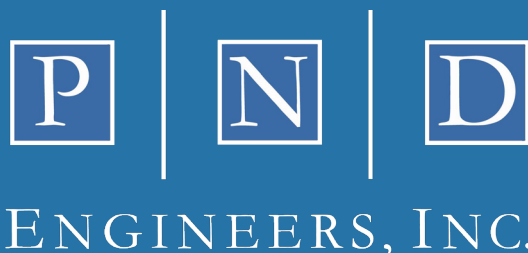


NOAA *Fairweather* Home Port



2023 Outstanding Project of the Year Nomination
ASCE Alaska Section- Juneau Branch

Nominated by:



PROJECT DESCRIPTION AND BACKGROUND



NOAA's Office of Marine and Aviation Operations (OMAO) operates and manages the largest fleet of federal research ships in the nation. NOAA ships range from large oceanographic research vessels capable of exploring the world's deepest ocean to smaller ships responsible for charting the shallow bays and inlets of the U.S. The fleet supports a wide range of marine activities, including fisheries surveys, nautical charting and ocean and climate studies.

A 2002 law authored by the late Senator Ted Stevens mandated the NOAA vessel *Fairweather* be home ported in Ketchikan, Alaska, as Alaska is where the vessel conducts its research work. The vessel, however, has instead resided in Oregon for more than 15 years because the facilities that existed at the vessels' designated home port were severely degraded and unsafe for use.

The recapitalized facility designed by PND Engineers, Inc. serves as a crucial hub for supporting NOAA's research vessels. Multi-disciplinary design elements included upland and marine demolition; upland grading and paving; drainage and runoff treatment; security fencing with controlled access gates; water and sewer services; fire suppression systems; power and lighting utilities; emergency backup power system; new upland office and renovated warehouse buildings; small vessel moorage float with pedestrian access gangway; boat launch/haulout ramp; shore protection armor rock; vehicle-accessible floating steel pontoon pier with camel log fender system; a hydraulic loading crane; mooring bollards; pontoon restraint dolphins; cathodic protection; vehicle transfer bridge with submerged support float; concrete bridge access abutment; vessel shore tie power; vessel sewer and wastewater discharge connections and pump out system; and vessel potable water system. All exposed water and wastewater pressure piping was insulated, and heat traced to provide year-round service in Alaska's harsh winter environment. Shallow bedrock conditions required socketed steel piles with moment frames to resist wind, wave, seismic and operational loads.



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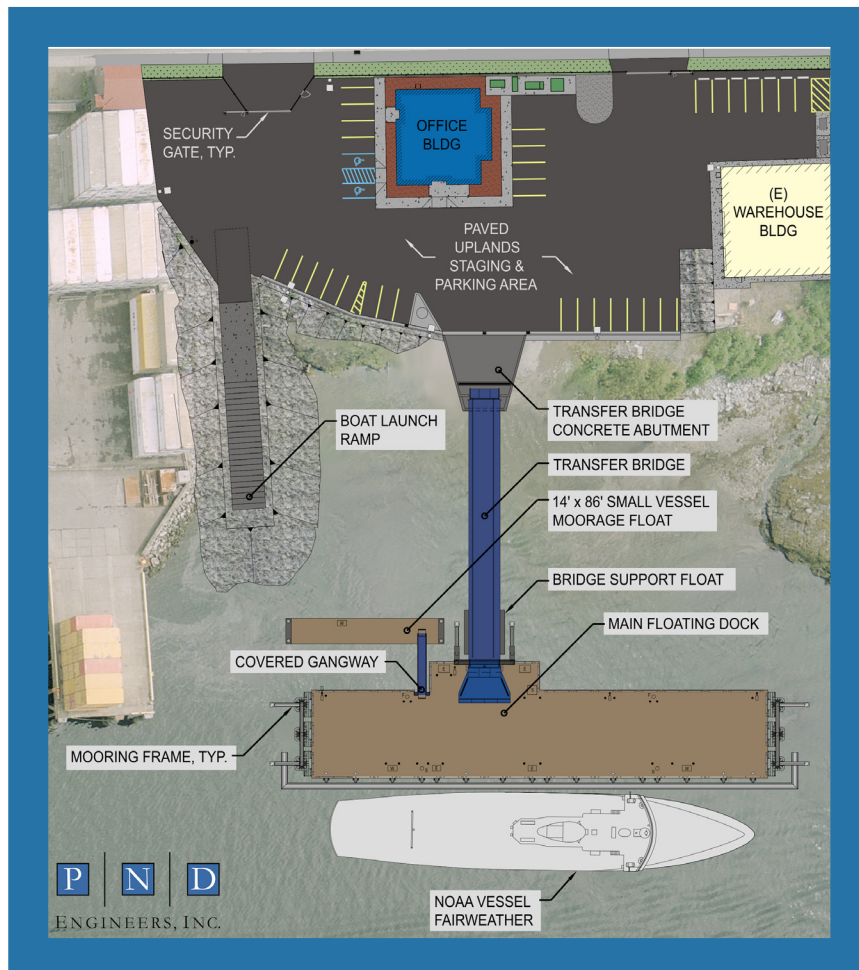
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INNOVATION AND VALUE ENGINEERING

A combination of innovation and value engineering was necessary to address the challenging site conditions while maintaining overall project costs within the budget appropriated by the federal government and meeting the project's aggressive schedule.

The original project RFP stipulated a fixed, pile-supported, concrete decked pier similar in layout and geometry to the old timber pier that existed at the site and had previously been utilized for fuel barge operations. However, shallow bathymetric seafloor contours with thin and loose soil conditions over weathered bedrock existed at the site. The shallow bedrock would add significant cost and construction time to a fixed, pile-supported dock, as all piles would require rock sockets and grouted anchors to resist lateral loads. In addition, the draft required for NOAA research vessels is significantly greater than that required for fuel barges, and thus, the pier would need to be moved seaward into deeper water. This would require a longer approach pier and longer piles, which further increased cost and construction time. Consequently, a floating pier, positioned seaward of the original dock face and accessed by a vehicle-rated transfer bridge, was proposed and accepted as a value engineering alternative.



BENEFIT TO THE COMMUNITY

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In August of 2023, federal, state and local officials joined NOAA leadership to cut the ribbon on the agency's newly renovated port facility in Ketchikan, Alaska. The celebration was held to dedicate the facility and recognize the important partnerships in the area. A few distinguished attendees spoke to how the project would benefit local, state and national interests.

"This represents hundreds of thousands, if not millions, into our economy every year for many different sectors," Ketchikan Mayor Dial said. "A vessel this size requires expensive maintenance — we are going to argue that that should be done at our shipyard. There will be fuel that will be sold, supplies, employee payroll, and all of that will circulate through our economy." He added that he hopes the federal spending will help the area reduce its reliance on tourism as an economic driver.

"Today, after years of close coordination and work with Southeast leaders, especially Senator Stedman and Mayor Dial, we celebrate the completion of the new pier facility in beautiful Ketchikan and the long-overdue return of the *Fairweather*. This success is part of a larger build-up of Coast Guard and NOAA vessels and assets throughout Alaska and a resurgence of shipbuilding and ship maintenance in Alaska's coastal communities. I will fight to keep this historic momentum going for the economic benefit of Alaskans in our coastal communities, like Ketchikan, and to better secure America's vital interests in our state and in the Arctic." - Dan Sullivan, Alaska Senator

"The investment we are making in partnership with the state of Alaska will help ensure that NOAA can continue to support safe navigation and commerce in Alaska efficiently and effectively for years to come." -Don Graves, Deputy Secretary of Commerce



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PROJECT MANAGEMENT

Effective management of a multi-disciplined design team and close collaboration with a design-build contractor ultimately led to the success of an on-time and under-budget project. The schedule for design deliverables was accelerated for an early steel fabrication process to deliver major structural elements in time for shipment to Alaska to meet seasonal construction windows. The design team provided quality assurance inspections during fabrication and during construction at key milestones to satisfy NOAA's quality control standards, ensure the

project was being constructed per design, and address field conditions and proposed design modifications in a timely manner. All field personnel were briefed on potential job safety hazards and completed Job Safety Assessments (JSA) prior to access onsite. Strict safety procedures were followed while on site and when mobilizing to and from the site.

