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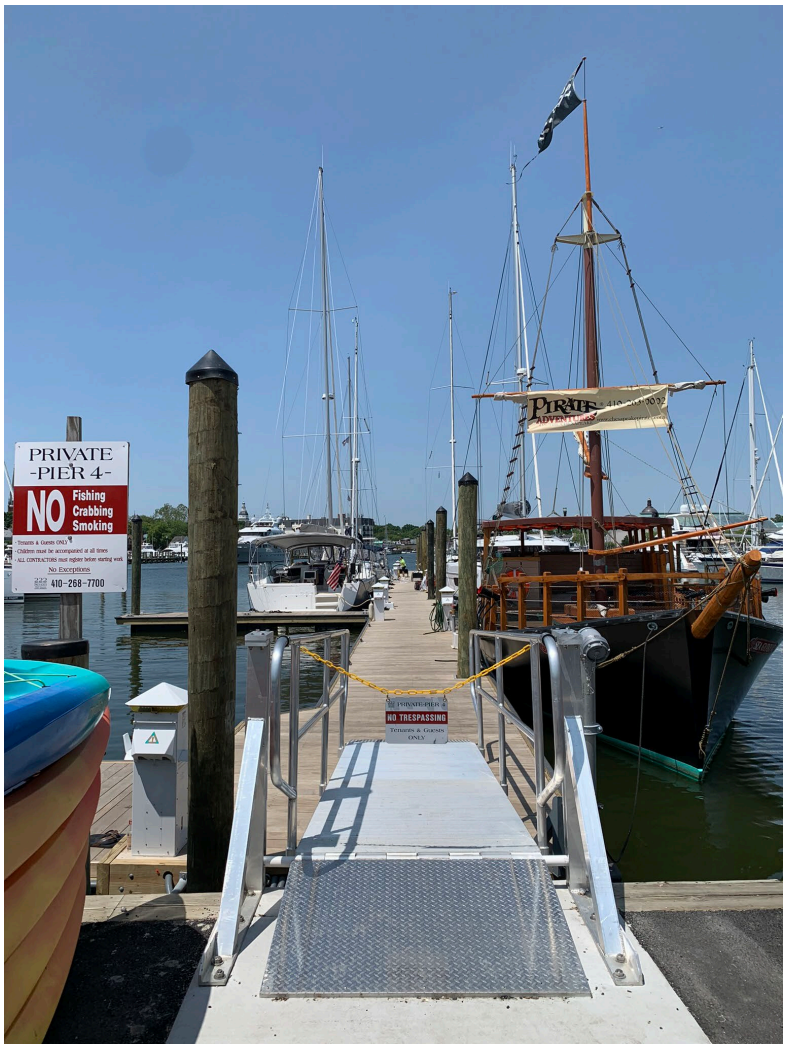
Resources for Resiliency Planning
When Replacing a Dock

In 2022/2023 we replaced our fixed pier at the foot of Third Street in Annapolis, MD. Our goal was for the replacement pier to be as resilient as reasonably possible to both sea level rise and climate change. After living through the extraordinary storm surge delivered by Hurricane Isabel in 2003, and knowing sea levels are rising, we set out with our partners, to make a dock that would withstand a more extreme storm surge, if it were to happen in 2037.



We're sharing our logic, decisions, and list of partners in case any of this can help others in their resiliency efforts. The stronger our collective infrastructure, the healthier our maritime industry will be and the more we can all enjoy the water and feel encouraged to save the Chesapeake Bay.

If you have improvement suggestions, notice any errors, or are willing to share your resiliency efforts, please be in touch.

Sincerely,

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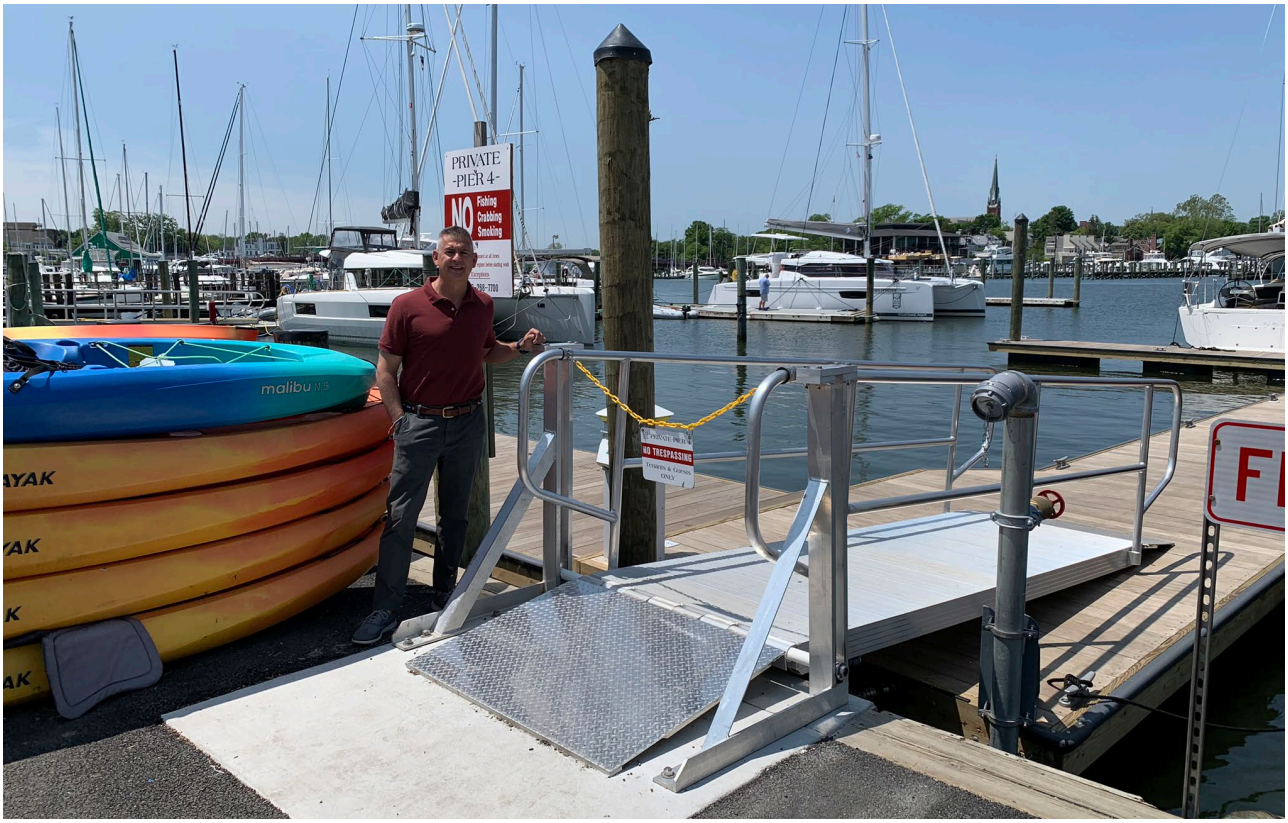
Goal: A dock and utility connections that, in 2037, will withstand a flood one foot higher than Hurricane Isabel delivered in 2003.

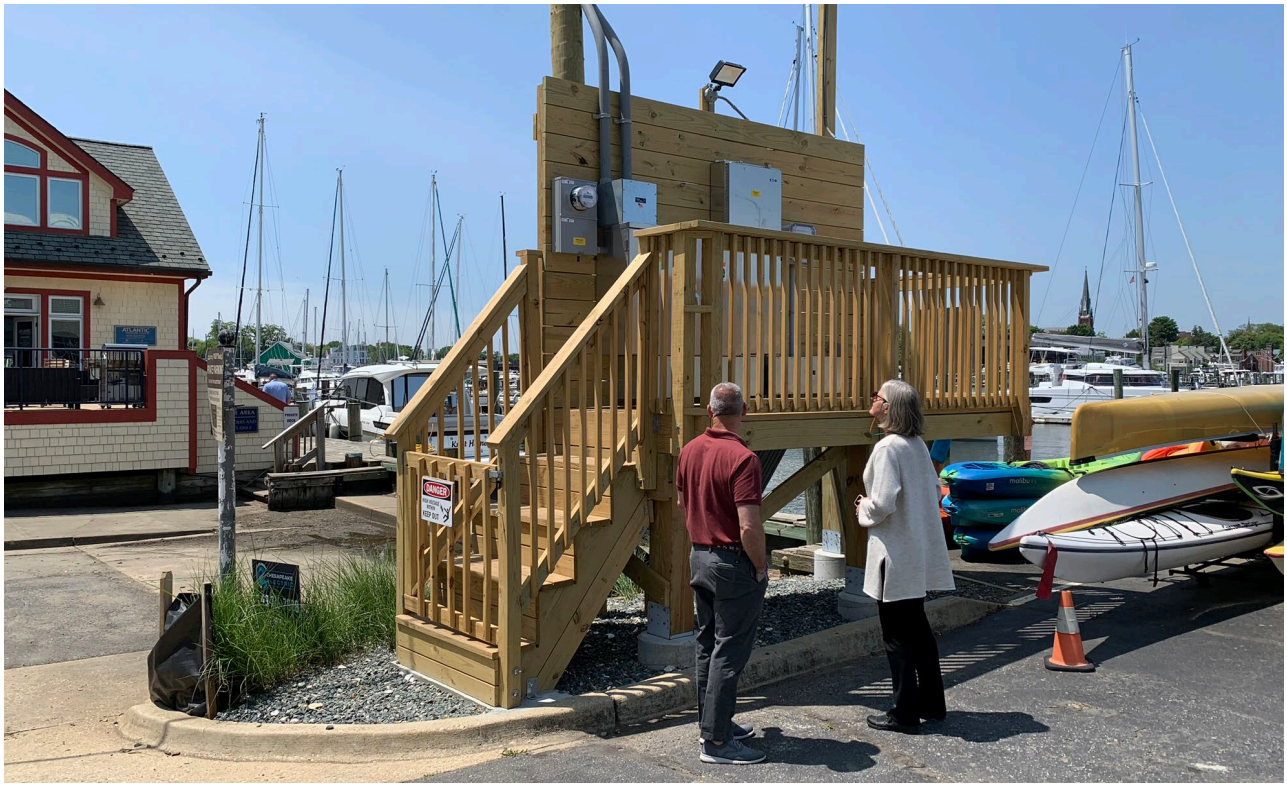
Data for Elevation Predictions: We used publicly available data from NOAA – see the spreadsheet.

Design Choices:

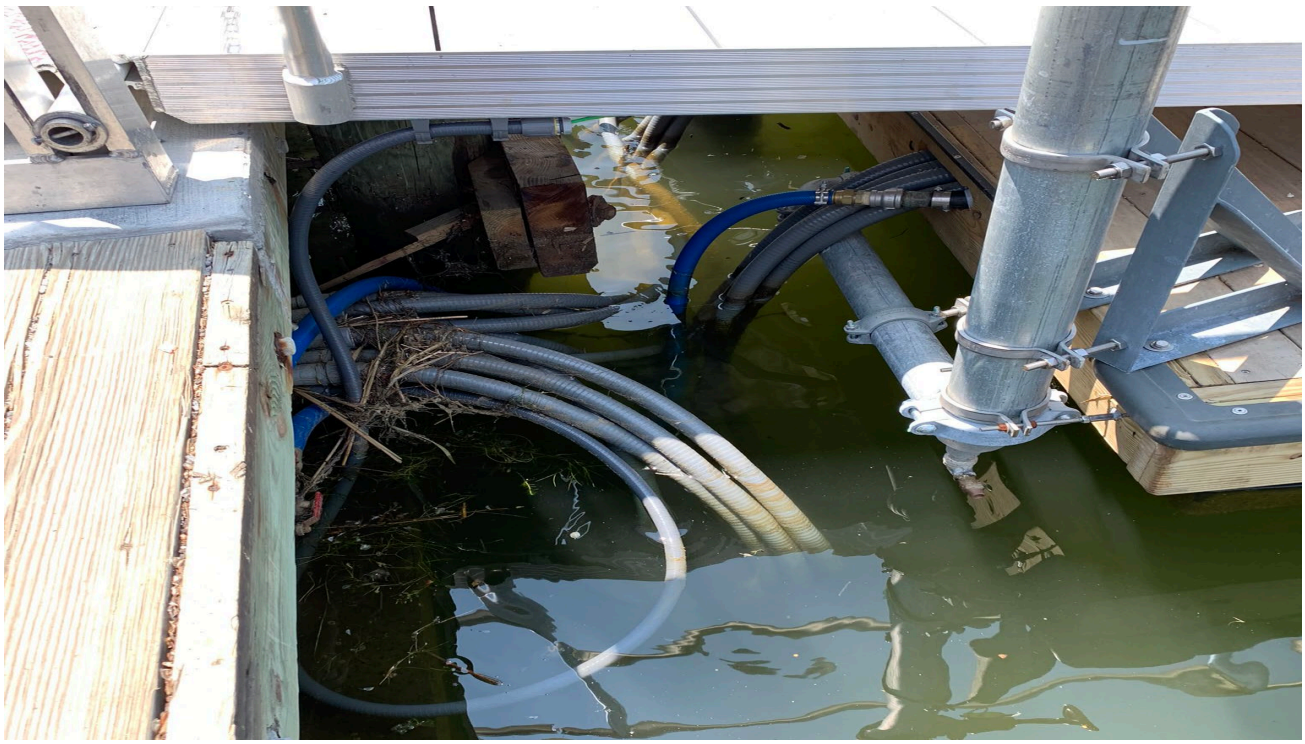
1. **Floating Dock System**: Rather than fixed.
2. **Levitating Gangway Attachment:** Rather than fixing the gangway to the bulkhead from which it would pitch very high in a flood, we have a "Levitator" attachment which allows the land end of the gangway to rise up with the dock a full 4'.



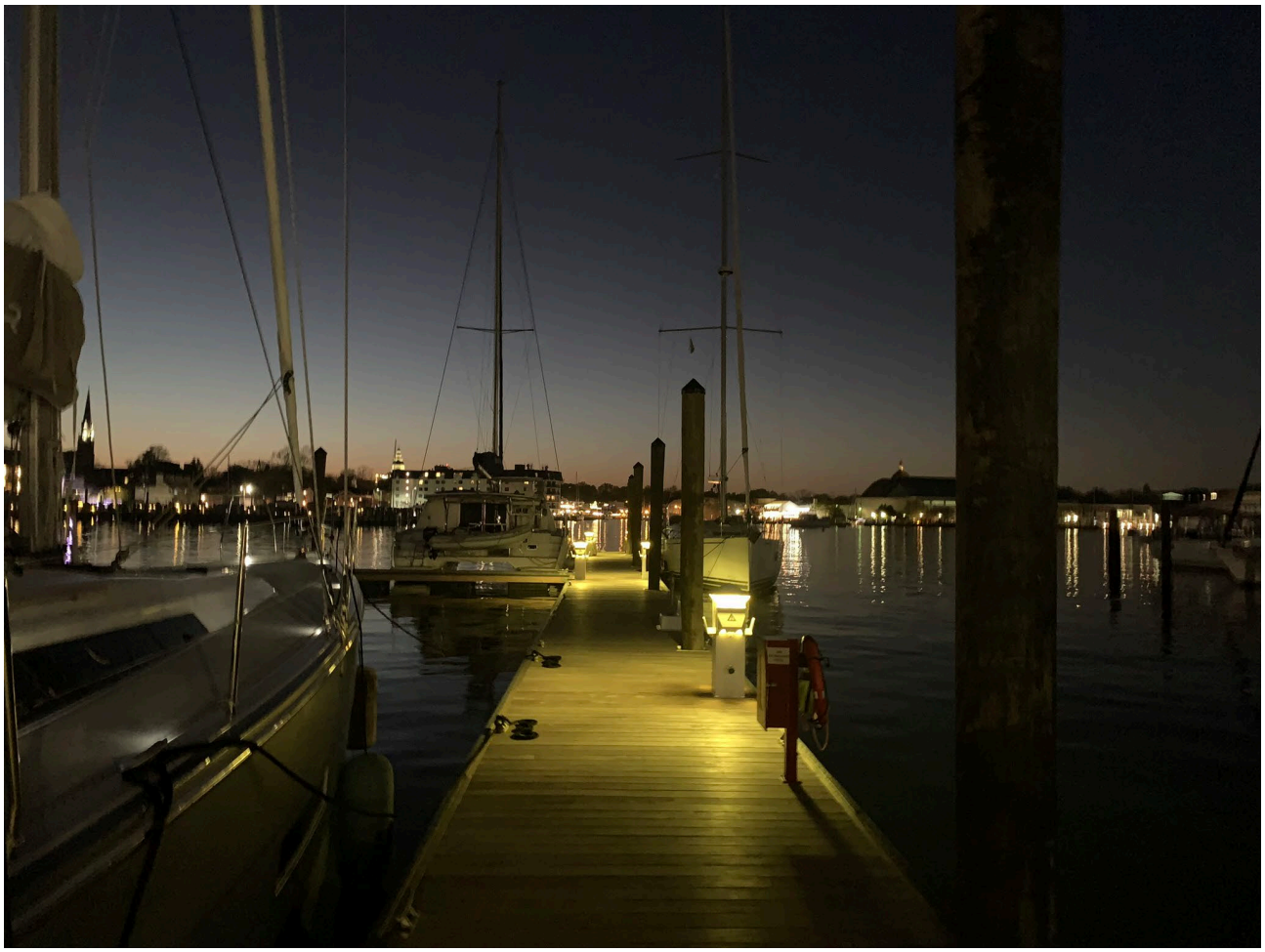
3. **High Electric Platform:** The lowest electrified point is 2.5' higher than required by code. We accomplished this by:
    a. Setting the platform as high as we could (without infringing on the parking lot) by maxing out the rise/run ratio for the access steps to the highest OSHA allows. They are technically now a "ladder" rather than "steps."
    b. Determining, per code, the highest point a breaker can be and positioning the electrical equipment from the top down. That required a taller backboard for the equipment and kept the lowest electrified point at as high an elevation as possible.



4. **Extra Long Feeds:** The electrical conduit and water lines from the bulkhead are one foot longer than they need to be to reach the pier at our goal height, which is also long enough to reach down to the dock if there's an equivalently extreme low tide.



5. **Very Tall Anchor Piles:** We planned for the anchor piles to be three feet higher than the deck level of the dock at our absolute highest tide.



Partners: We are grateful for the help and resiliency commitment of everyone who worked on this project:

- City of Annapolis Board of Port Wardens and Planning & Zoning Staff: https://www.annapolis.gov/
- Marina Planning & Permitting: Waterfront Engineering Design & Construction, Inc: https://www.waterfrontedc.com/
- Electrical Design & Permitting: Consolidated Engineering http://ceng.us/
- Platform Design & Permitting: Hammond Wilson Architects https://www.hammondwilson.com/
- Survey Work: Drum Lloyka https://www.drumloyka.com/
- Floating Dock and Levitator Design & Manufacturing: Bellingham Marine https://www.bellingham-marine.com/
- Dock Installation: John Norris & Sons http://johnhnorrisandsonsinc.com/
- Site Work Design & Installation: Diversified Site Works https://dswbuilds.com/
- Plumbing Design & Installation: Heidler Plumbing https://www.heidlerplumbing.com/
- Electrical Design & Installation: Chesapeake Electric https://cheselectric.com/
- Fire Safety Design & Installation: Absolute Fire Protection https://absolutefp.com/
- Project Management: Bill Smith, PE