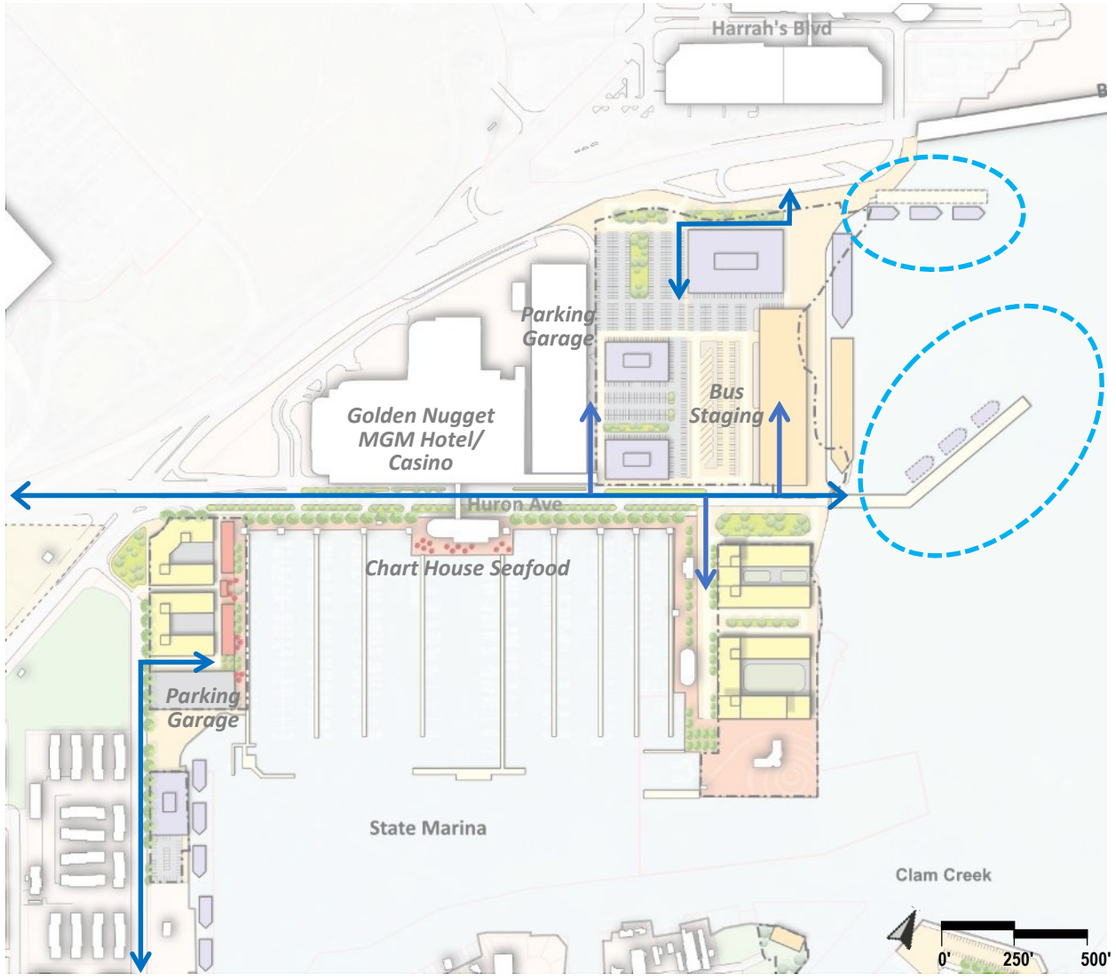


Diagram showing vehicular access to the State Marina, Brigantine Bridge Landing, and the Maryland Avenue parking lot, under on Scenario 2

Scenario 3

State Marina and Brigantine Bridge Landing

- Dredging by Wind farm operators can create berth for **larger SOV vessels**
- Cruise Ship berth can be created by **leveraging dredging by Wind farm operator**
- Cruise Ship terminal **leverages adjacent parking garage, hotel, and casino**

Aerial view of State Marina and Brigantine Bridge Landing Scenario 3

State Marina and Brigantine Bridge Landing Scenario 3

Scenario 3

State Marina and Brigantine Bridge Landing

Summary

Transportation & Access:

- Brigantine Ave traffic planning to accommodate dedicated access for O&M uses
- Huron Ave traffic planning to accommodate cruise arrivals

Infrastructure Modification/ Planning:

- Coast Guard site to have breakwater for cruise terminal;
- Additional breakwater for SOVs serving O&M

Land-Use & Zoning:

- “Marine Commercial” zoning designation to accommodate cruise terminal, and O&M facility

Environmental Impact:

- Designated wetlands on MGM site requiring to follow the state permission protocol
- Inland of MGM site to benefit from “raised block” due to minimal flooding risk

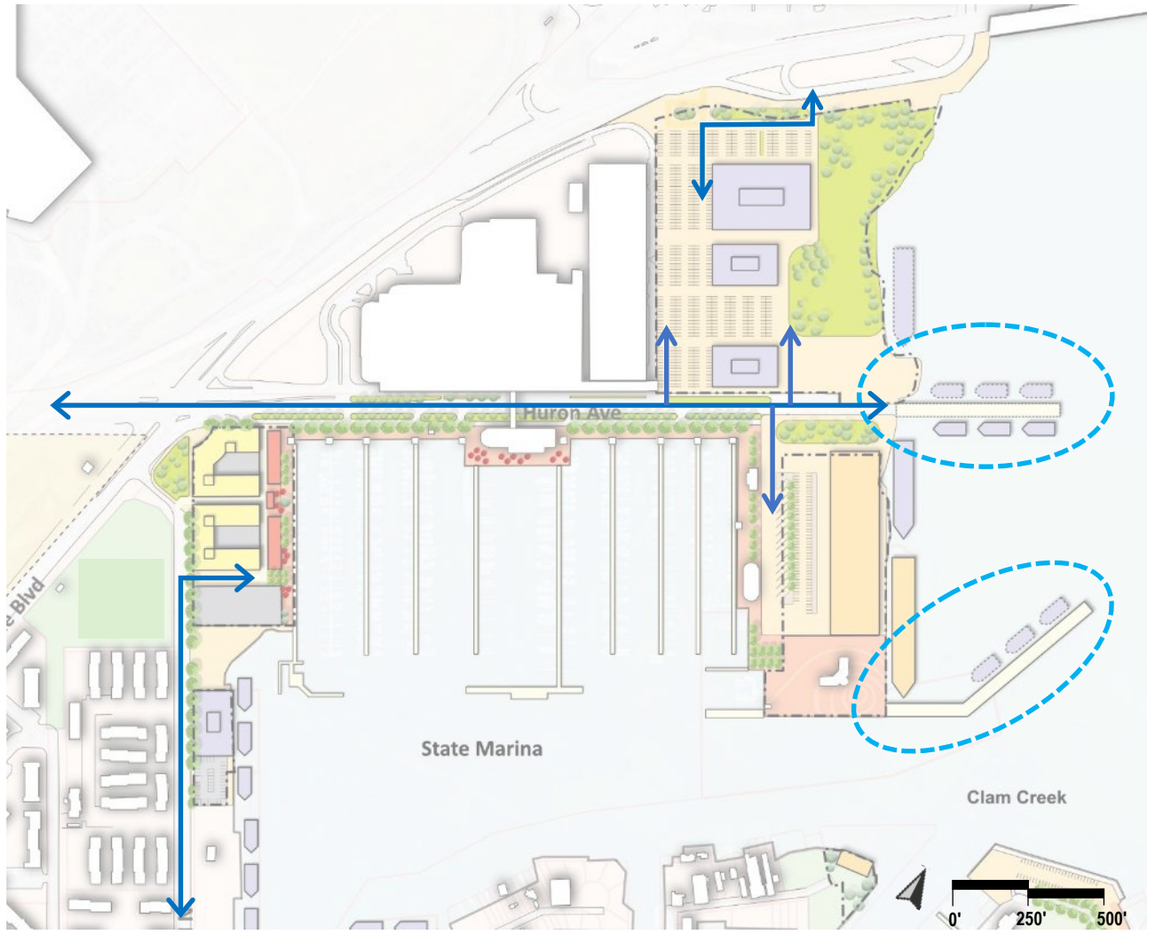


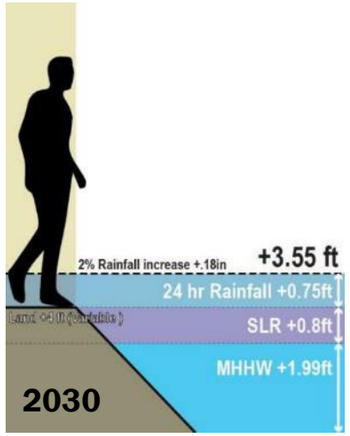
Diagram showing vehicular access to the State Marina, Brigantine Bridge Landing, and the Maryland Avenue parking lot, under on Scenario 3

Stormwater Management & Shoreline Protection

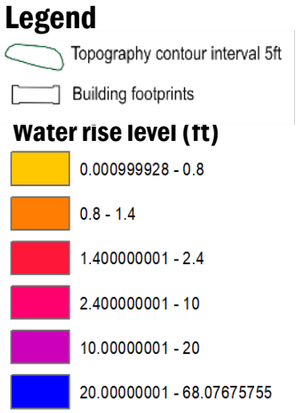
State Marina and Brigantine Bridge Landing

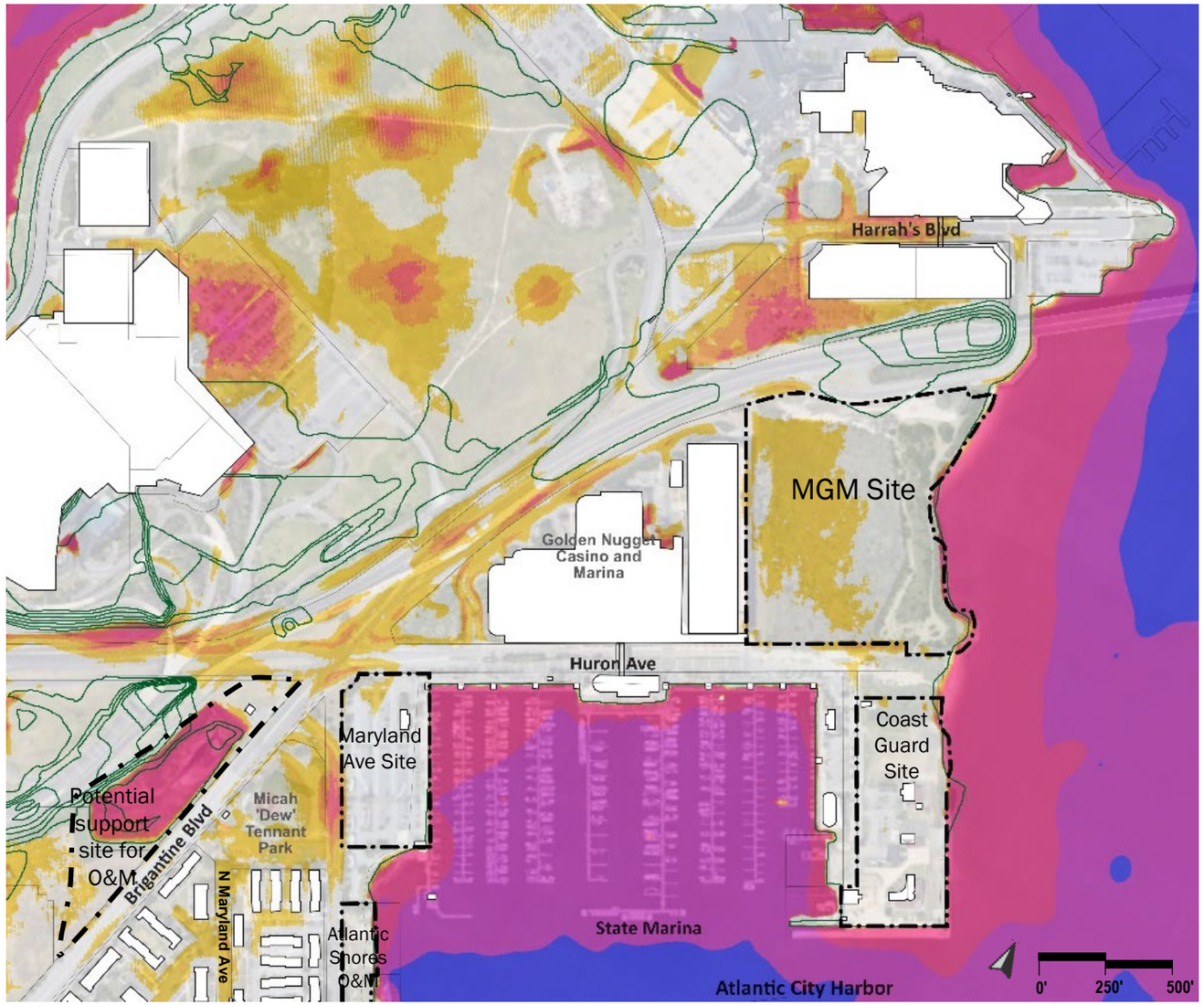
Flood Risk Near-Term (2030) Projections:

- Western half of the MGM site is vulnerable to stormwater flooding
- Northern end of the Maryland Avenue site at the intersection of Huron Avenue and Maryland Avenue is vulnerable to stormwater flooding



Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)





State Marina and Brigantine Bride Landing: Flood Risk Map for 2030

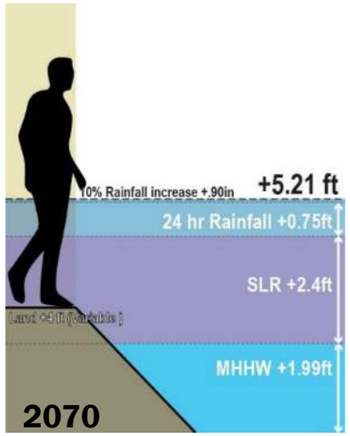
Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

Stormwater Management & Shoreline Protection

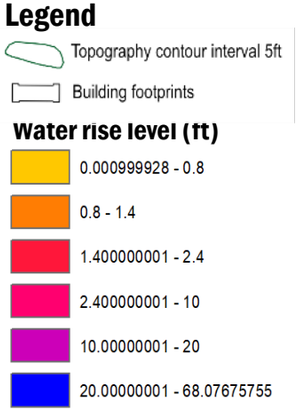
State Marina and Brigantine Bridge Landing

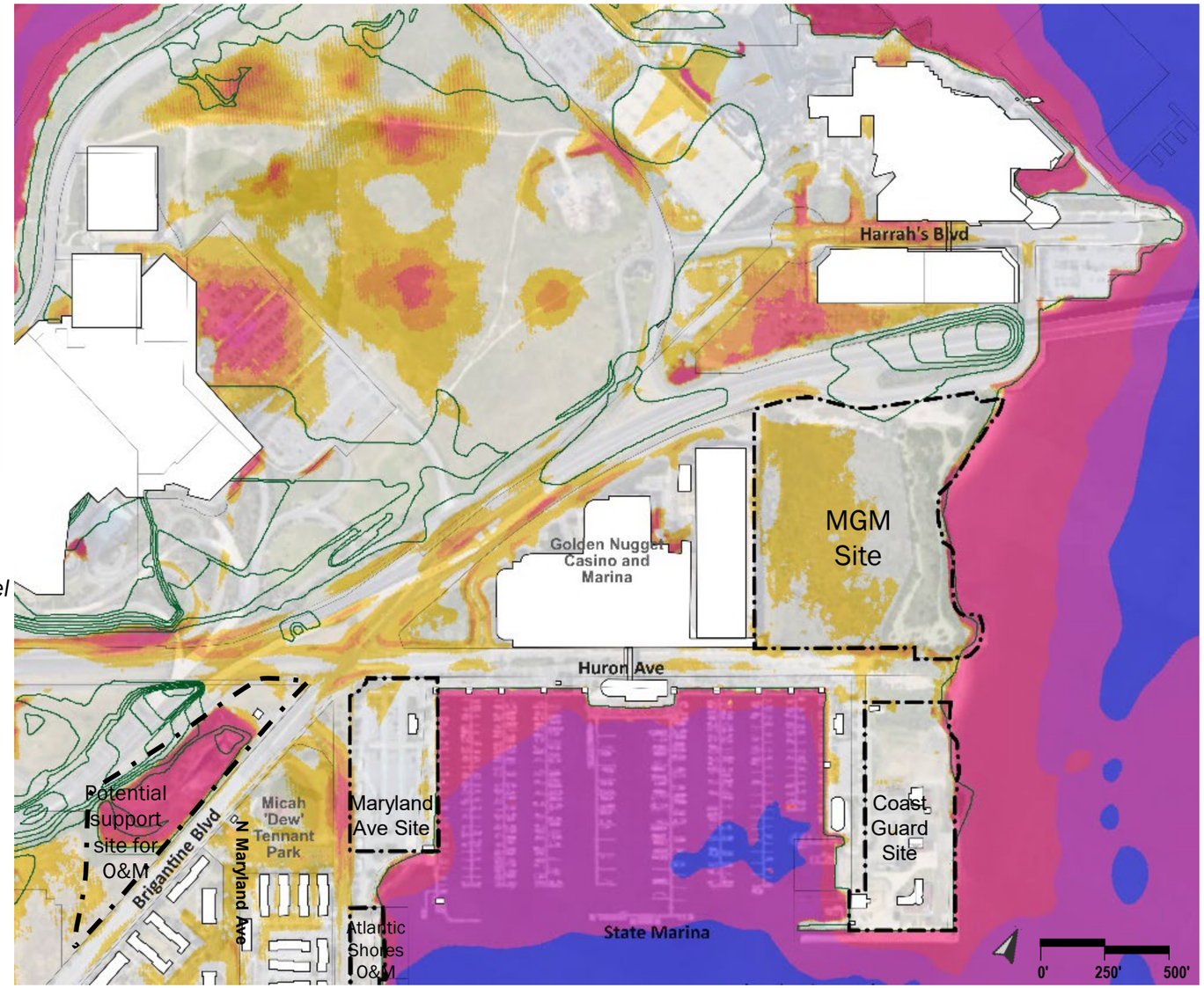
Flood Risk Long-Term (2070) Projections:

- Western half of the MGM site is vulnerable to stormwater flooding
- Northern end of the Maryland Avenue site at the intersection of Huron Avenue and Maryland Avenue is vulnerable to stormwater flooding



Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 2.4-ft Sea Level Rise (SLR)



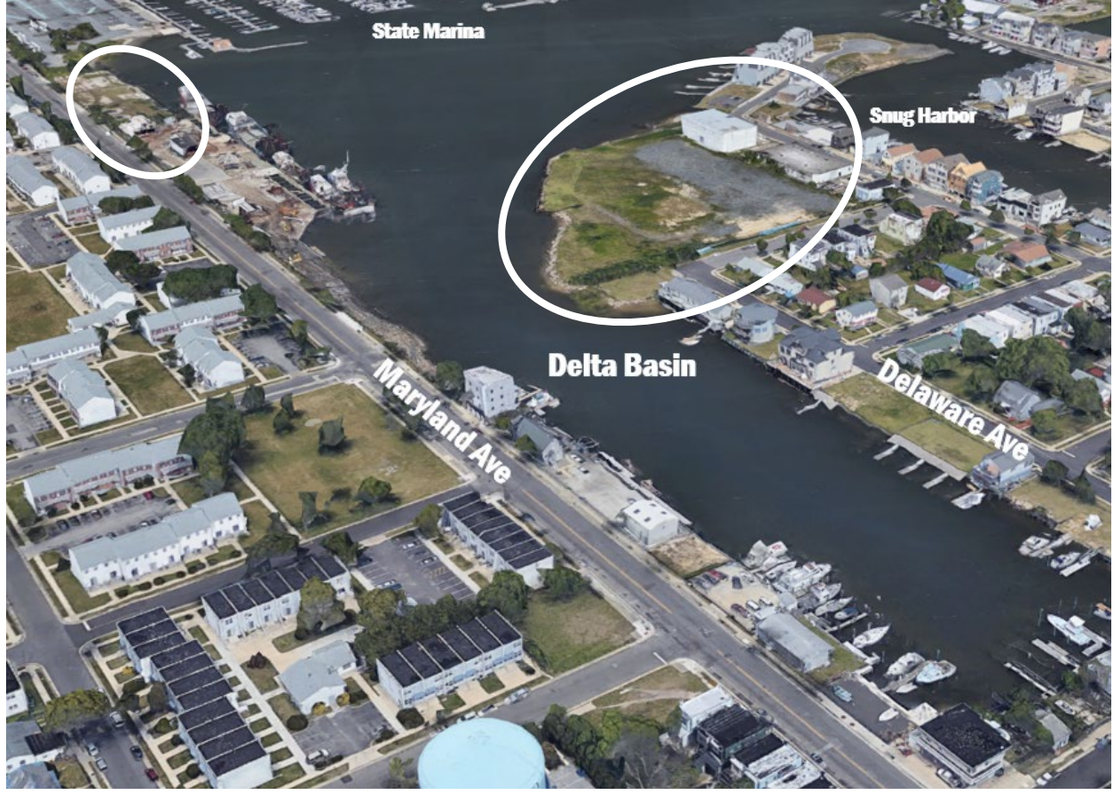


State Marina and Brigantine Bride Landing: Flood Risk Map for 2070

Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

Delta Basin
Water Side

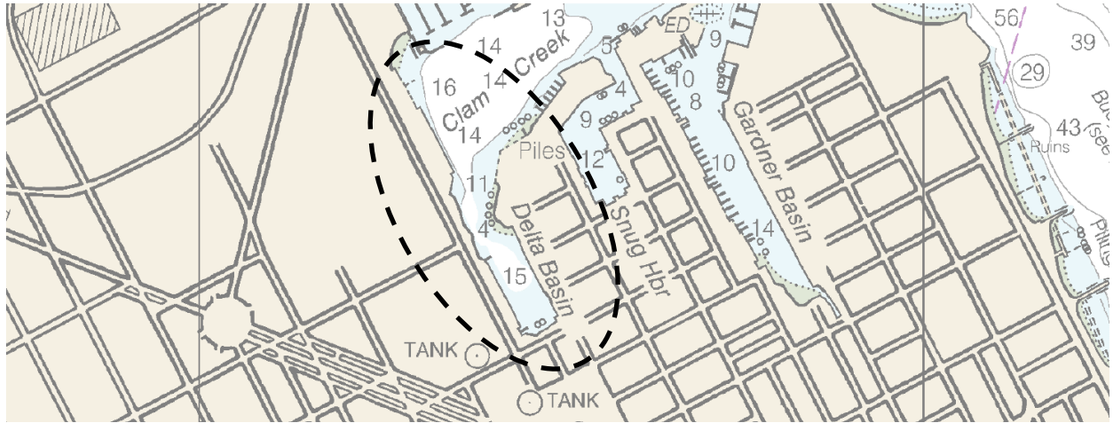
- Atlantic Shores and Ørsted have recently purchased land along Delta Basin for O&M facilities.
- O&M operations will require Crew Transfer Vessels to ferry maintenance staff to- and from the turbines.
- The Basin currently has water depths to accommodate larger boats but some additional dredging may accommodate CTVs.



Aerial view of Delta Basin (source: Google Earth)

Offshore Wind Service Operation Vessel (SOV)
Source: ostensjo.no/renewable/

Crew Transfer Vessel (CTV)
Source: www.4coffshore.com/support



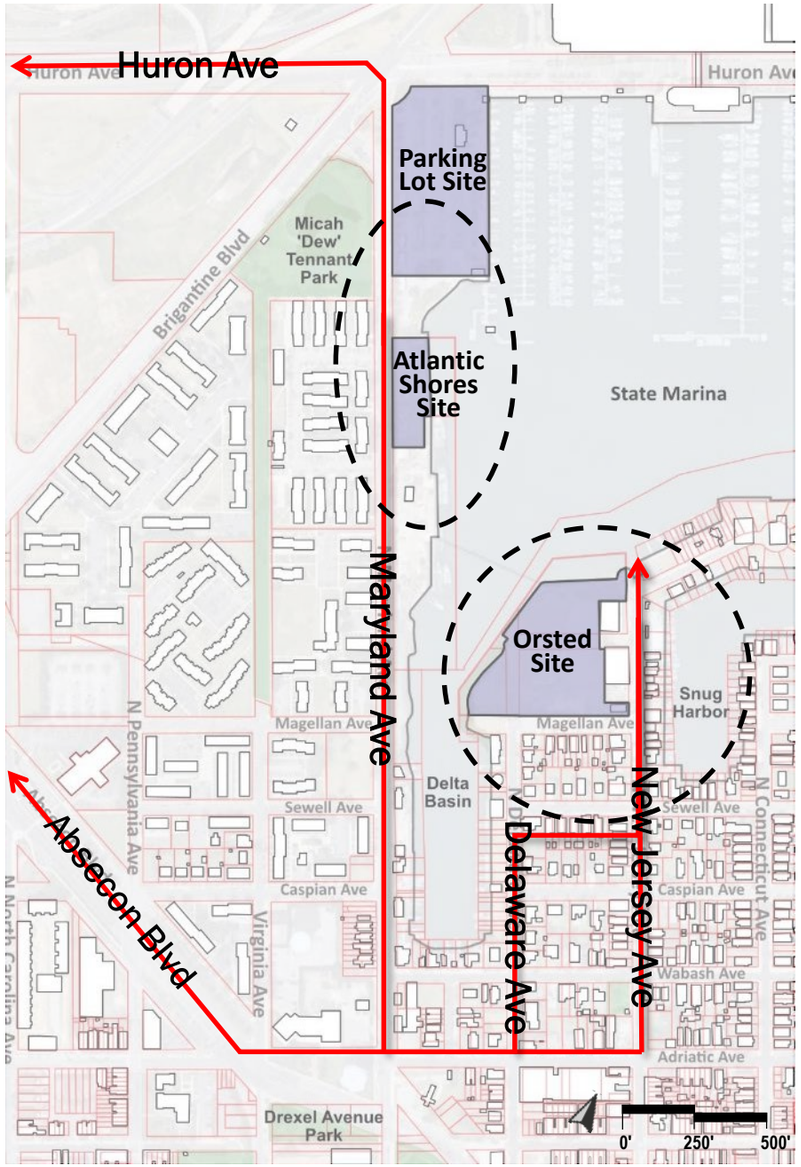
Absecon Inlet Sounding Plan (Soundings in 'feet' at Mean Lower Low Water)
Source: www.usharbors.com/2012/07/local-guide-atlantic-city-navigating-absecon-inlet/

Delta Basin

Land Side

Vehicular access

- Access to the Atlantic Shores site via Maryland Avenue is excellent
- Access to the Ørsted site is limited for trucks due to the relatively smaller widths of residential streets, Delaware Avenue and New Jersey Avenue.
- The Wind O&M sites may have 100-150 employees.
- Potential inland support sites should be considered for other supporting industries. These sites would need warehouse spaces and good access. Ideally located near the O&M sites.



Plan showing opportunity sites and site access at Delta Basin

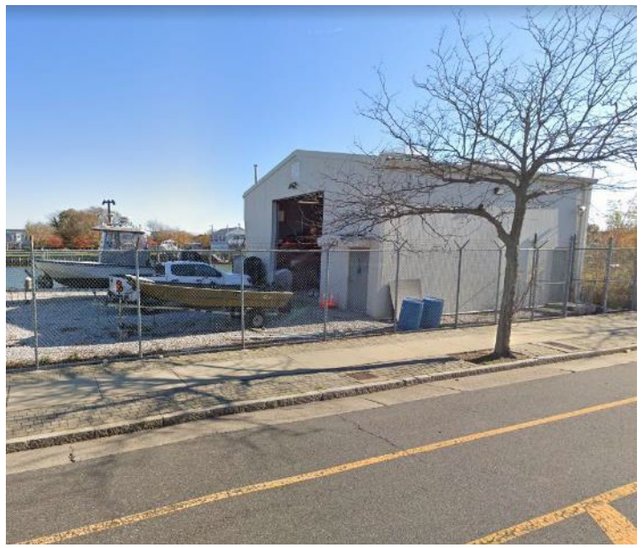
New Jersey Avenue (source: NJ.COM)

Maryland Avenue (photo: Perkins Eastman)

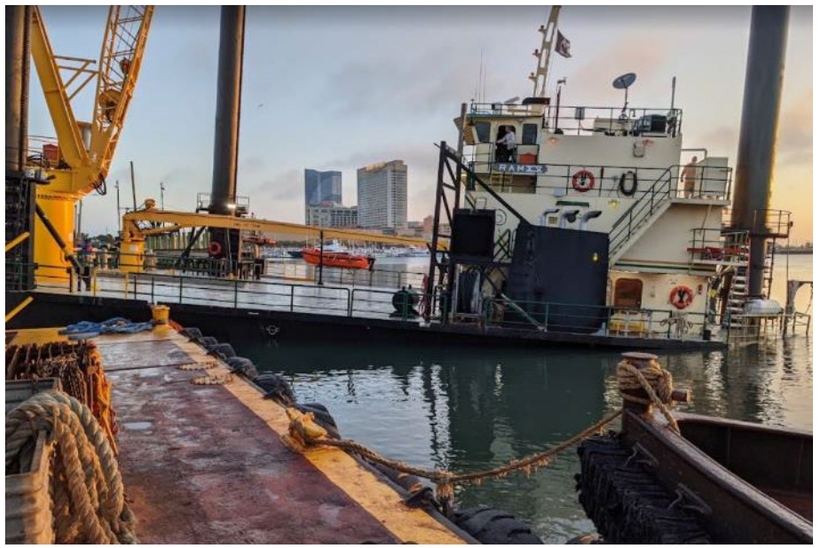
Delta Basin

Land Ownership

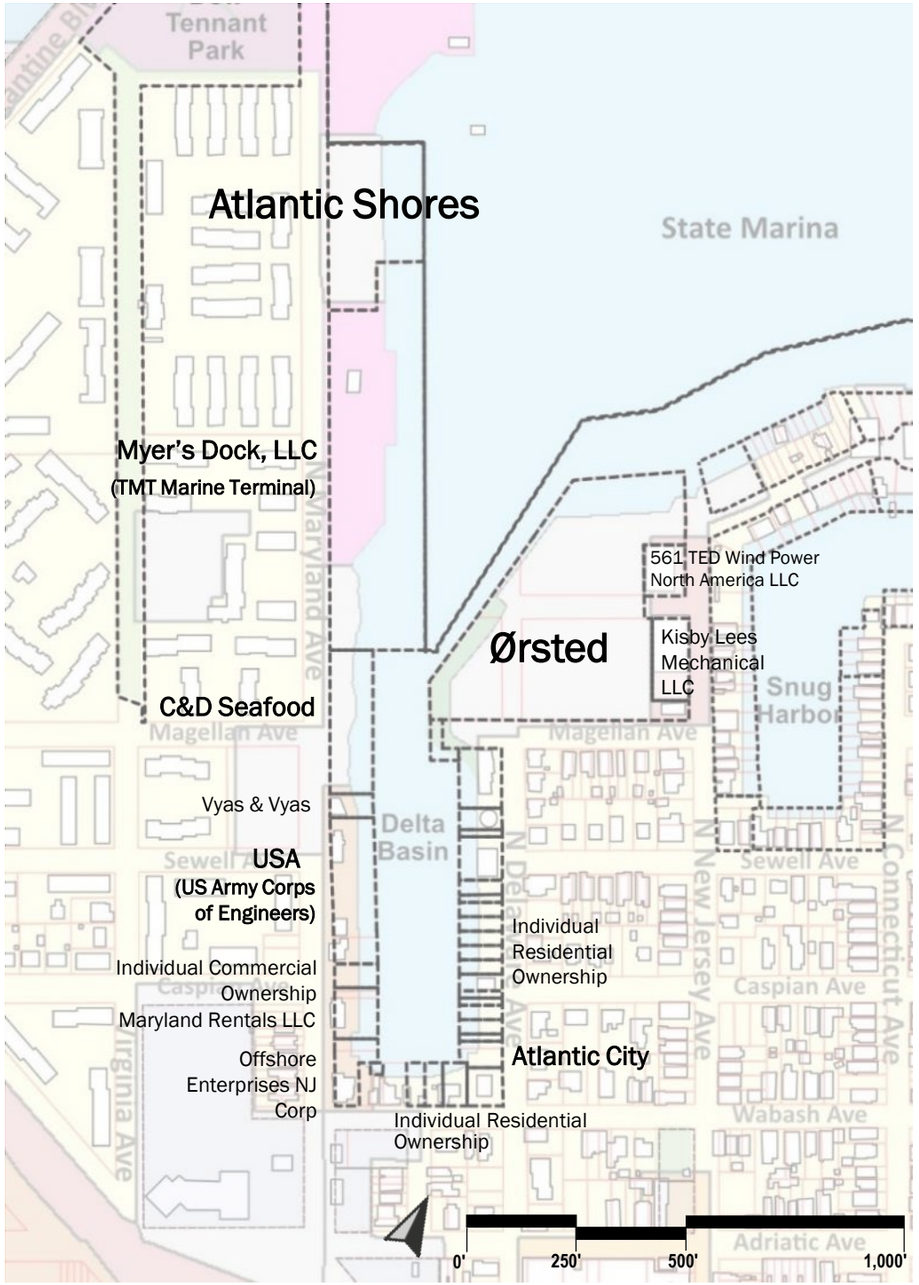
- Ørsted and Atlantic Shores own land on two sides of the basin with plans to expand for O&M facilities.
- The east side of the basin has small individually owned residential parcels.
- The west side of the basin has larger commercial parcels owned by corporations/ private developers.



US Army Corps of Engineers (Source: Google Earth)



TMT Marine Terminal (Source: Google Earth, Street View)



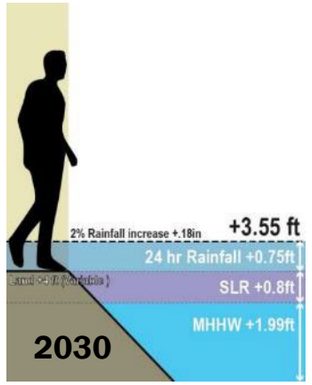
Map showing land ownership for parcels along Delta Basin shoreline

Delta Basin
Resilience Strategy

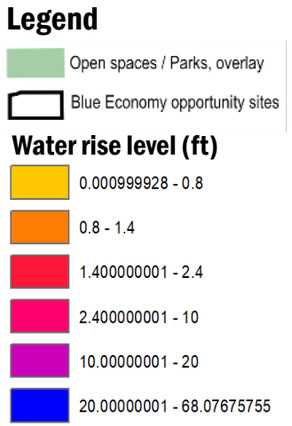
1. Leverage investments by the O&M companies to elevate buildings and improve bulkhead protection

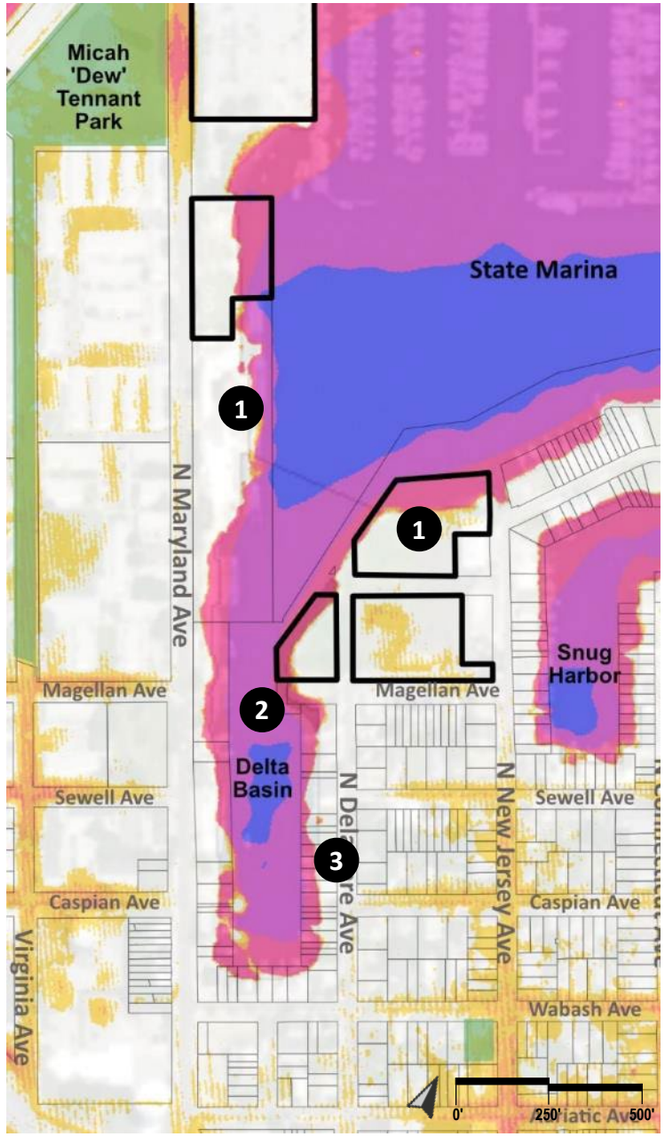
2. Proposed channel deepening for ships will improve the ability of channels to drain and convey water after an extreme weather event.

3. Improvements to Baltic Drainage Canal and Bungalow Park drainage study are expected to attenuate local flooding.



Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)





Delta Basin: Flood Risk Map for 2030

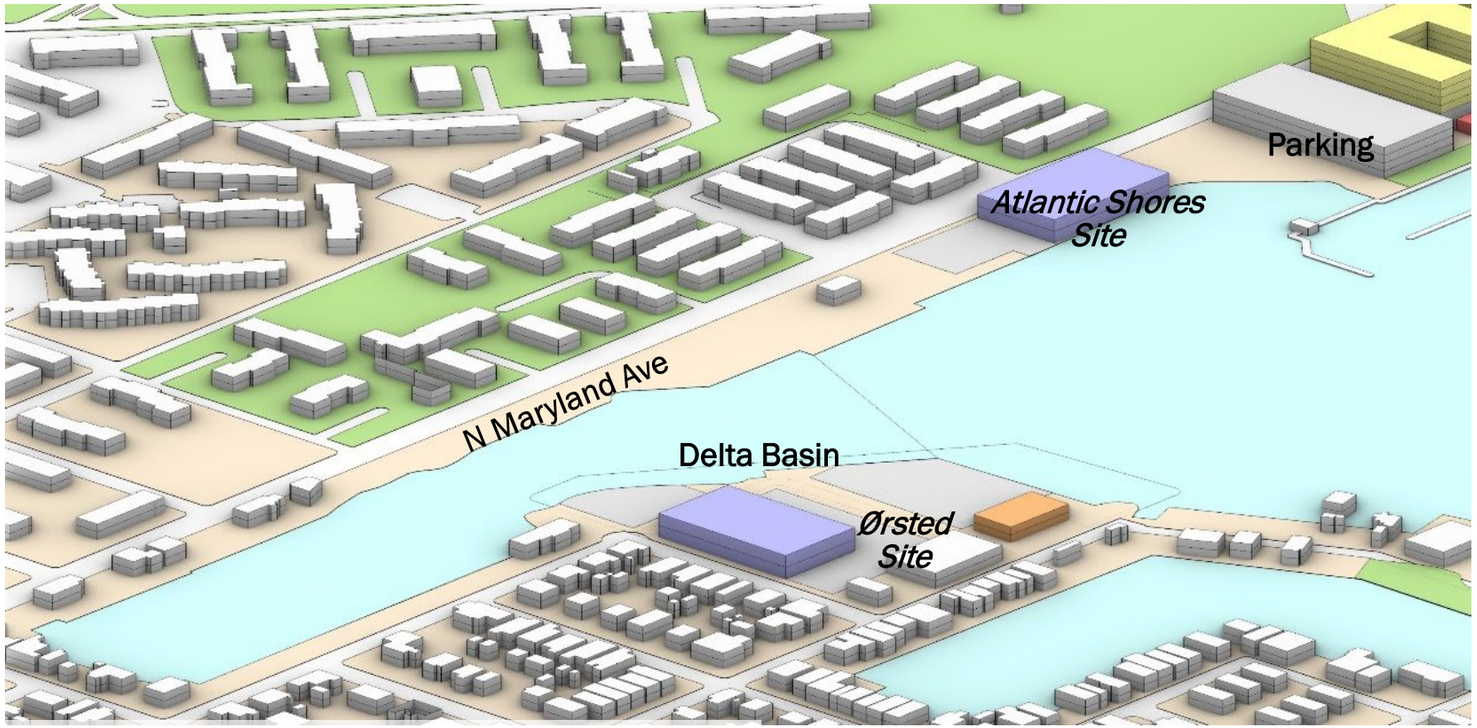
Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

Delta Basin

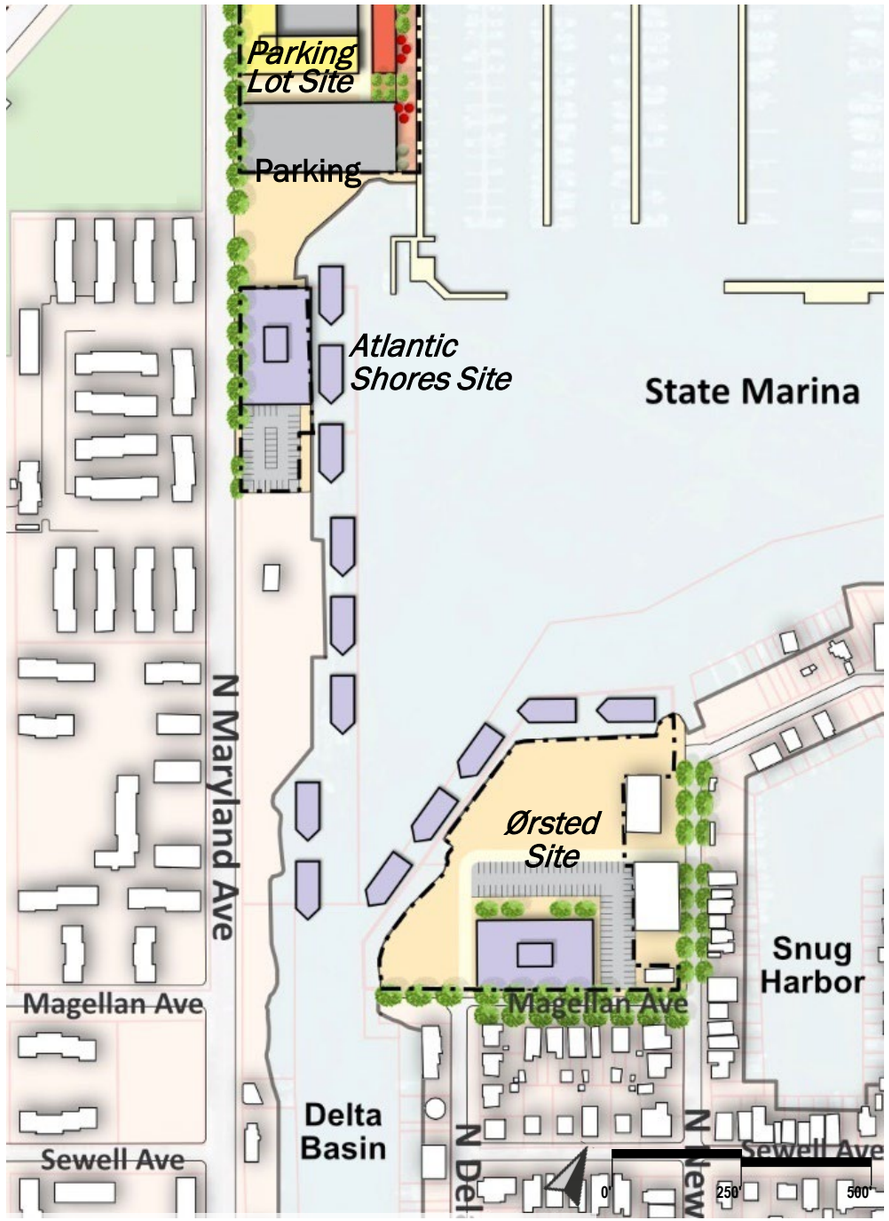
- Two major Off-shore Wind companies (Østed and Atlantic Shores) have recently purchased land along Delta Basin, with plans to expand if possible.

- These sites would be programmed for necessary office/ warehouse space, surface parking and staging areas for the daily vessels.

- At the Maryland Ave parking lot site, the proposed parking garage may accommodate parking needs for the Atlantic Shores site.



Aerial view of Delta Basin Economic Development Scenario

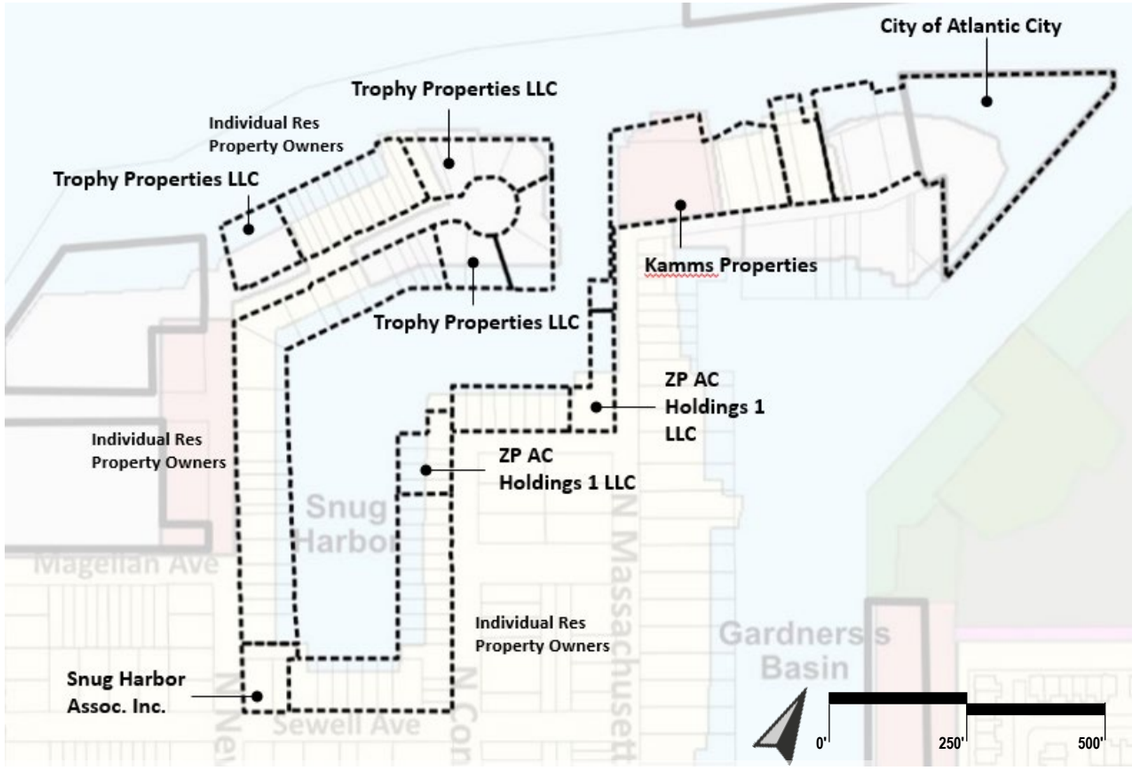


Delta Basin Economic Development Scenario

Snug Harbor

Site Analysis Summary

- Snug Harbor is predominantly residential, with a small scale and intimate character, which should be preserved.
- The fueling station located outside Snug Harbor is an important harbor-wide resource.



Map showing land ownership for parcels along Snug Harbor Shoreline

Snug Harbor looking east (Photo: Perkins Eastman)

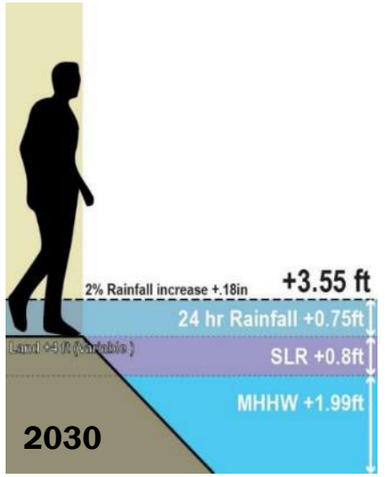
Snug Harbor as seen from the water (Photo: Perkins Eastman)

Snug Harbor

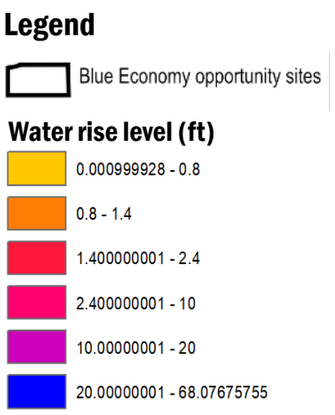
Resilience Strategy

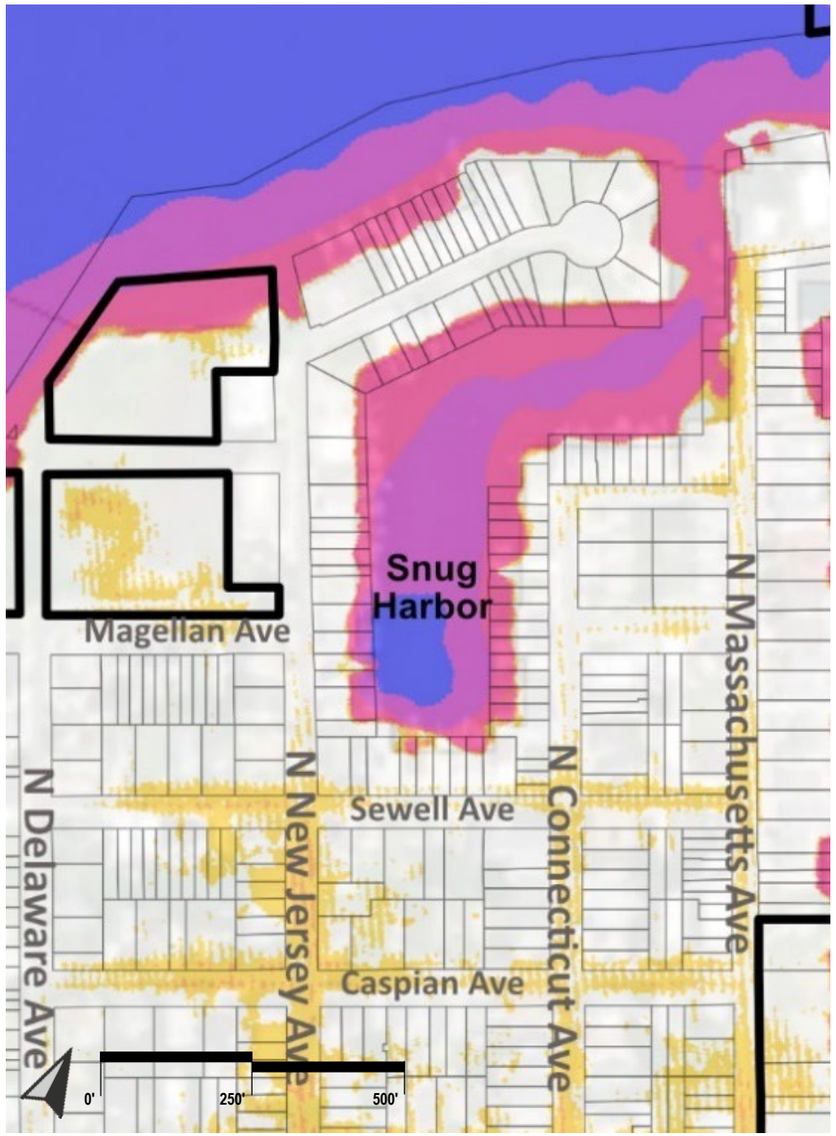
- Shoreline improvements to be made incrementally by employing loan and incentive programs

Snug Harbor looking south (Photo: Perkins Eastman)



Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)





Snug Harbor: Flood Risk Map for 2030

Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.

Stormwater Management Strategies

- Maintain the existing and planned stormwater management projects the Baltic Ave Canal and drainage improvements in the Bungalow Park
- Study the effectiveness of the existing & planned stormwater strategies to minimize the risk of flood in the streets (critical evacuation roads)

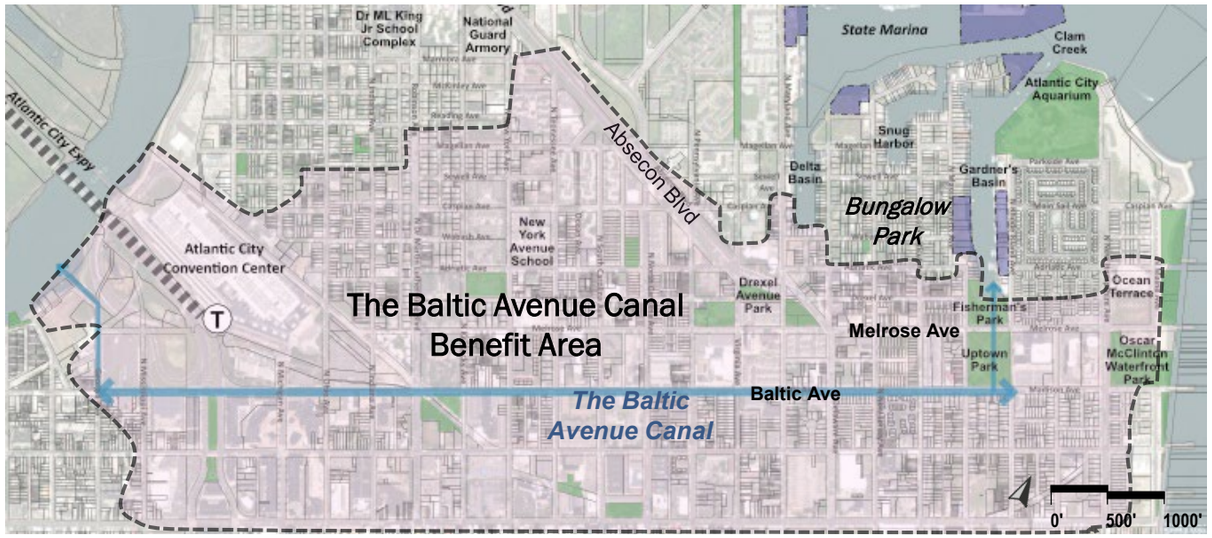
Recently installed pump station at Fisherman's Park
Source: Press of Atlantic City, 2019

Fisherman's Park from above
Source: Google Earth

Stormwater Management

Baltic Avenue Drainage Canal and Drainage Pumps

- The canal runs along Baltic Avenue between Georgia Ave and Rhode Island Avenue, and drains stormwater into Atlantic Ave and Fisherman's Park, and ultimately into Gardner's Basin.
- The drainage area of the Baltic Ave Canal improvements is about 775 acres.
- The drainage area does not include the Bungalow Park but helps drain water in the access roads to the Bungalow Park.



Map showing Baltic Avenue Canal Benefit Area as an overlay

(source: prepared by Perkins Eastman based on the "Baltic Avenue Canal Project Benefit Area Map" by the City of Atlantic City, New Jersey)

3. Offshore Wind O&M Site Assessments

- Potential Off Shore Wind Industry Support Sites & Summary
- O&M Sites Assessment
- Atlantic City Off Shore Wind: Absecon Boulevard Corridor

(Photo: Perkins Eastman)

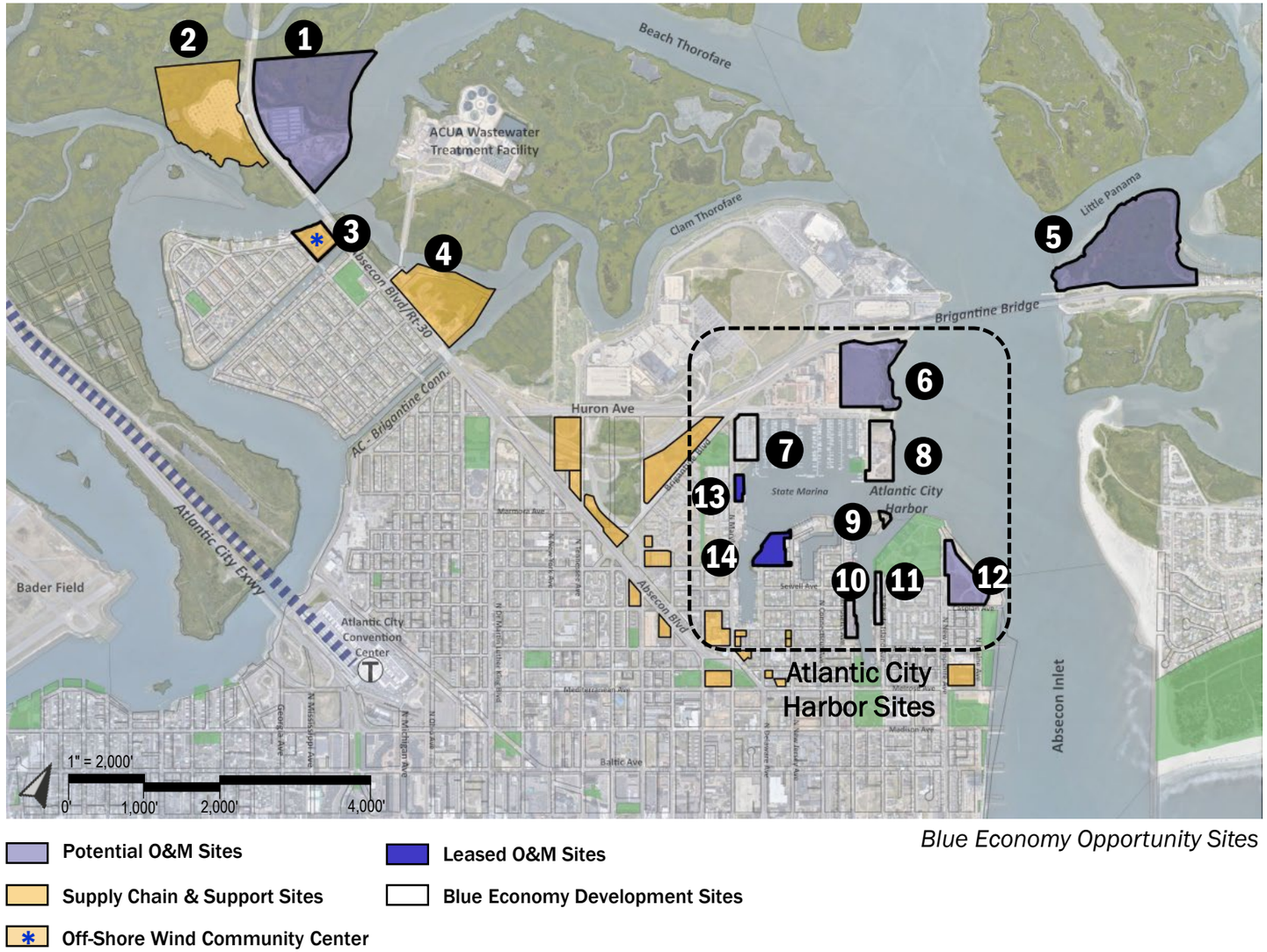
Potential Offshore Wind Industry Support Sites

The Plan includes an assessment of 12 sites - five sites in the Back Bay, and seven sites within the Harbor – for suitability for Wind O&M operations.

1. 2141 Absecon Blvd (B 838)
2. 2100 Absecon Blvd (B. 799)
3. 1817 Murray Ave (B. 720-37)
4. 1601 N Riverside Dr (B.741-744)
5. North of Brigantine Blvd (B. 846)
6. MGM Site (B.571)
7. Maryland Ave Site (B.567 Lot 3)
8. Coast Guard Site (B. 567 Lot 8)
9. Waterfront Site (Block 566)
10. Truex (Block 551 Lots 5-8)
11. Gardner's Basin West – Truex
12. Caspian Pointe (Block 102)
13. Atlantic Shores O&M (B. 567) *
14. Ørsted O&M (B. 562-564)*

Atlantic City Harbor Sites

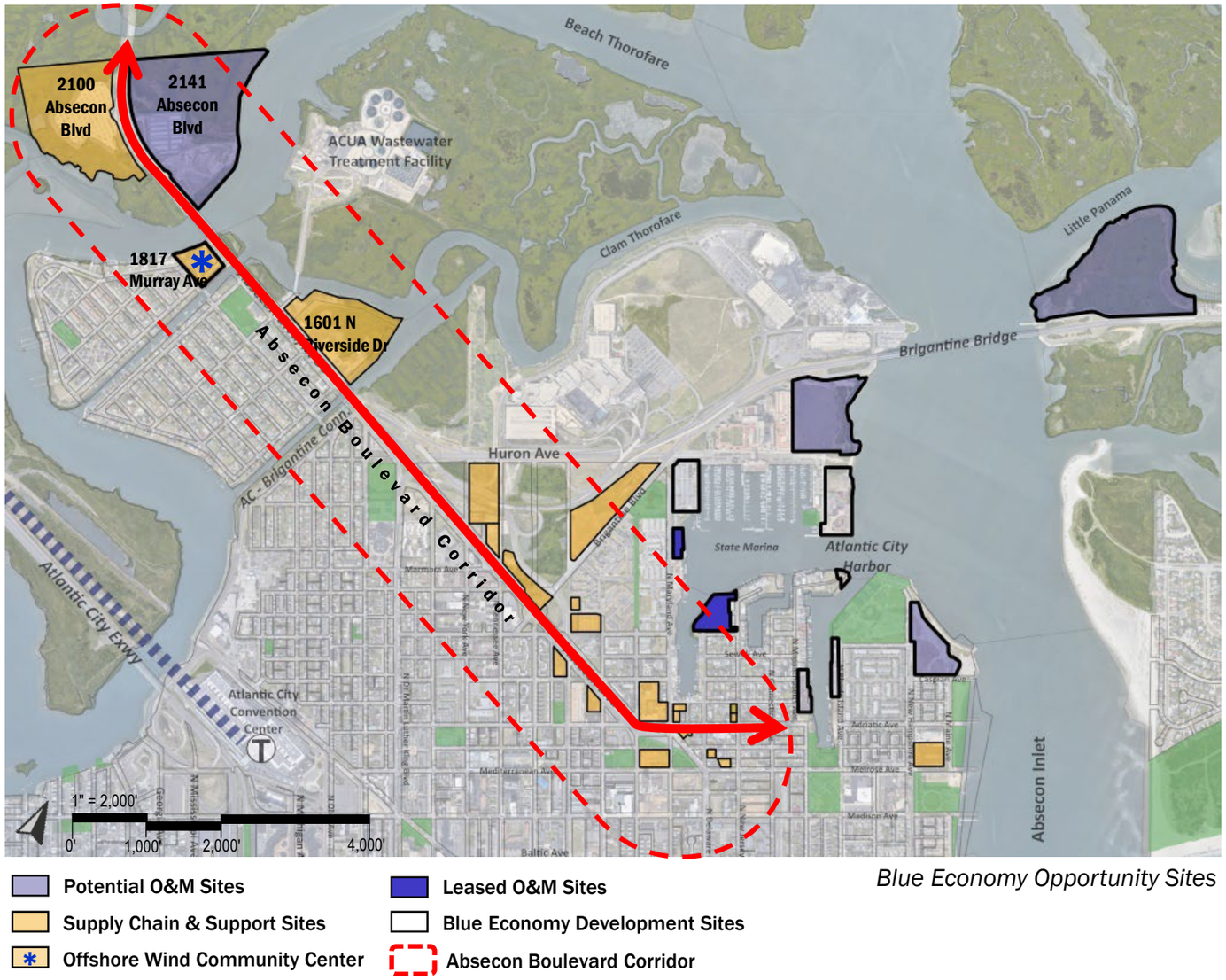
* The two already-leased Atlantic City Harbor Sites are not included in the assessment.



Blue Economy Opportunity Sites

Summary
O&M Sites Assessment

- Sites were evaluated with respect to:
  - site area,
  - adjacent and on-site land-use compatibility,
  - road and waterway access, and
  - environmental impact.
- Constraints including wetlands and bridges, and potential conflicts with adjacent neighborhoods limit the use of sites outside of Atlantic City Harbor for Wind O&M
- Limited drafts found in the Back Bay and within Atlantic City Harbor make the waterside access to most sites possible only with CTVs.
- Two sites can accommodate SOVs: the Caspian Pointe and the MGM sites.
- 2141 Absecon Boulevard, emerged as the best site for Wind O&M outside of the Atlantic City Harbor
- Other properties identified along Absecon Boulevard were identified as potential sites for support functions such as administrative, storage, community education, supply chain, etc.
- Potential for Absecon Boulevard to evolve into a corridor oriented around wind-industry.



Blue Economy Opportunity Sites

2141 Absecon Boulevard (Block 838 Lots 11-20)

Overview

Transportation & Access:

Good access from major highways

Water Access:

Water depths can accommodate CTVs with some local dredging

Land-Use & Zoning:

Zoning changes needed

Environmental Impact:

Shoreline modifications will require disturbance of wetlands

Aerial view of 2141 Absecon Boulevard from the south (source: Google Earth)

2141 Absecon Boulevard (Block 838 Lots 11-20)

Site Characteristics

Property area: 43 acres

Wetlands: 28 acres

Zoning: HW-C (Highway Commercial)

Ownership: AC Meadowlands LLC

Existing use on site: Storage facility

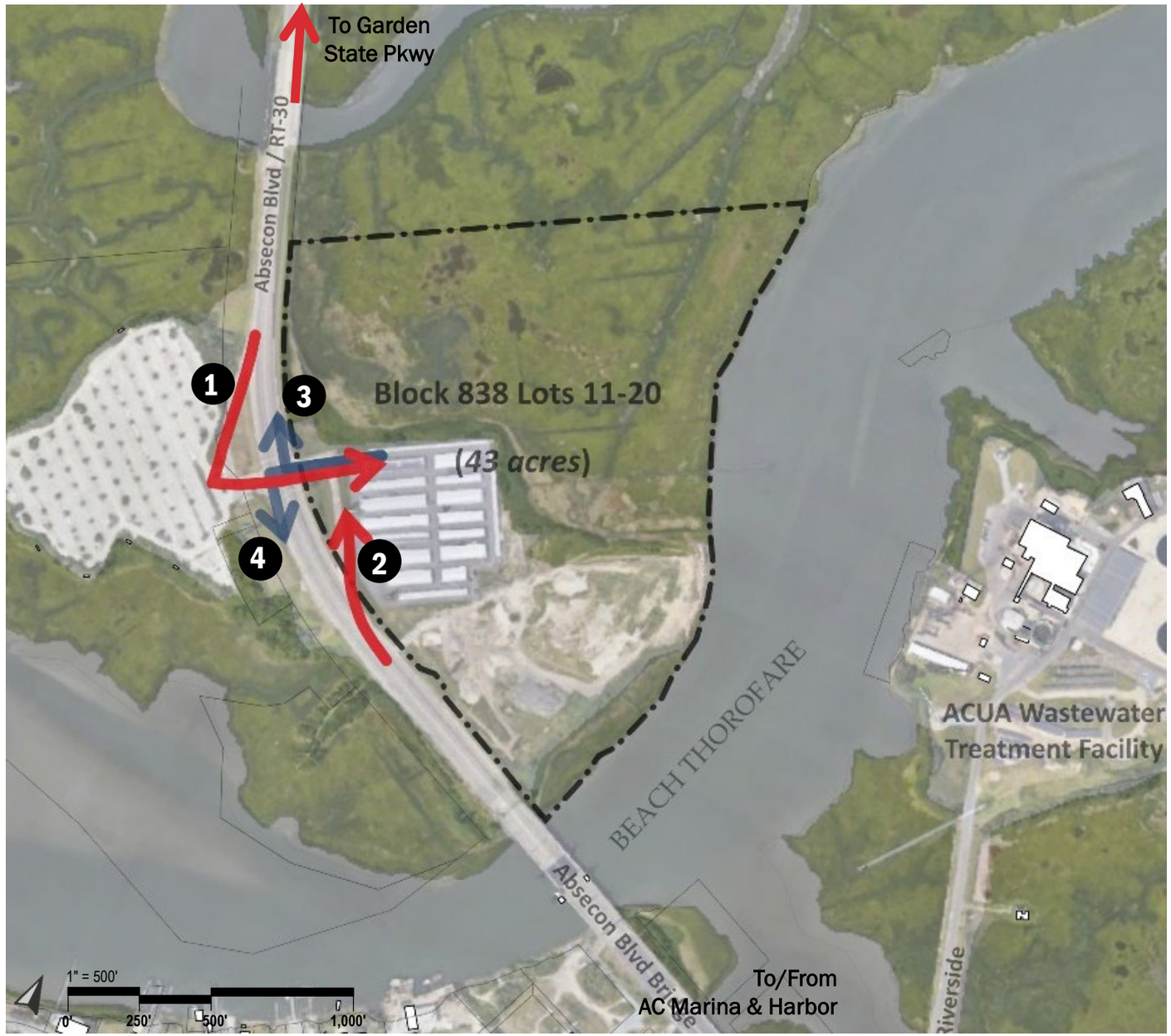
2141 Absecon Blvd, street view towards existing storage facility (Source: Google street view)

2141 Absecon Boulevard

Site Access

Good access from Absecon Boulevard

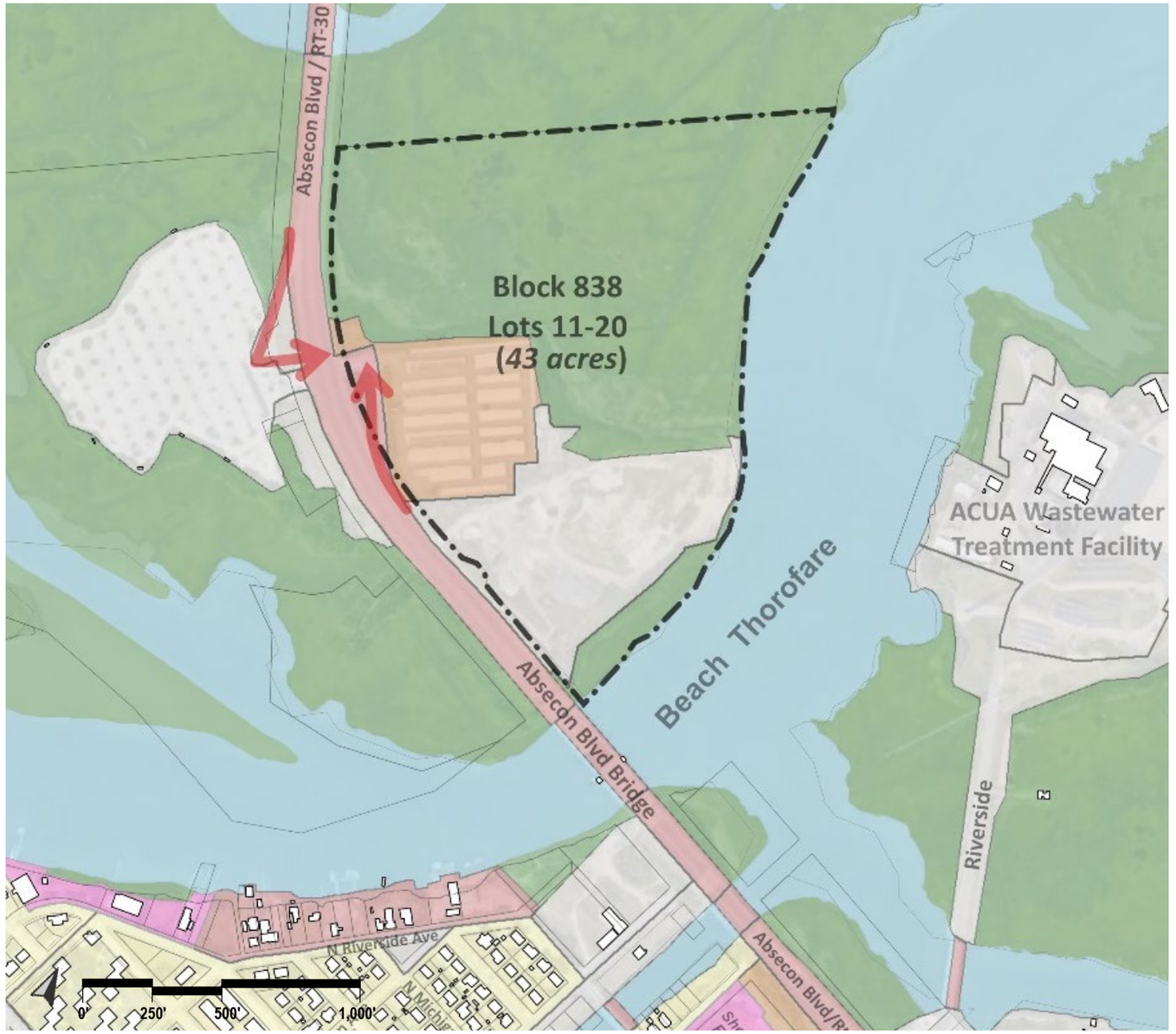
1. Southbound traffic entrance to the site
2. Northbound traffic entrance to the site
3. Exiting from the site for trips to north
4. Exiting from the site for trips to south



2141 Absecon Boulevard (Block 838)

Land Use

Wind O&M compatible with the adjacent properties



Land Use Map for the area around 2100 Absecon Boulevard area

(Source: NJDEP Bureau of GIS, Land Use/Land Cover of New Jersey 2015

Legend

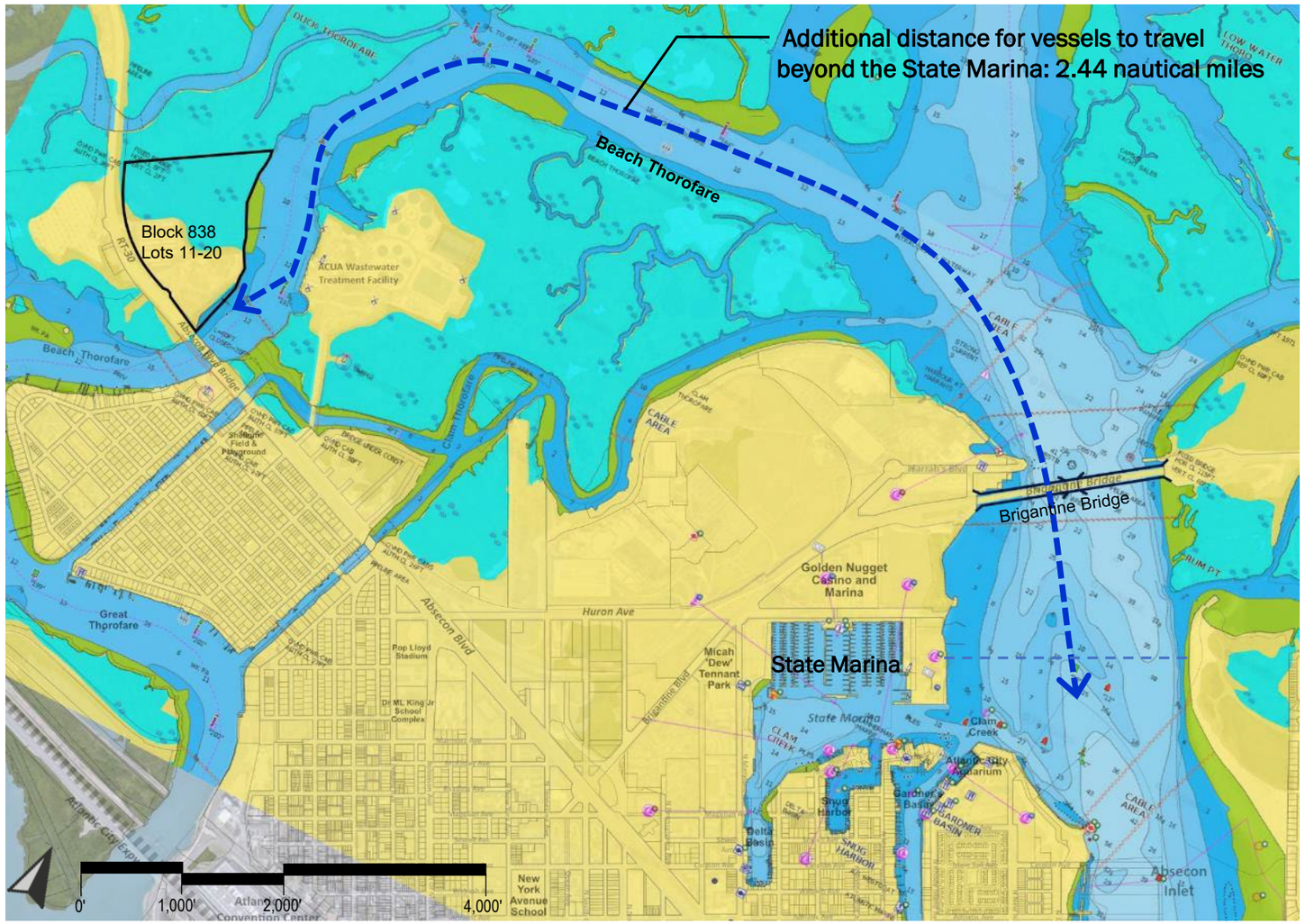
- Altered Lands
- Commercial Services
- Wetlands (Cedar/Brush Shrubland/Coniferous Forest)
- Major Roadway, Bridge Over Water
- Residential (High/Medium/Low Density)
- Mixed Residential
- Recreational Land
- Transitional Areas, Transportation, Communication Utilities

2141 Absecon Boulevard (Block 838 Lots 11-20)

Water Access

- Accessible to CTVs *via Beach Thorofare and under the* Brigantine Bridge.
- Large-scale dredging not required

Brigantine Bridge (photo by Arlane Crump, 2017)



Atlantic City Back Bay map with Nautical Chart overlay showing water access to the site

(source: Navionics.com)

Land Cover

- Land region - Marsh
- Land area

Water Depth in Areas with Frequent Vessel Traffic

- Depth area (<0 ft)
- Depth area (0-6 ft)
- Depth area (12-18 ft)
- Depth area (6-12 ft)
- Depth area (18-30 ft)
- Depth area (30-60 ft)

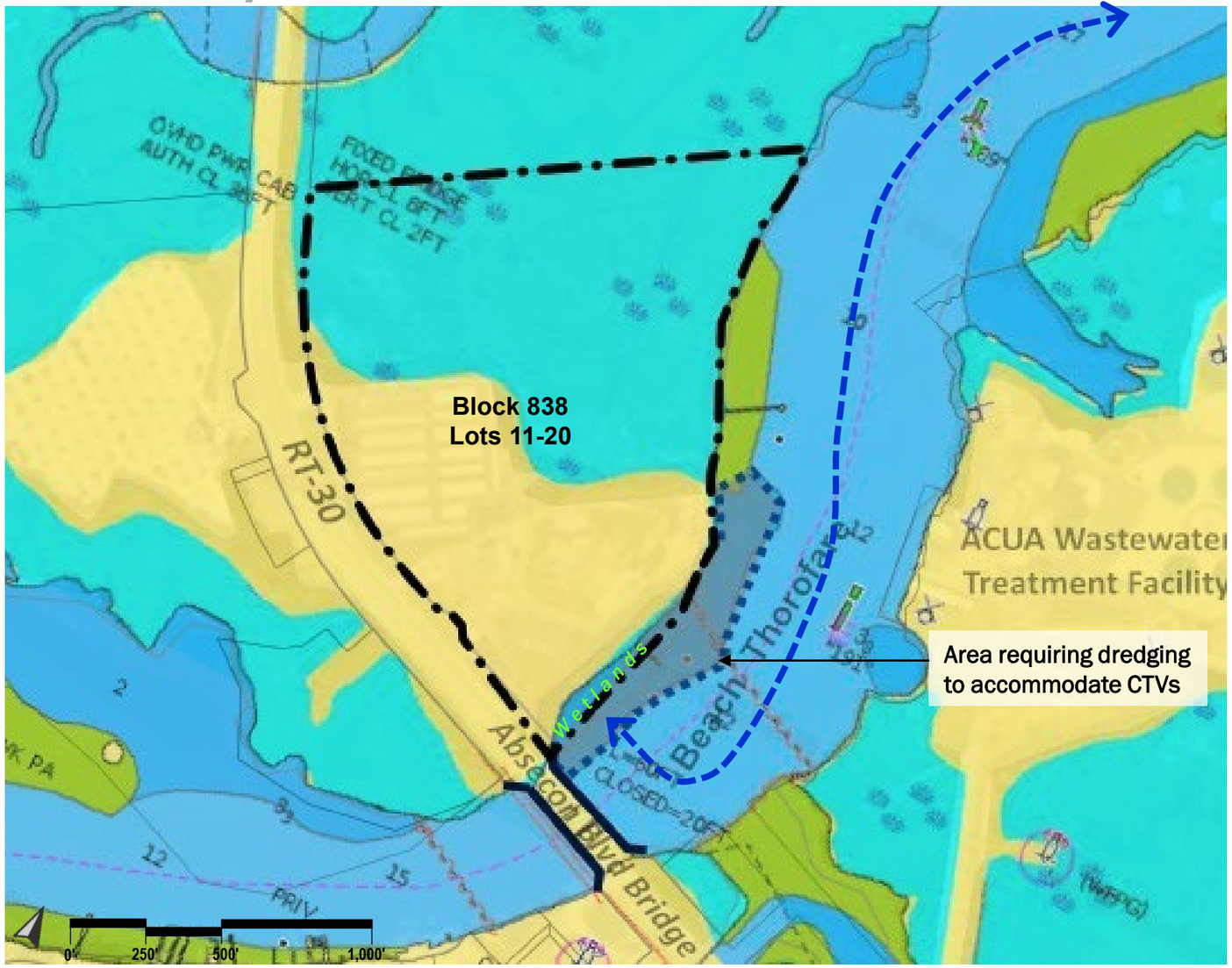
2141 Absecon Boulevard (Block 838 Lots 11-20)

Water Access and Docking

- Local dredging is required along the shoreline
- Approximately half the shoreline is occupied by wetlands, which need to be addressed to establish docking facilities for CTVs

Aerial view of 2141 Absecon Boulevard from the southeast (source: Google Earth)

2141 Absecon Boulevard from the water
(Photo by Perkins Eastman)



Site Map with Nautical Chart overlay
(source: Navionics.com)

Land Cover
- Land region - Marsh
- Land area

Water Depth in Areas with Less Frequent Vessel Traffic
- Depth area (-16.4-0 ft)
- Depth area (0-3 ft)
- Depth area (3-30 ft)

2100 Absecon Boulevard

Overview

- Most appropriate for storage, office, supply chain functions
- Can complement potential Wind O&M facilities on 2141 Absecon Boulevard

Transportation & Access:

- Good access via Absecon Boulevard

Water Access:

- Shallow waters along the shoreline will require dredging
- Access limited by Absecon Boulevard drawbridge

Land-Use & Zoning:

- Zoning changes not required

Environmental Impact:

- Majority of the site is occupied by wetlands

Aerial view of 2000 Absecon Boulevard from the south (source: Google Earth)

2100 Absecon Boulevard (Block 799 Lot 25)

Site Characteristics

Property area: 31 acres

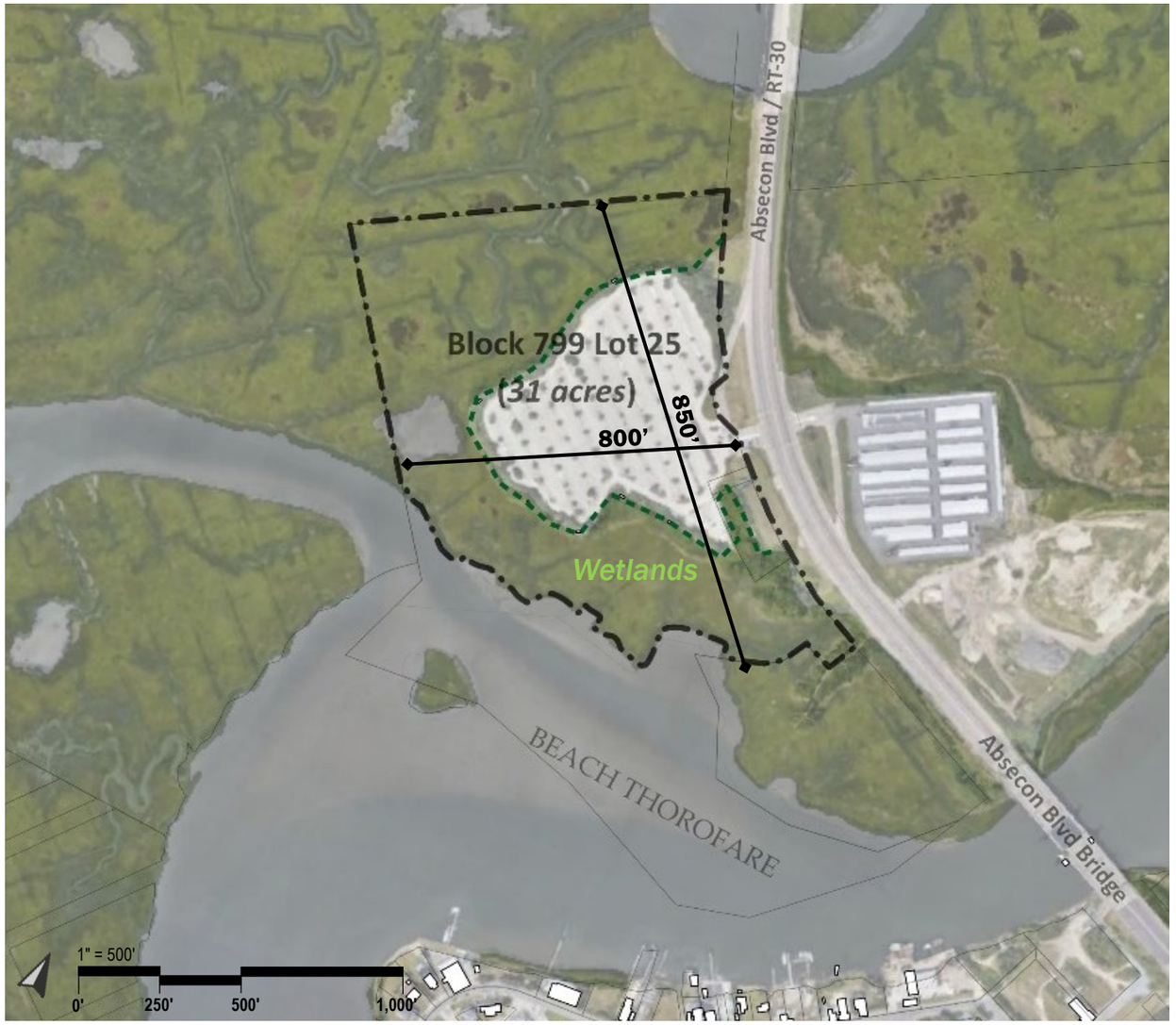
Wetlands: 20 acres

Zoning: HW-C (Highway Commercial)

Ownership: Golden Nugget

Current Use: Atlantic City Yard

2100 Absecon Boulevard, access from the highway, existing Impervious surface
(Source: Google street view)

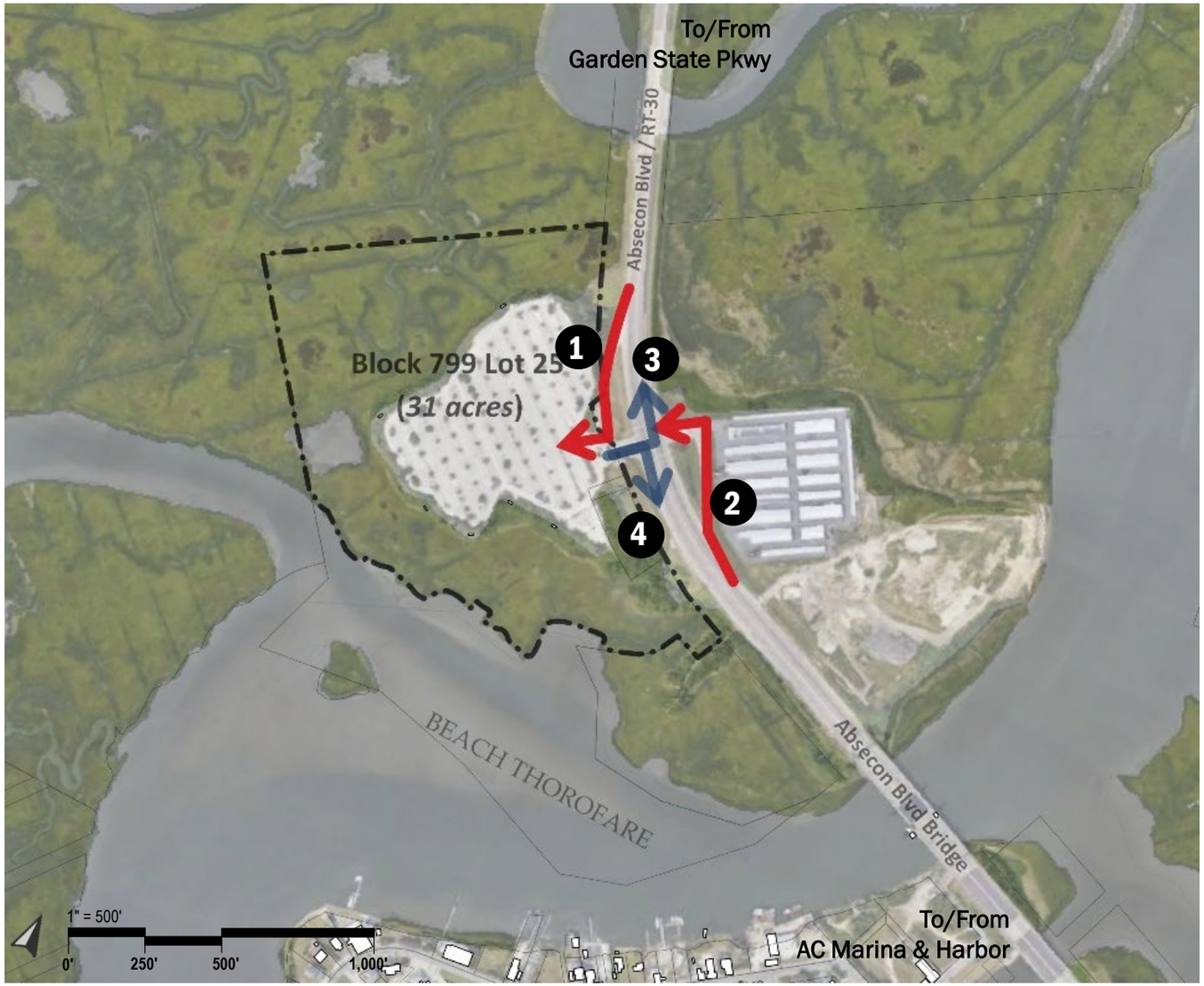


2100 Absecon Boulevard (Block 799 Lot 25)

Site Access

Relatively easy access from Absecon Blvd / Rt-30

1. Southbound traffic entrance to the site
2. Northbound traffic entrance to the site
3. Exiting from the site for trips to north
4. Exiting from the site for trips to south



2100 Absecon Boulevard (Block 799)

Land Use

Wind O&M uses present no conflicts with adjacent properties

Land Use Map for the area around 2100 Absecon Boulevard area
(Source: NJDEP Bureau of GIS, Land Use/Land Cover of New Jersey 2015

Legend

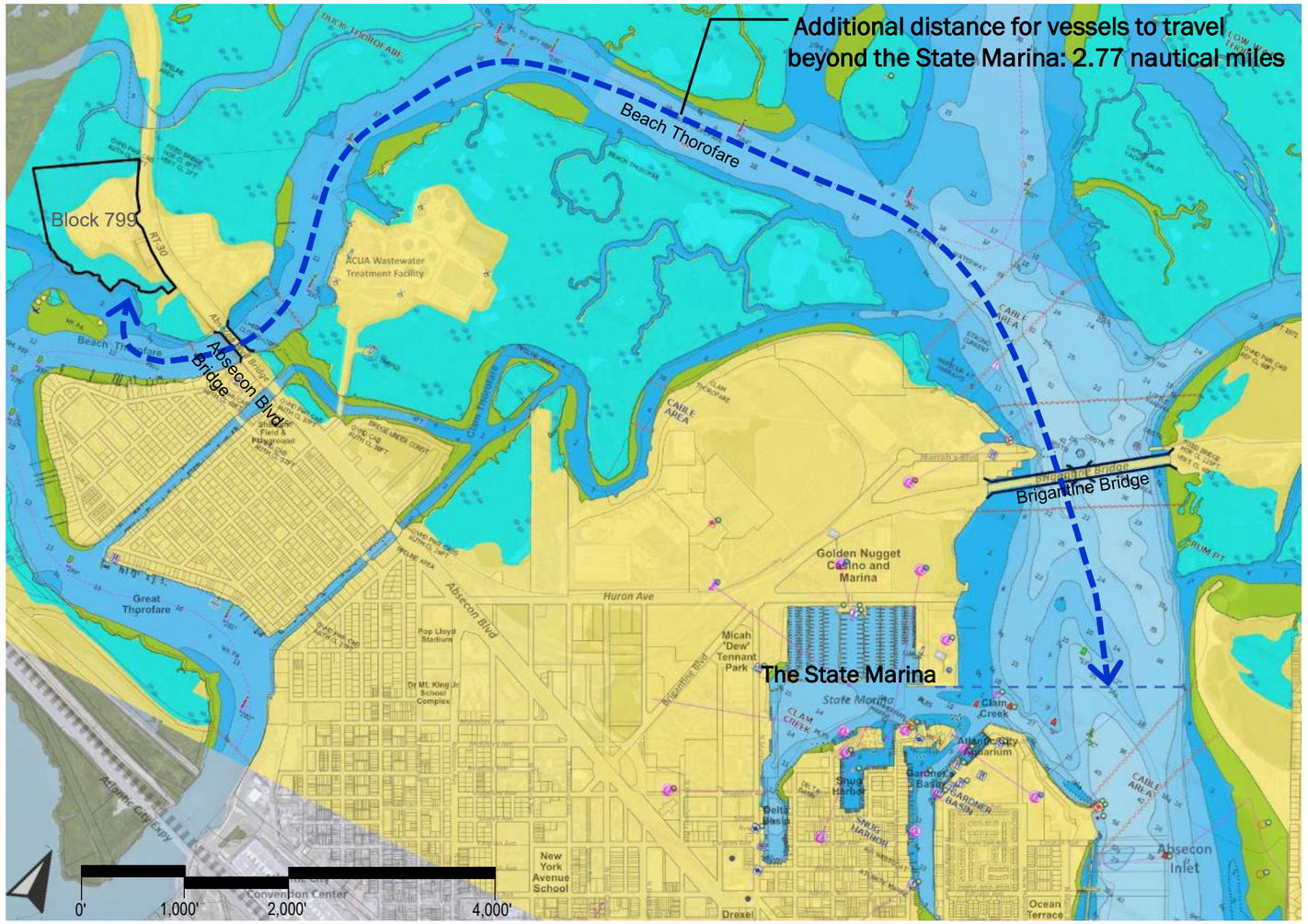
- Altered Lands
- Commercial Services
- Wetlands (Cedar/Brush Shrubland/Coniferous Forest)
- Major Roadway, Bridge Over Water
- Residential (High/Medium/Low Density)
- Mixed Residential
- Recreational Land
- Transitional Areas, Transportation, Communication Utilities

2100 Absecon Boulevard (Block 799 Lot 25)

Water Access

- Accessible to CTVs *via Beach Thorofare.*
- Access under the Absecon Boulevard Bridge requires the drawbridge to be raised
- Dredging is needed for water access.

Absecon Boulevard Bridge, during its 2012 renovation.
Source: IEW Construction Group, www.iewconstructiongroup.com/



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(Source: Navionics.com)

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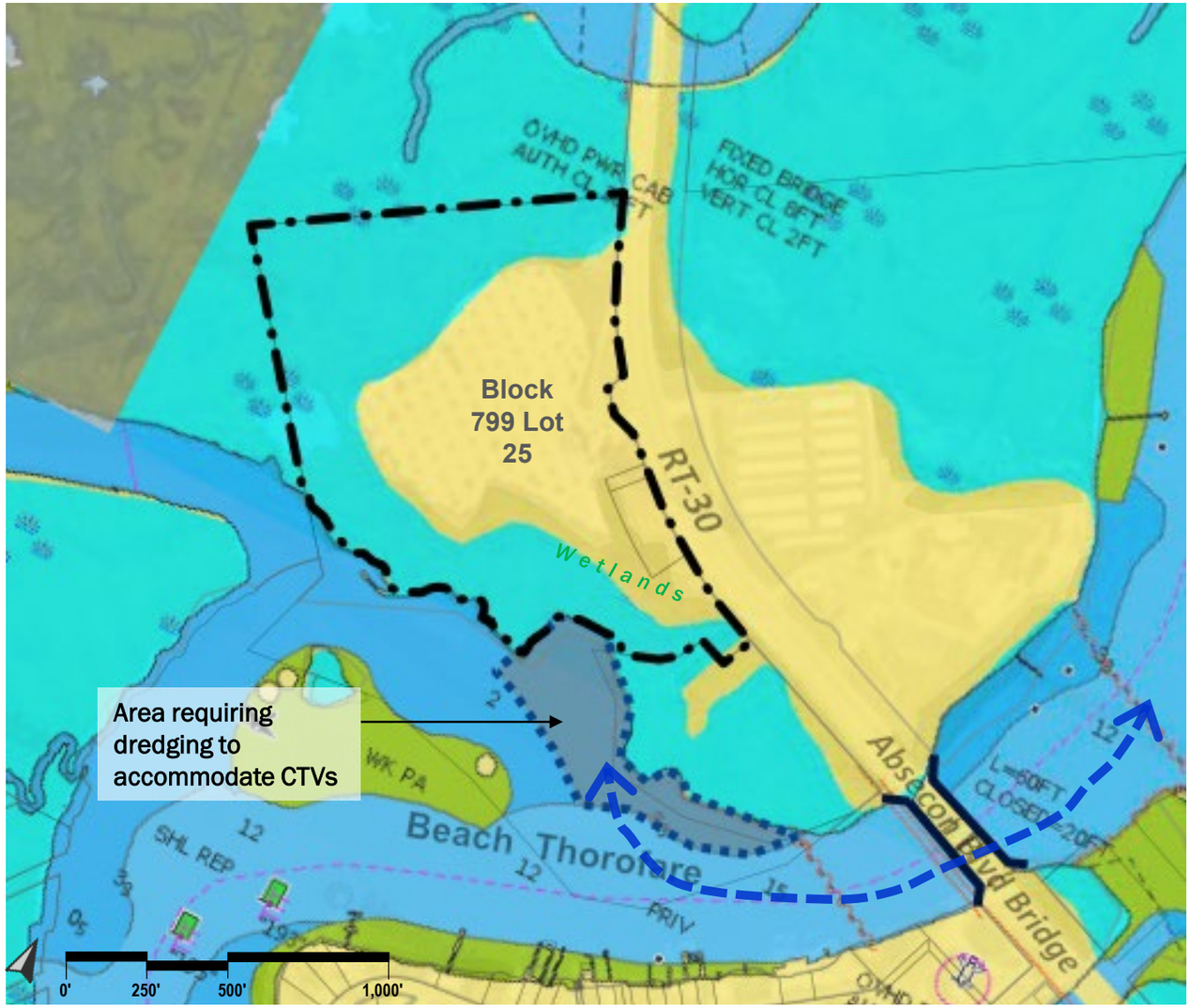
- Depth area (0-6 ft)
- Depth area (12-18 ft)
- Depth area (6-12 ft)
- Depth area (18-30 ft)
- Depth area (30-60 ft)

2100 Absecon Boulevard (Block 799 Lot 25)

Water Access and Docking

- Local dredging required to accommodate CTVs
- Wetlands occupy a significant portion of the shoreline.

Aerial view of 2141 Absecon Boulevard from the south (source: Google Earth)



Site Map with Nautical Chart overlay (source: Navionics.com)

Land Cover

- Land region - Marsh
- Land area

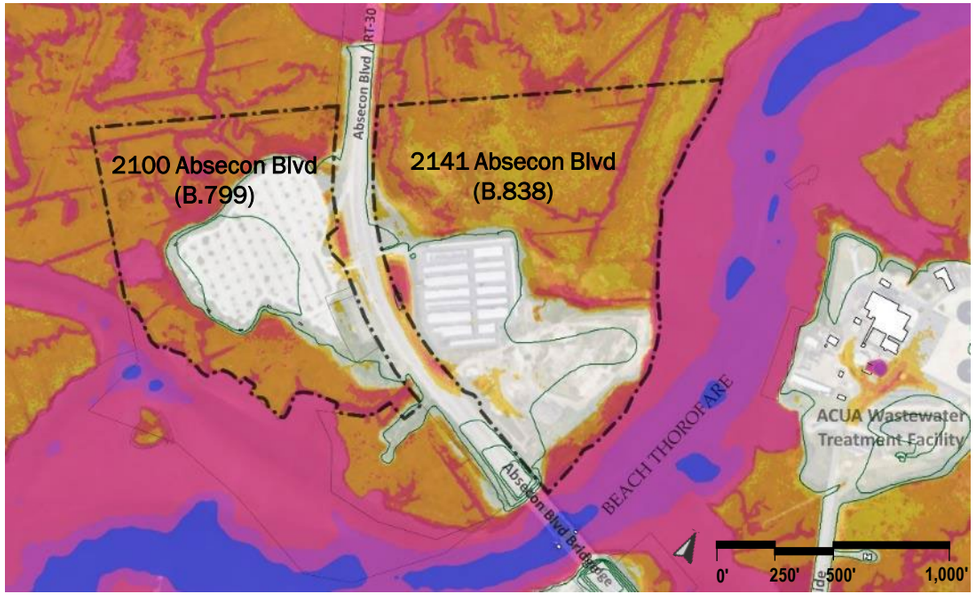
Water Depth in Areas with Less Frequent Vessel Traffic

- Depth area (-16.4-0 ft)
- Depth area (0-3 ft)
- Depth area (3-30 ft)

2141 + 2100 Absecon Boulevard

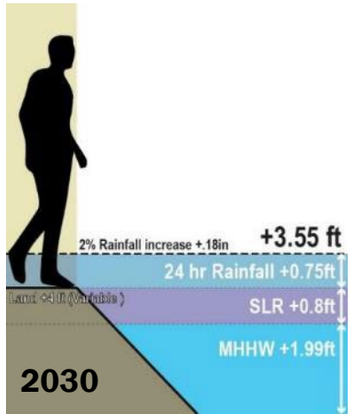
Flood Projections

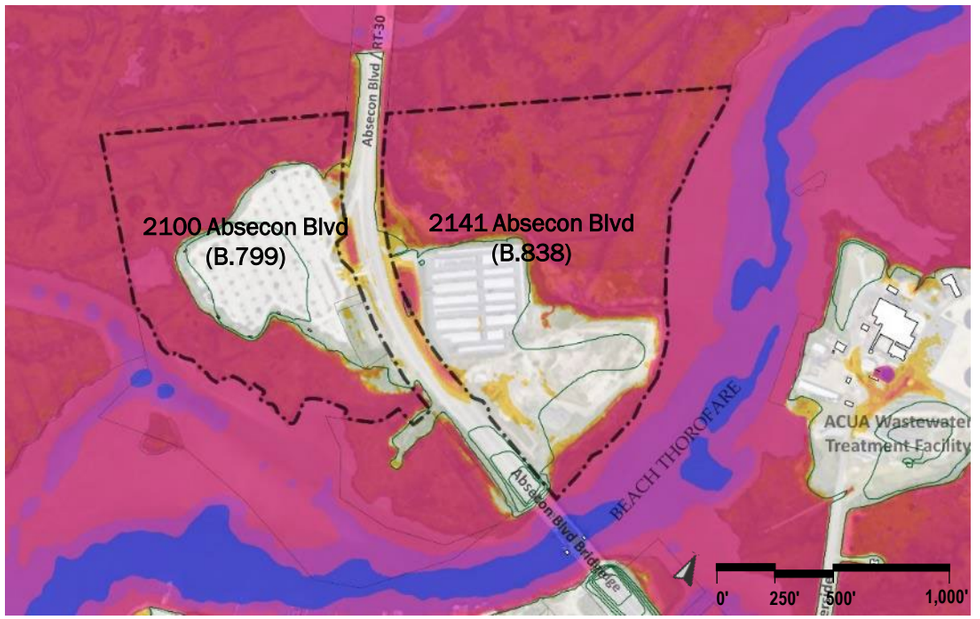
- Near-term (2030) projections indicate minor flooding in connector roads.
- Areas adjacent to Absecon Boulevard are not subject to increased long-term risk
- 2141 Absecon Blvd shoreline will require raised bulkheads for longer term protection for docking facilities



*2141 and 2100 Absecon Boulevard sites: Flood Risk Map for 2030 **

Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)





Legend

Topography contour interval 5ft

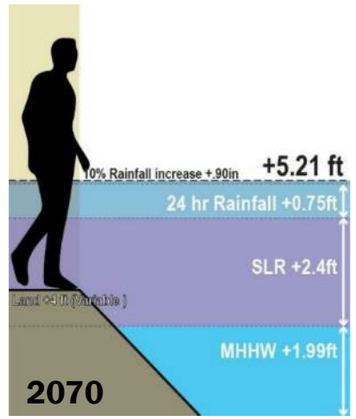
Building footprints

Water rise level in ft

- 0.000999928 - 0.8
- 0.8 - 1.4
- 1.400000001 - 2.4
- 2.400000001 - 10
- 10.00000001 - 20
- 20.00000001 - 68.07675755

*2141 and 2100 Absecon Boulevard sites: Flood Risk Map for 2070 **

Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 2.4-ft Sea Level Rise (SLR)



** Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.*

1817 Murray Avenue (Blocks 720-737)

Overview

Transportation & Access:

- Access from Absecon Boulevard creates conflicts with adjacent residential neighborhood

Water Access:

- Water depths can accommodate for CTVs without dredging
- Access limited by Absecon Boulevard Drawbridge

Land-Use & Zoning:

- Adjacent land-uses not compatible with O&M uses
- Currently zoned R-1 and as such will require rezoning for Wind O&M uses

Environmental Impact:

- None

Aerial view of 1817 Murray Avenue from the west (source: Google Earth)

1817 Murray Avenue (Blocks 720-737)

Site Characteristics

Property area: 3.9 acres

Zoning: Marine Commercial + R-1

Ownership: Atlantic City

Current Use: Radio Tower, Service buildings

- The site has a relatively flat topography, with some shrub area on the shoreline
- Existing structures: 475' high steel AM radio tower plus a 1,500 SF one-story masonry service building

View from Absecon Boulevard (source: Google street view)

1817 Murray Avenue (Blocks 720-737)

Access to the Site

- The site has a potentially convenient location by the Absecon Blvd / Rt-30 for access to/from Garden State Pkwy and the State Marina and the Harbor.
- Access roads to the site from Absecon Blvd are indirect, requiring multiple turns in residential streets.

1817 Murray Avenue (Blocks 720-737)

Land Use

- The site is in a residential neighborhood
- Access roads go through the residential neighborhood and by a school.

Legend

- Altered Lands
- Commercial Services
- Wetlands (Cedar/Brush Shrubland/Coniferous Forest)
- Major Roadway, Bridge Over Water
- Residential (High/Medium/Low Density)
- Mixed Residential
- Recreational Land
- Transitional Areas, Transportation, Communication Utilities

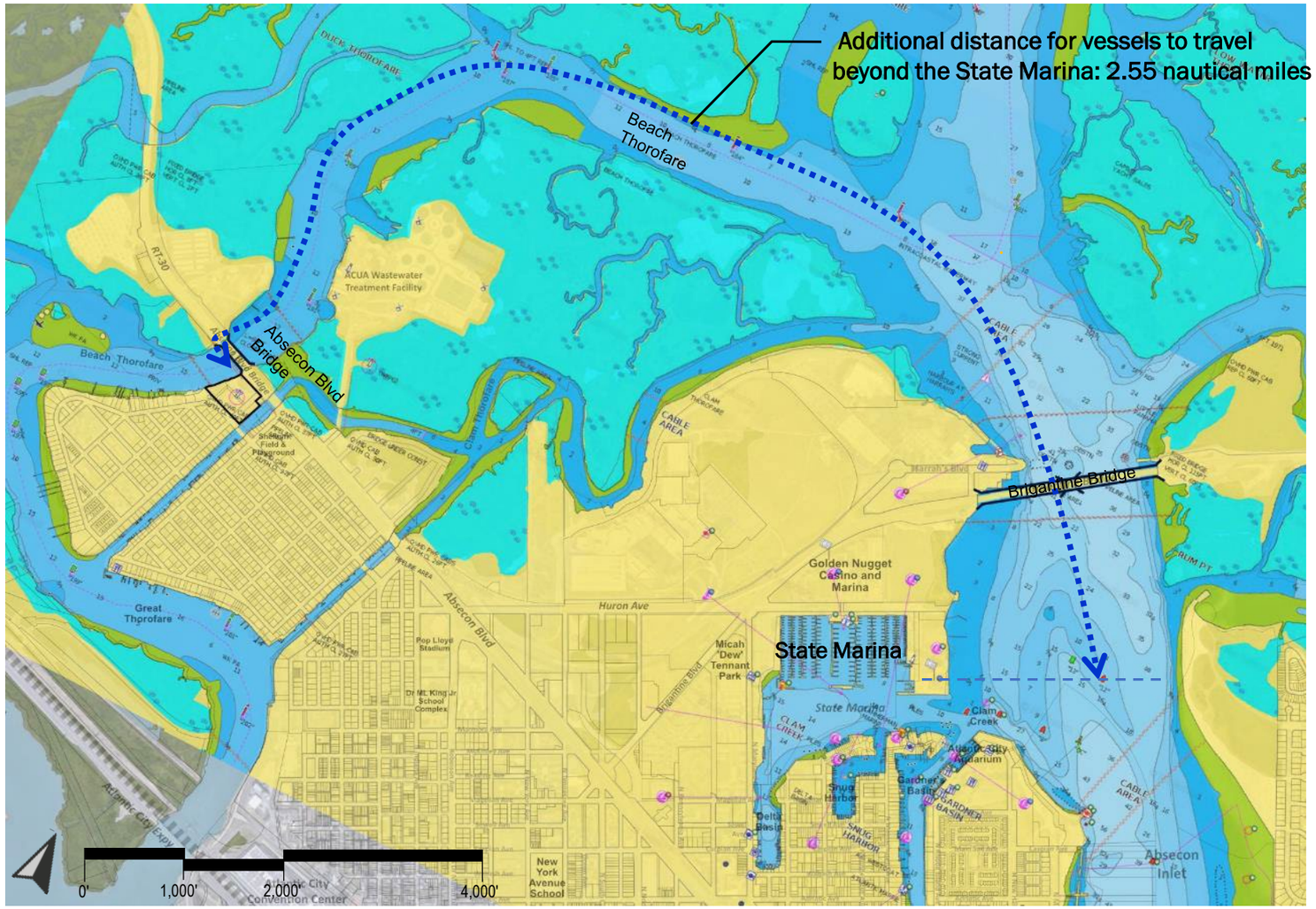
Land Use Map for the area around 1817 Murray Avenue
(Source: NJDEP Bureau of GIS, Land Use/Land Cover of New Jersey 2015

1817 Murray Ave (Blocks 720-737)

Water Access

- Access for CTVs *via Beach Thorofare.*
- Brigantine Bridge has clearance for CTVs.
- Absecon Boulevard Bridge can offer clearance only when the drawbridge opens up
- No dredging is needed.

Absecon Boulevard Bridge, during its 2012 renovation.
Source: IEW Construction Group, www.iewconstructiongroup.com/



Atlantic City Back Bay map with Nautical Chart overlay showing water access to the site

(Source: Navionics.com)

Land Cover

- Land region - Marsh
- Land area

Water Depth in Areas with Frequent Vessel Traffic

- Depth area (<0 ft)
- Depth area (0-6 ft)
- Depth area (12-18 ft)
- Depth area (6-12 ft)
- Depth area (18-30 ft)
- Depth area (30-60 ft)

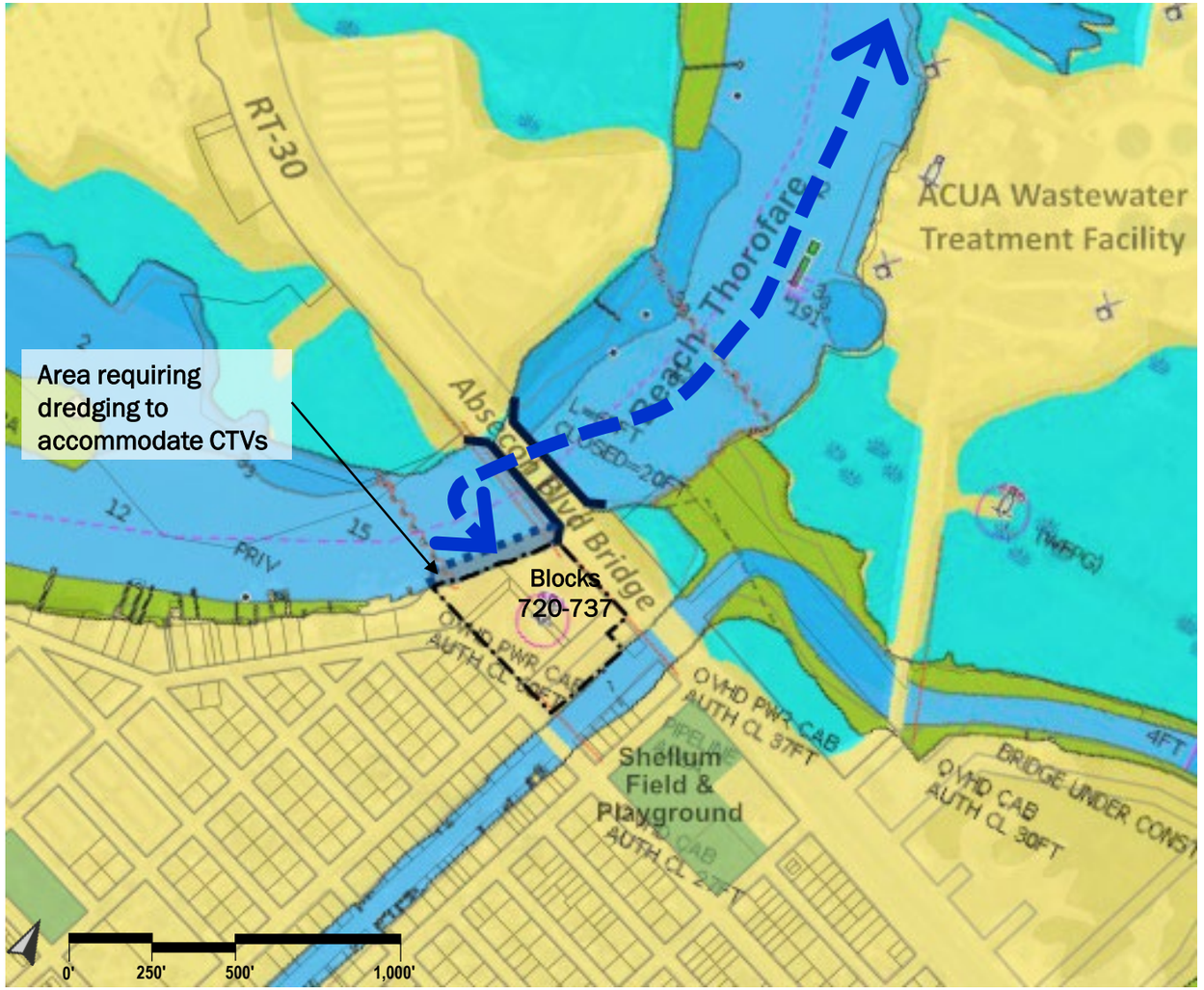
1817 Murray Avenue (Blocks 720-737)

Water Access and Docking

- Water depth near the shoreline will accommodate CTVs
- Local dredging not required

1817 Murray Ave, view from the water (Photo by Perkins Eastman)

1817 Murray Ave, aerial view (Source: by Google Earth)



Site Map with Nautical Chart overlay (source: Navionics.com)

Land Cover

- Land region - Marsh
- Land area

Water Depth in Areas with Less Frequent Vessel Traffic

- Depth area (-16.4-0 ft)
- Depth area (0-3 ft)
- Depth area (3-30 ft)

1601 North Riverside Drive (Blocks 741-744)

Overview

- Most appropriate for storage, office, supply chain functions

Transportation & Access:

- Southbound access require U-turn at Rt-30 & Huron Ave intersection.

Water Access:

- Clearance below Riverside Bridge is too low for CTVs

Land-Use & Zoning:

- No adjacent properties on the east side of Absecon Boulevard
- Currently zoned RM-1 (Multi-family Walk-up) as such requires rezoning for Wind O&M use

Environmental Impact:

- Wetlands occupy most of the property's shoreline

Aerial view of 1601 North Riverside Drive from the south (source: Google Earth)

1601 North Riverside Drive (Blocks 741-744)

Site Characteristics

Property area: 18 acres

Wetlands: 8.8 acres

Zoning: RM-1 (Multi-family walk-up)

Ownership: Atlantic City

Current Use: Atlantic County Utilities & Humane Society, ACUA Wastewater Admin Building

Aerial view from the south (Source: Google Earth)

1601 North Riverside Drive (Blocks 741-744)

Site Access

- Good access via Absecon Blvd / Rt-30 to/from Garden State Pkwy and Atlantic City Harbor.
- Southbound access requires a U-turn on Absecon Boulevard

1601 N Riverside Drive (Blocks 741-744)

Land Use

- No adjacent properties on the east side of Absecon Boulevard
- Residential neighborhood south of Absecon Boulevard is buffered by Absecon Boulevard

Legend

- Altered Lands
- Commercial Services
- Wetlands (Cedar/Brush Shrubland/Coniferous Forest)
- Major Roadway, Bridge Over Water
- Residential (High/Medium/Low Density)
- Mixed Residential
- Recreational Land
- Transitional Areas, Transportation, Communication Utilities

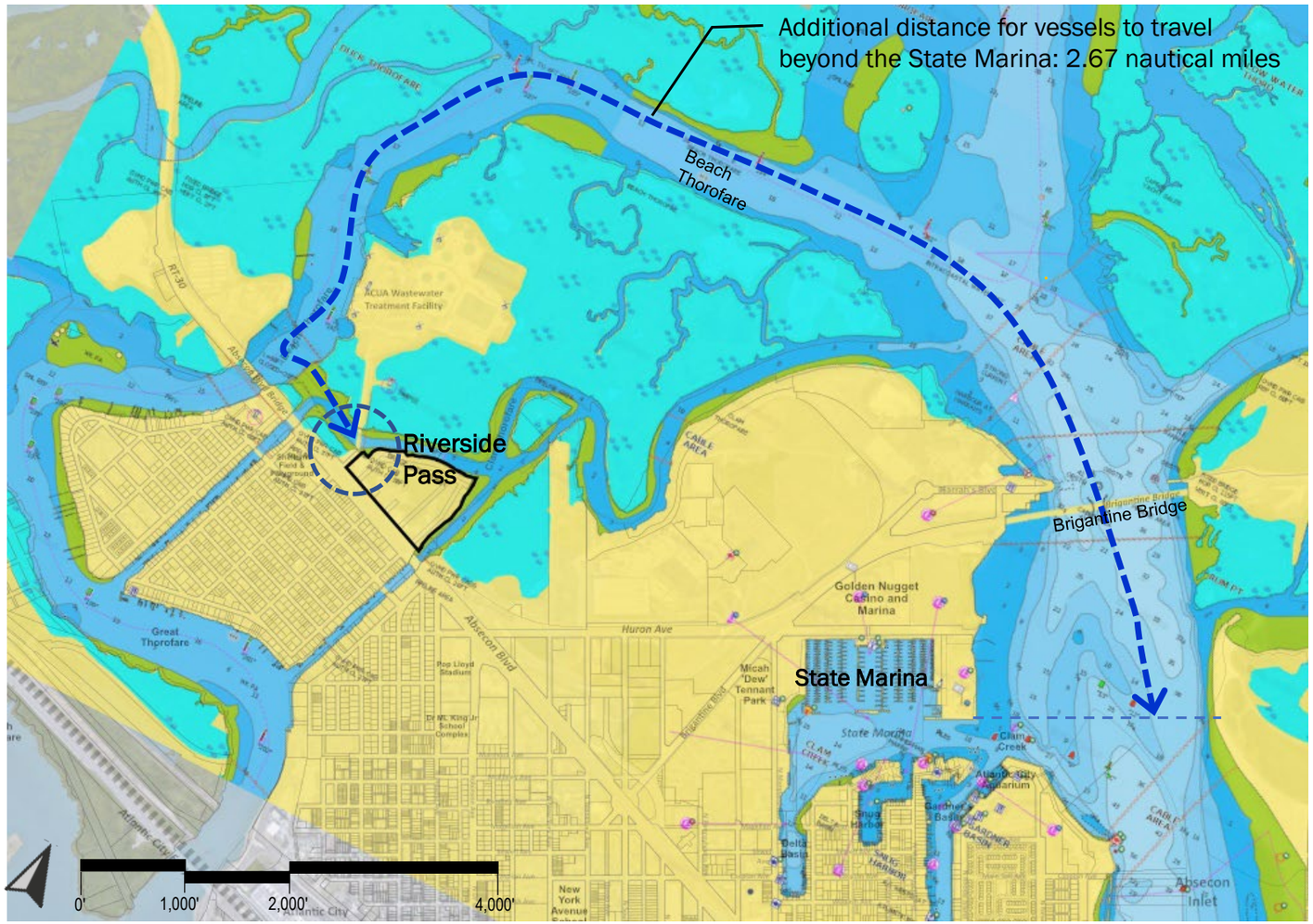
Land Use Map for the area around 1601 North Riverside Drive area
(Source: NJDEP Bureau of GIS, Land Use/Land Cover of New Jersey 2015

1601 North Riverside Drive

Water-side Access

- Access to the site by CTVs is prohibitive due to shallow water depths and limited vertical clearance below the Riverside Pass.
- Water depths between Beach Thorofare and the site is not sufficient for CTVs.

1601 North Riverside Ave, aerial view from the north (Source: Google Earth)



Atlantic City Back Bay map with Nautical Chart overlay showing water access to the site

(Source: Navionics.com)

Land Cover

- Land region - Marsh
- Land area

Water Depth in Areas with Frequent Vessel Traffic

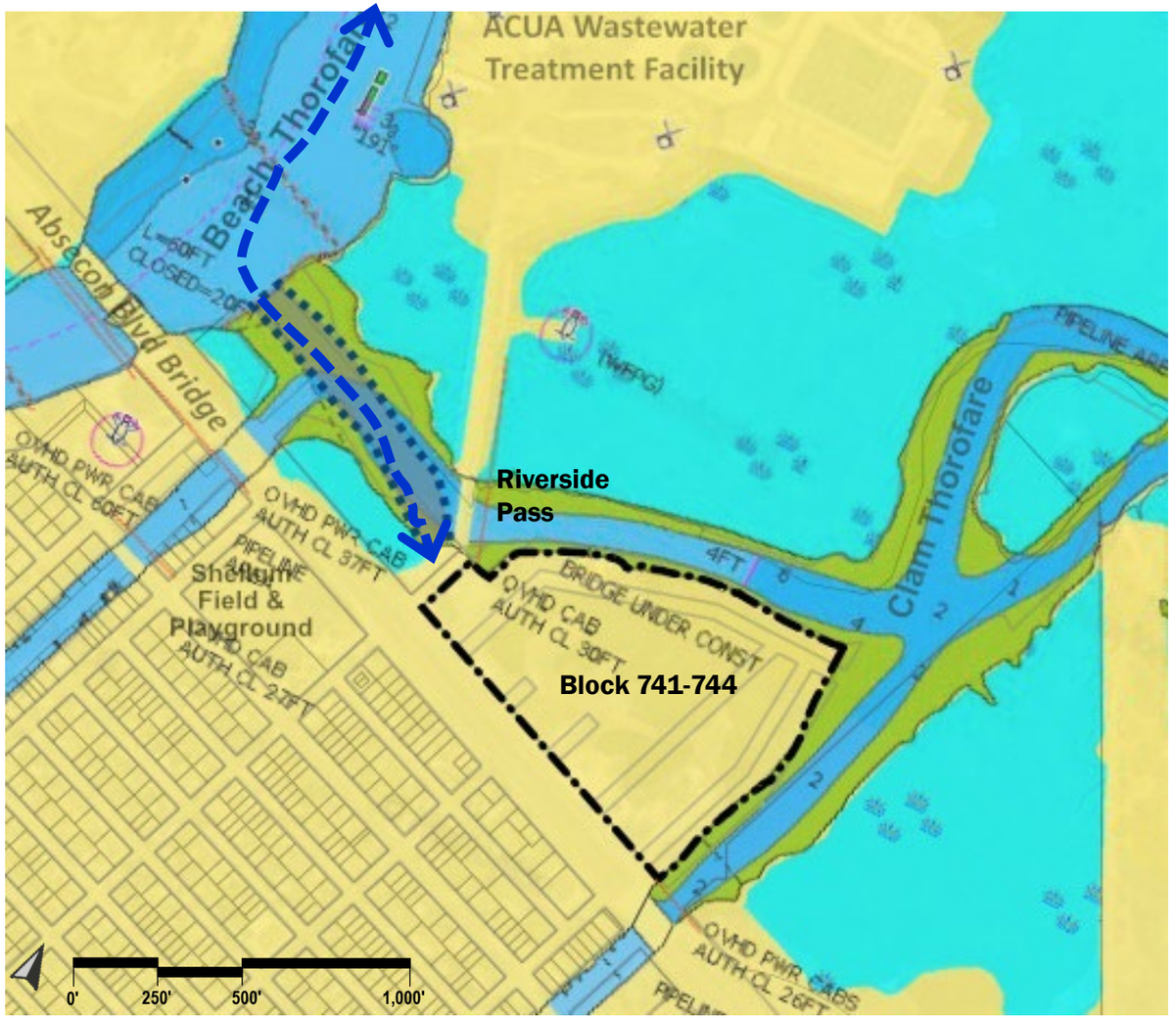
- Depth area (<0 ft)
- Depth area (0-6 ft)
- Depth area (12-18 ft)
- Depth area (6-12 ft)
- Depth area (18-30 ft)
- Depth area (30-60 ft)

1601 North Riverside Drive (Blocks 741-744)

Water Access and Docking

Water side access is limited by shallow water depths and limited vertical clearance below Riverside Pass

Aerial photo showing the shoreline and the Riverside Pass (Source: Google Earth)



Site Map with Nautical Chart overlay (source: Navionics.com)

Land Cover

- Land region - Marsh
- Land area

Water Depth in Areas with Less Frequent Vessel Traffic

- Depth area (-16.4-0 ft)
- Depth area (0-3 ft)
- Depth area (3-30 ft)

1817 Murray Avenue + 1601 North Riverside Drive

Flood Projections

1601 N Riverside Drive

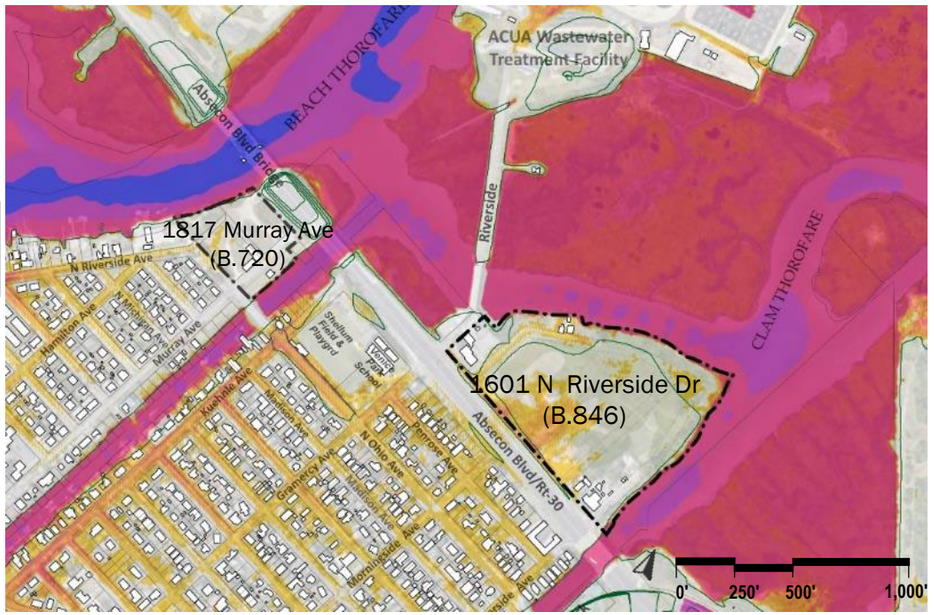
- Short-term vulnerability during major rainstorm events.
- 2070 projections indicate that the site will be subject to inundation due to sea level rise.

1817 Murray Ave

- Access roads are currently subject to periodic flooding with increased long–term vulnerability.

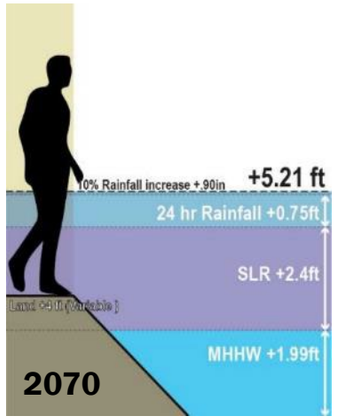
*1817 Murray Ave and 1601 N Riverside Ave area: Flood Risk Map for 2030 **

Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)



*1817 Murray Ave and 1601 N Riverside Ave area: Flood Risk Map for 2070 **

Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 2.4-ft Sea Level Rise (SLR)



Legend

Topography contour interval 5ft

Building footprints

Water rise level in ft

- 0.000999928 - 0.8
- 0.8 - 1.4
- 1.400000001 - 2.4
- 2.400000001 - 10
- 10.00000001 - 20
- 20.00000001 - 68.07675755

** Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.*

North of Brigantine Boulevard (Block 846)

Overview

Transportation & Access:

- Access to the site from Atlantic City requires a U-turn on Brigantine Boulevard
- Access to Atlantic City is via the Brigantine Bridge underpass

Water Access:

- Easy access for CTVs, relatively

Land-Use & Zoning:

- Currently zoned for residential and as such requires rezoning for Wind O&M use

Environmental Impact:

- Almost all of the site is designated as wetlands
- Shoreline modifications subject to DEP permission

Aerial view of North of Brigantine Boulevard site from the south (source Google Earth)

North of Brigantine Boulevard (Block 846)

Site Characteristics

Property area: 34.7 acres

Wetlands : 34 acres

Zoning: RM-3 (Multi-Family High Rise)

Ownership: Block 846 Associates LLC

Existing Use: Unknown

View from the water (photo by Perkins Eastman)

North of Brigantine Boulevard (Block 846)

Site Access

- Access to the site from Garden State Parkway and Atlantic City Harbor requires U-turn further east on Brigantine Boulevard.
- Access to Atlantic City is via Brigantine Bridge underpass

Connector road under the Brigantine Bridge for access to Atlantic City (Google street view)

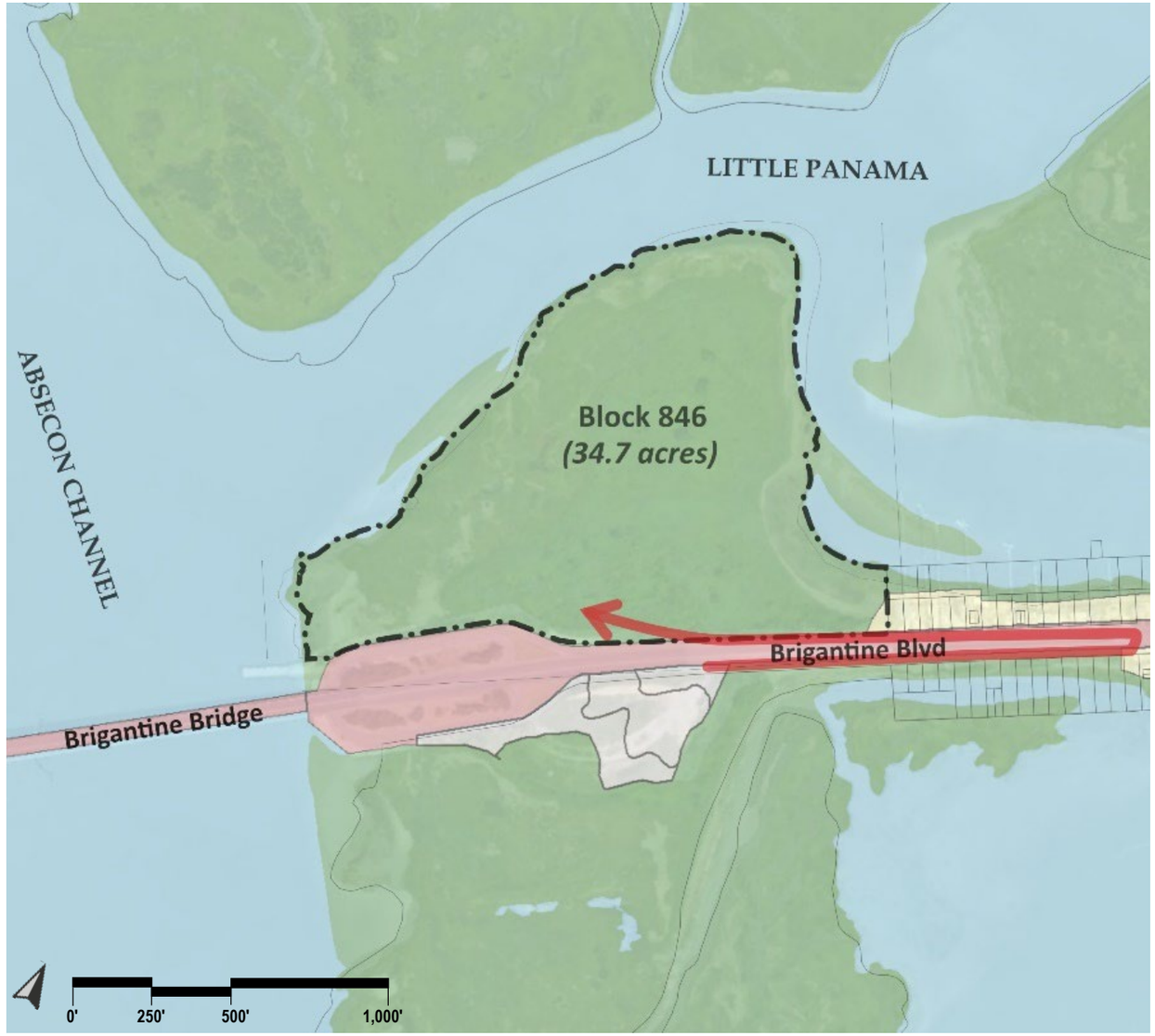
North of Brigantine Boulevard

Land Use

Almost all of the site is designated as wetlands

Legend

- Altered Lands
- Wetlands (Cedar/Brush Shrubland/Coniferous Forest)
- Major Roadway, Bridge Over Water
- Residential (High/Medium/Low Density)
- Transitional Areas, Transportation, Communication Utilities



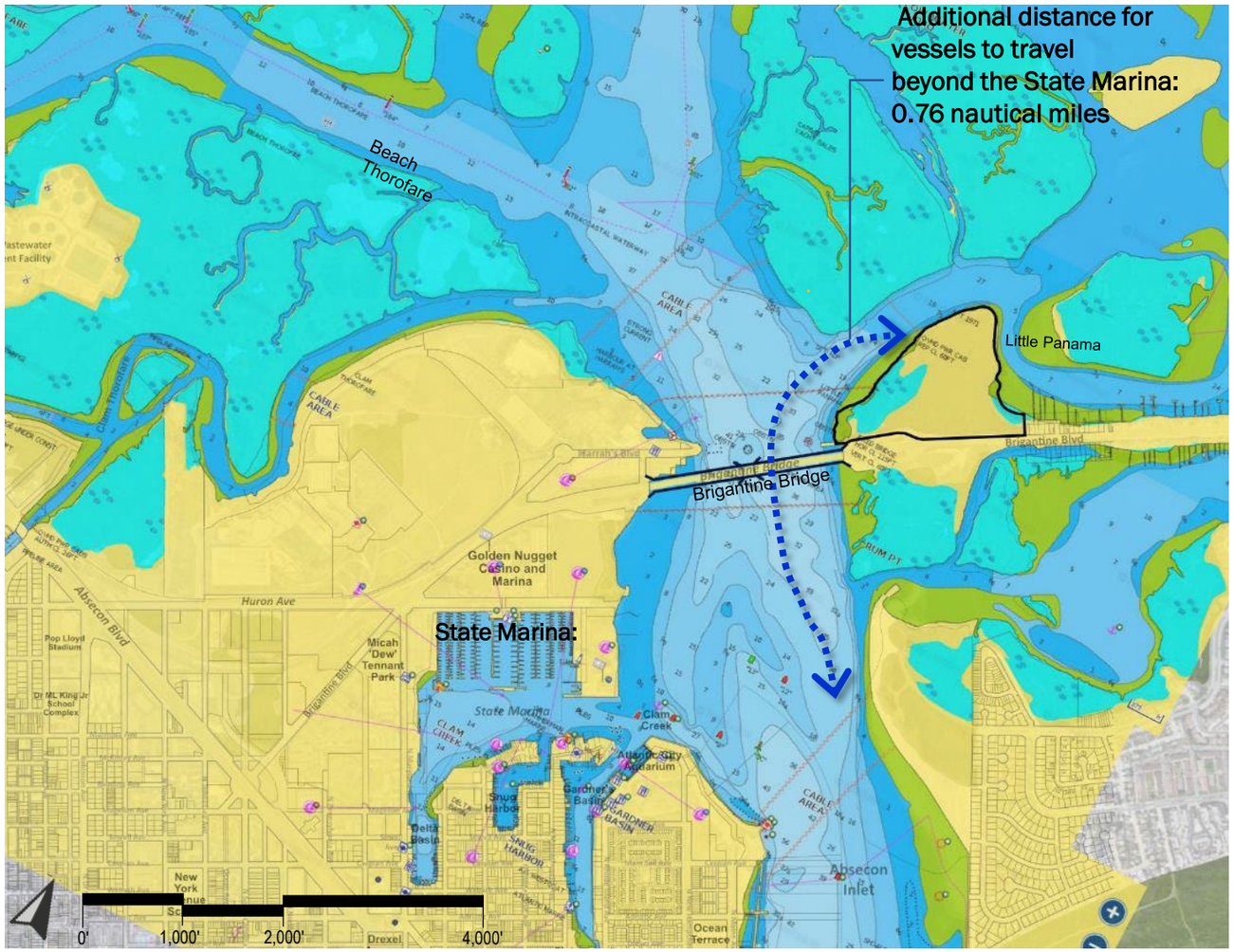
Land Use Map for the area around North of Brigantine Boulevard area
(Source: NJDEP Bureau of GIS, Land Use/Land Cover of New Jersey 2015

North of Brigantine Boulevard (Block 846)

Water Access

Site is accessible to CTVs passing beneath the Brigantine Bridge

Brigantine Bridge (photo by Arlane Crump, 2017)



Atlantic City Back Bay area map with Nautical Chart overlay showing water access to the site

(Source: Navionics.com)

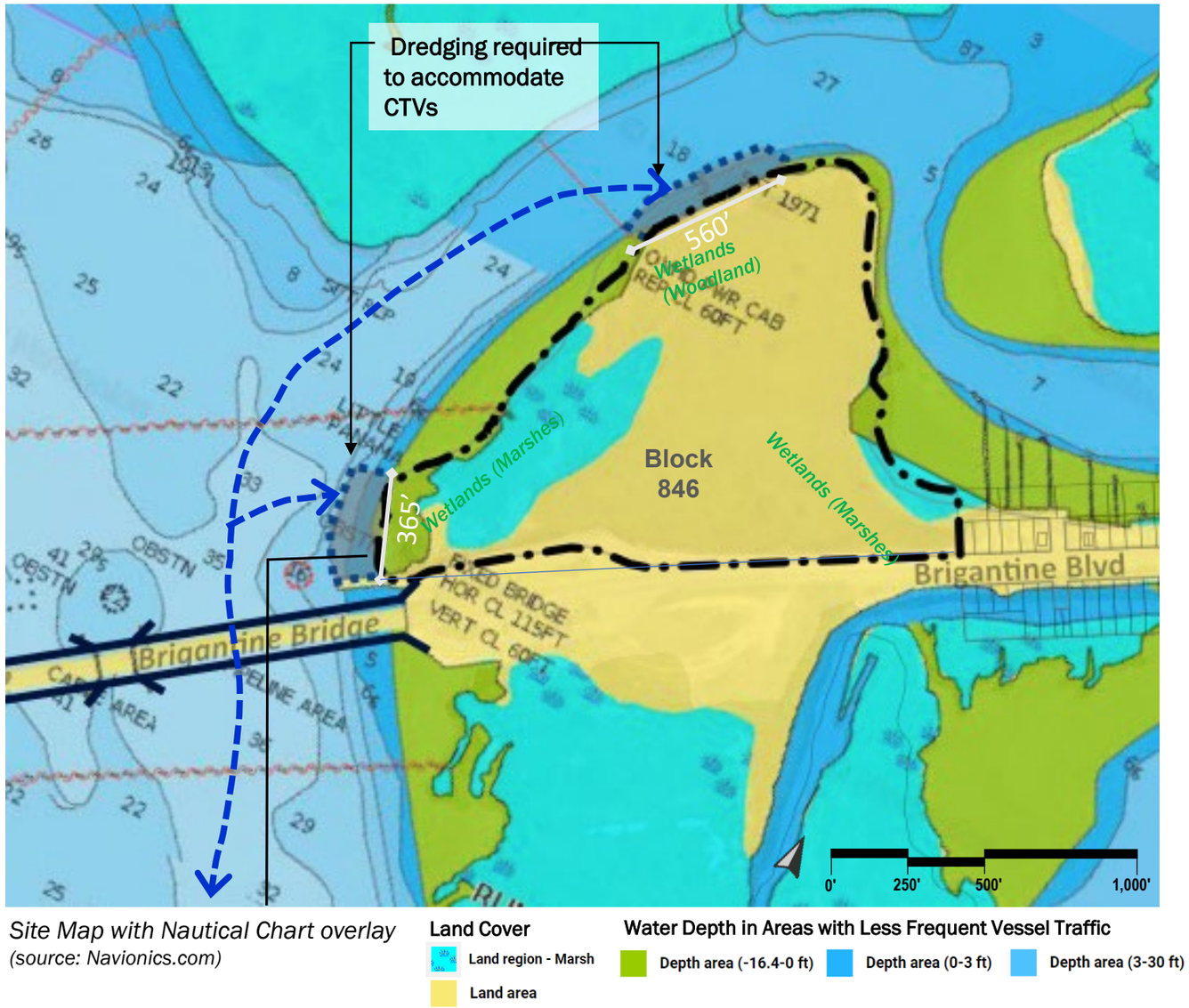
North of Brigantine Boulevard (Block 846)

Water Access and Docking

- The site has two areas that could accommodate CTVs docking with some dredging
- Docking CTVs is subject to NJ-DEP permission to use and/or to mitigate wetlands by the shoreline.

North of Brigantine Boulevard aerial photo showing the shoreline conditions

Source: Google Earth

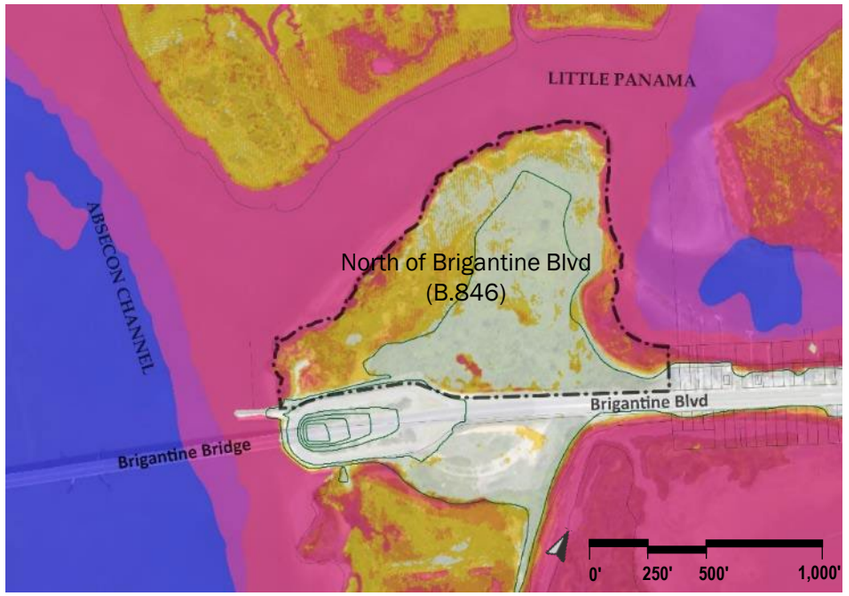


Site Map with Nautical Chart overlay
(source: Navionics.com)

North of Brigantine Boulevard (Block 846)

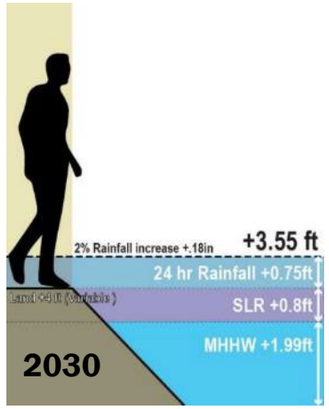
Flood Projections

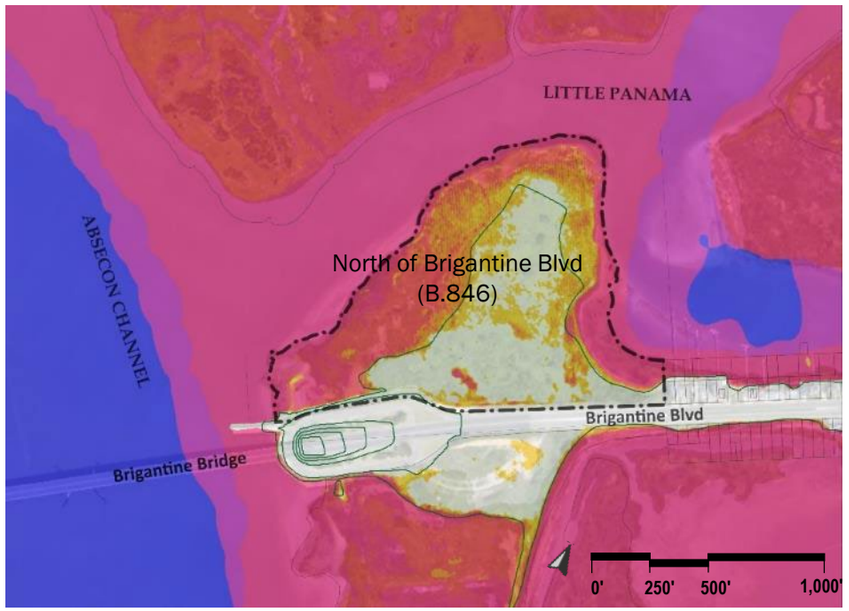
- 2030 projections indicate flood risk along the entire shoreline
- By 2070, projections show that a substantial portion of the site will be inundated due to sea level rise



*North of Brigantine Boulevard site area: Flood Risk Map for 2030 **

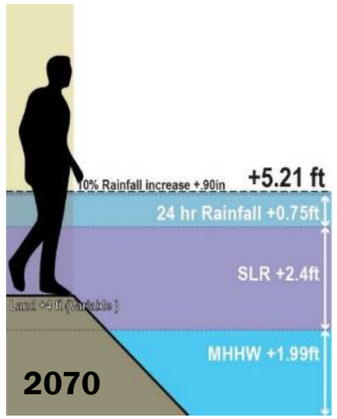
Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 0.8-ft Sea Level Rise (SLR)

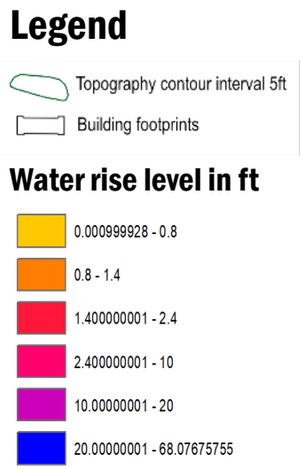




*North of Brigantine Boulevard site area: Flood Risk Map for 2070 **

Accumulated water during mean high-tide, 24hr/1% recurrence interval rainfall (large storm), 2.4-ft Sea Level Rise (SLR)





** Source: "Resilient NJ: ACCR Regional Resilience and Adaptation Plan," by WSP/Perkins Eastman/CDM Smith, October 2022.*

Assessment of Potential O&M Sites (beyond the Harbor)

2141 Absecon Blvd

Source: Google Earth

- Suitable for O&M Facility,
- Access for CTVs via Beach Thorofare
- Possible use for staging, storage & supply chain functions
- Shoreline modification for flood protection is needed.

2100 Absecon Blvd

Source: Google Earth

- Not preferable for O&M Facility
- Good for staging, storage and supply chain uses
- To be paired with 2141 Absecon Blvd site

1817 Murray Ave

Source: Google Earth

- Not suitable for a typical O&M Facility,
- Access for CTVs via Beach Thorofare and underpass Absecon Blvd Drawbridge
- Not good for service trucks access

1601 N Riverside Dr

Source: Google Earth

- Suitable for O&M Supply Chain,
- Obstructed water access for CTVs
- Traffic modification plan (Rt-30 and connector roads) needed

North of Brigantine Blvd

Source: Google Earth

- Not preferable for O&M Facility, unless easy water access for CTVs makes the site desirable
- Wetlands and future flood risk
- Road access requires traffic modification.

Atlantic City Offshore Wind

Absecon Boulevard Corridor

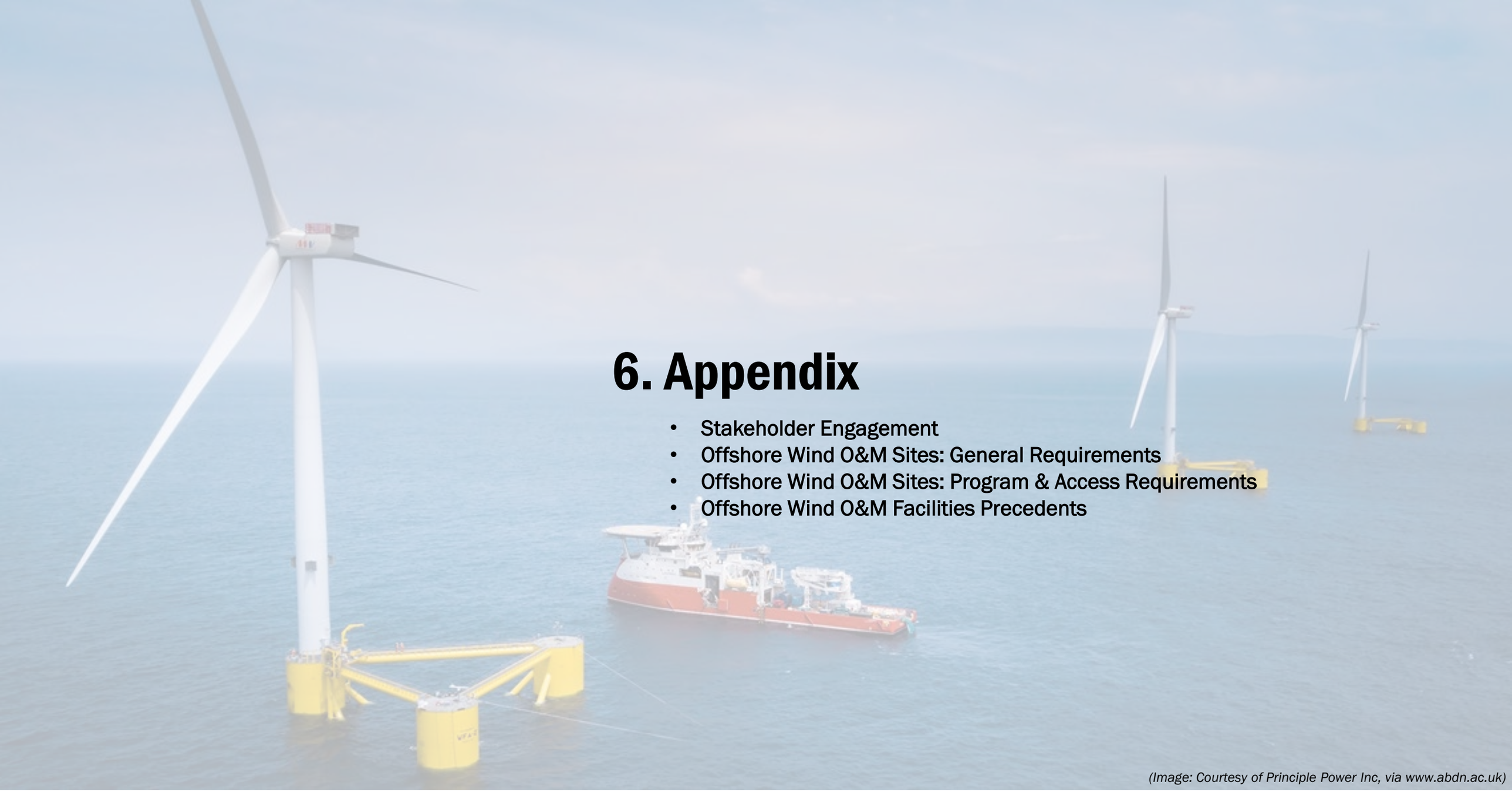
Absecon Boulevard has the potential as a corridor for the development of wind-industry uses:

- 2141 Absecon Boulevard:
  Wind Operations & Maintenance (O&M)
- 2100 Absecon Boulevard:
  Supply chain, storage, and warehouse
- 1601 N Riverside Drive:
  Support functions, e.g. supply chain facilities administrative, storage, warehouse, trades, and food & service.
- 1817 Murray Avenue:
  Community education, administrative offices.

Absecon Boulevard Corridor Sites on the Back Bay
Background image: Google Earth

6. Appendix

- Stakeholder Engagement
- Offshore Wind O&M Sites: General Requirements
- Offshore Wind O&M Sites: Program & Access Requirements
- Offshore Wind O&M Facilities Precedents



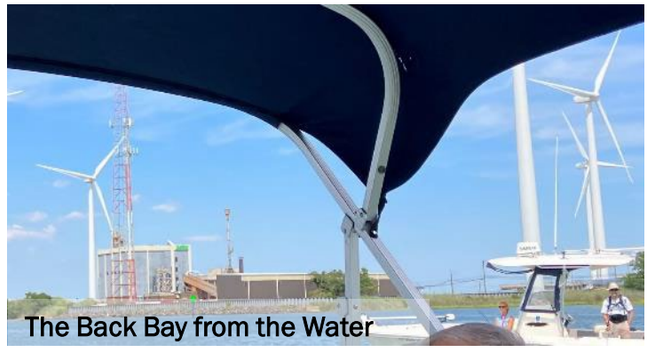
(Image: Courtesy of Principle Power Inc, via www.abdn.ac.uk)

Stakeholder Engagement

The team conducted meetings with representatives of the wind industry, neighborhood residents, elected officials, local landowners, and operators of local anchor establishments:

- **Jenifer Becker**, *NJEDA*
- **Anthony Dabney,** Bungalow Park resident
- **Mike Garrity**, *Atlantic Shores*
- **Don A. Guardian**, State Assemblyman
- **Chris Kammerman**, Local Land and business owner
- **Jim Meyers**, local landowners and business owner
- **Tom Pohlman & Kevin Scull**, *Golden Nugget*
- **Lisa Schall**, *Atlantic City Aquarium*
- **Joseph Rudd**, Ørsted


Absecon Inlet from the Water


The Back Bay from the Water


Gardner's Basin Park


Bungalow Park


Snug Harbor


The State Marina


Fishing Boats, Gardner's Basin

Images from the team site tour in Atlantic City, August 2022 (photos by Perkins Eastman)

Offshore Wind O&M Sites: General Requirements *

Primary Function for Crew Transfer Vessel (CTV) Services

- Day-to-day management, inspection, and maintenance
- Remote monitoring and operations center
- Docking for CTVs and SOVs, and dispatching of technicians
- Material storage

Area Requirements

- 2 to 5 Acres (Typical)
- Modifications for SOV services:
  - SOV services require more site staging area but less support building functions because personnel lodging is provided onboard
  - Up to 20 acres for storage or large component repairs

Access Requirements

- Access roads for service trucks and vehicles
- Water access for CTV and SOV services from/to off-shore lease areas

** Per Ørsted & Atlantic Shores*

Ørsted – Borssele 1+2, The Netherlands (1)

Ørsted – Greater Changua O&M , Taiwan (2)

SSE Renewables, Arklow Wind Park, Ireland (3)

(1) Image: Source: cordeel.nl/en/projects/
(2) Image: Source: www.windpowermonthly.com
(3) Image: Source: www.sserenewables.com/news-and-views

Offshore Wind O&M Sites Facilities Program

Site :

- **Dockside harbor facilities**
  - 160’ minimum for CTVs, 400’ minimum for SOVs
  - Vessel mooring,
  - Unloading capabilities,
  - Crane, berthing area, and
  - Emergency spill response equipment
- **Outdoor Circulation and Parking:**
  - Parking for crew vehicles (+100 parking spaces)
  - Staging space for parts and materials
- **Access Roads to the Site:**
  - To allow service to the site with 15 trucks a day
  - With turn and height clearance for trucks (See *Access Requirements*)
- **Utilities:**
  - Power and IT-equipped
  - Black/gray water systems
  - Fully fueled

Building :

- **Office Building:**
  - 4,000 SF - 26,000 SF
  - Control room for surveillance + coordination of offshore operations
  - Server/IT room to house critical IT infrastructure
- **Warehouse, Workshop & Storage**
  - 9,000 SF - 21,530 SF
  - Space with full-height access for deliveries and equipment storage,
  - Temperature-controlled storage room and a lifting facility

**Per input from Ørsted & Atlantic Shores*

Offshore Wind O&M Sites

Access Requirements

1. **Convenient location for easy access to/from major highways**
   - Personnel transportation to/from onshore electrical plants (i.e. Oyster Creek & BL England)
   - Transportation of parts to/from assembly & repair locations in NJ

2. **Local Access Roads with clea**rance for service trucks
   - Up to 15 deliveries a day
   - Access roads to have clearance and allow turns for 20-ft container trucks (15-ft-high and 39-ft-long)

3. **Proximity to Heliports (optional)**
   - Desirable for alternative expedited transportation for parts & crew

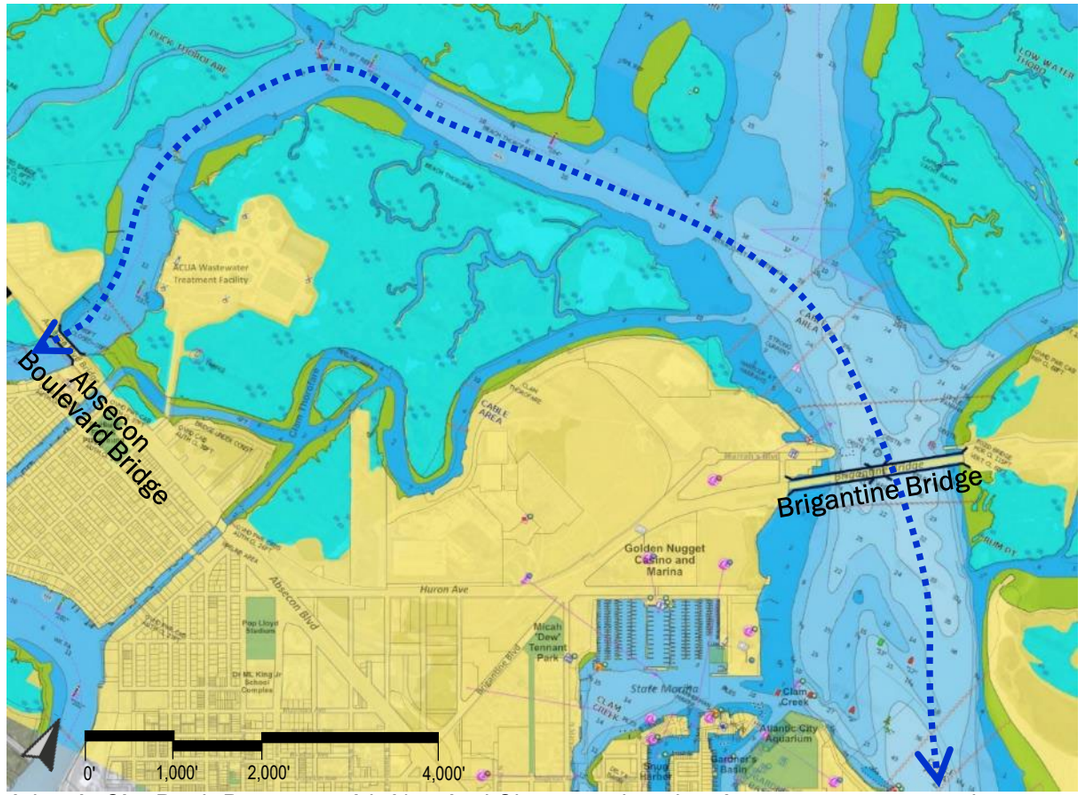
Ørsted's lease area and project boundaries

Source: "Ocean Wind Offshore Wind Farm, Construction and Operations Plan", Volume I (March 2021, Ørsted)

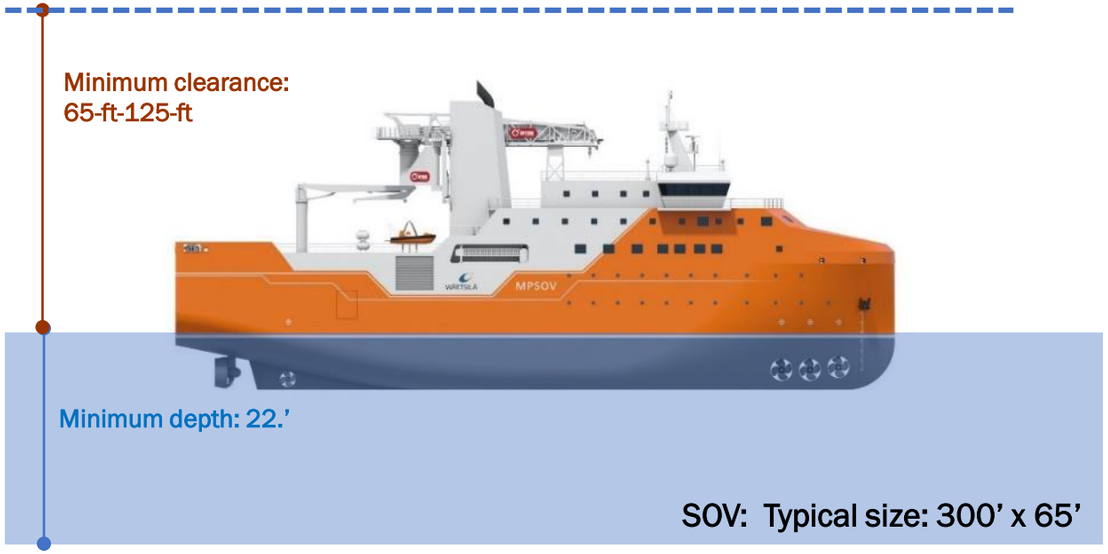
Off-Shore Wind O&M Sites: Water Access

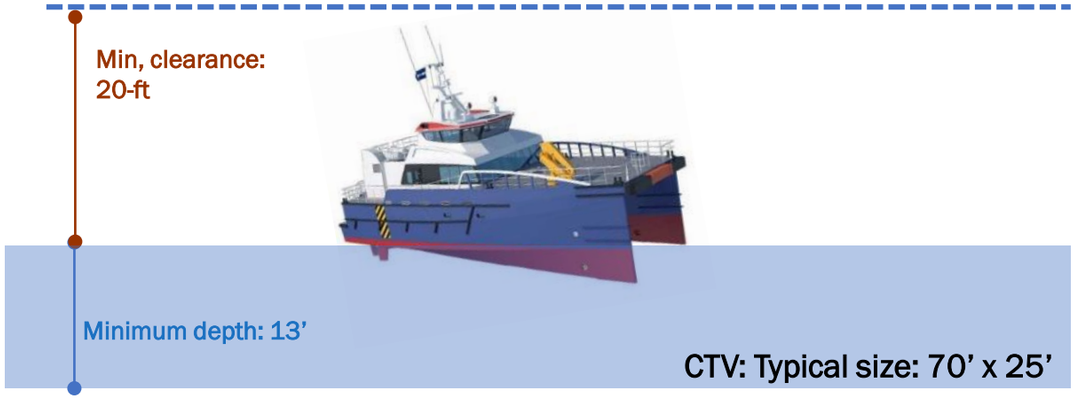
Maritime Considerations

- Two primary vessels utilized for O&M
  - Crew Transfer Vessel (CTV)
  - Service Operation Vessel (SOV)
- Water depth along the route
- Clearance under the bridges
- Facilities for docking (shoreline water depth and wetlands)
- Protection from extreme weather events



Atlantic City Back Bay map with Nautical Chart overlay showing water access path
(Source: Navionics.com)





Offshore Wind O&M Facilities

Precedent

Ørsted - Borssele 1+2
Land Operation Site, Westerhavenweg, Vlissingen, The Netherlands

Total Building Area: 22,600 sf

Building Program:
- 50-100 Employees
- Office with storage facilities

Site Program:
- Surface Parking
- Docking for four CTVs

Environmental Impact:
Energy-neutral building

(1) Source: www.projectcargosummit.com/news/2018/07/18/
(2) Source: Google maps: Vlissingen, The Netherlands
(3) Source: www.witteveenbos.com/nl
(4) Source: cordeel.nl/en/projects/


Ørsted – Borssele 1+2, The Netherlands (1)

Project site, Vlissingen The Netherlands (2)

Ørsted – Borssele 1+2, Net-zero building (3)


Ørsted – Borssele 1+2, Solar roof (4)

Offshore Wind O&M Facilities

Precedent

SSE Renewables, O&M Facility,
Arklow Wind Park (Wicklow, Ireland)

Building Program:

- 80 employees
- Offices
- Warehouse and storage
- Sustainable Development Community Center

Site Program:

- Docking for four CTVs
- EV Car Parking
- Seafarers Memorial Garden
- Urban realm improvements

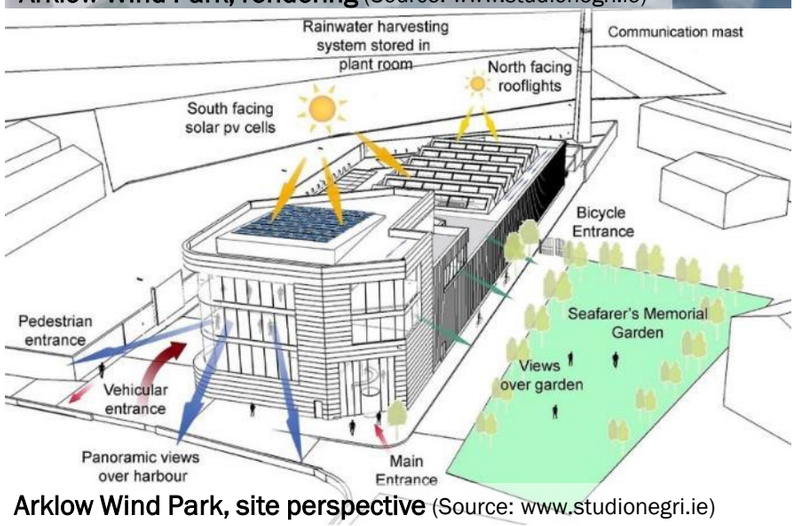
Environmental Impact:

- ‘Nearly Zero Energy Building’ (NZEB)

Arklow Wind Park, rendering (Source: www.studionegri.ie)

Arklow Wind Park, rendering (Source: www.studionegri.ie)

Arklow Wind Park, project site (Source: Google Maps)



Arklow Wind Park, site perspective (Source: www.studionegri.ie)