

MEMO

Date: December 10, 2021
To: John Clauson; Kitsap Transit, Executive Director
From: KPFF Consulting Engineers
Subject: Kitsap Fast Ferries
Harper Pier Tie-up Facility Feasibility Assessment

Kitsap Transit asked KPFF to conduct a preliminary, high level analysis of the Harper Pier for passenger ferry tie-up. The focus of this preliminary review is engineering feasibility, and a high level assessment of environmental and permitting requirements. This memorandum documents the work conducted by KPFF.

Situation

Kitsap Transit operates three fast-ferry routes connecting Kitsap to downtown Seattle:

- **Bremerton Fast Ferry** operates and ties up at the Bremerton passenger-only ferry dock that Kitsap Transit owns and controls.
- **Kingston Fast Ferry** operates and ties up at a float that is attached to a gangway at the end of a fishing pier owned by the Port of Kingston. Kitsap Transit manages the gangway and float under a long-term lease agreement with the Port.
- **Southworth Fast Ferry**, unlike the other two services, operates from one location (Southworth) and ties up at a different location (Bremerton). The distance between the service and tie-up locations results in fuel use and crew hours outside of scheduled service, adding to operating costs. Kitsap Transit is interested in identifying potential alternative tie-up locations that would be located closer to the service route.

Purpose

The Harper Fishing Pier was identified as a potential tie-up location for the Southworth route. KPFF was asked to perform a preliminary assessment of the feasibility of adding a tie-up float to the existing pier, including the following tasks:

- **Engineering feasibility:** Preliminary assessment of the pier structure and the water depth in the area to determine if installing a tie-up float at the pier is feasible from an engineering perspective.
- **Design Concepts:** Concepts for a tie-up facility that would maintain recreational uses of the existing pier and float and fit within the surrounding neighborhood. Conceptual designs included renderings to show the scale of the float and vessels in the current environment.
- **Planning:** High-level review of environmental considerations, permitting requirements and timeframes, and tribal outreach considerations.
- **Community meeting support:** Develop background information, preliminary assessment findings and conceptual designs for Kitsap Transit to share with community members at a Harper Pier Community Meeting.

Background

Existing Southworth Tie-up Location

The Southworth Fast Ferry operates from the car slip at the Southworth ferry terminal, owned and operated by Washington State Ferries, and ties up at the Bremerton passenger-only ferry dock owned by Kitsap Transit. Between Southworth and Bremerton, the ferry travels 11 miles (35 minute sailing time), part of it at reduced speed through the wake-sensitive Rich Passage area. Because weekday AM service ends in Seattle, and weekday PM service starts in Seattle, weekday mid-day deadhead trips (deadhead trips are defined as when the ferry repositions from one point to another without carrying paying customers, usually at the beginning or end of a scheduled service window) between Bremerton and Seattle (45 minute sailing). Weekly deadheads are summarized below.

Weekday AM Service

- Start: 35 minute deadhead from Bremerton to Southworth
- End: 45 minute deadhead from Seattle to Bremerton (Fueling occurs two or more times per week at Pier 15 in Seattle prior to deadheading back to Bremerton)

Weekday PM Service

- Start: 45 minute deadhead from Bremerton to Seattle
- End: 35 minute deadhead from Southworth to Bremerton

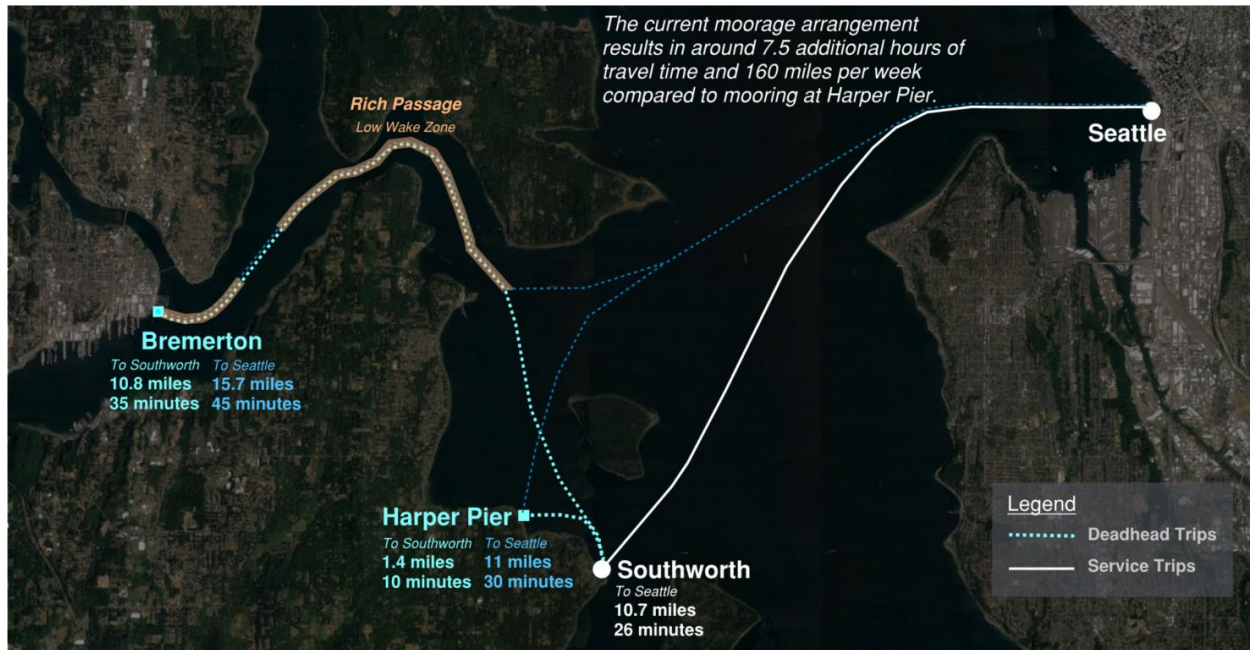
Saturday Service

- Start: 35 minute deadhead from Bremerton to Southworth
- End: 35 minute deadhead from Southworth to Bremerton

Harper Pier Alternative Travel Time

Figure 1 compares the deadhead route from the current Bremerton facility to a new deadhead route from the Harper Pier location.

Figure 1: Southworth Vessel Travel



The distance from Southworth to the Harper Pier is just over one mile (sailing time under 10 minutes). The potential reduction in total weekly transit time and distance is shown in Table 1.

Table 1: Weekly Deadhead Summary¹

Weekly Deadhead Totals	Bremerton	Harper Pier	Potential Weekly Savings ²
Transits	22	22	-
Transit Time (minutes)	870	420	450
Transit Distance (miles)	287	127	160

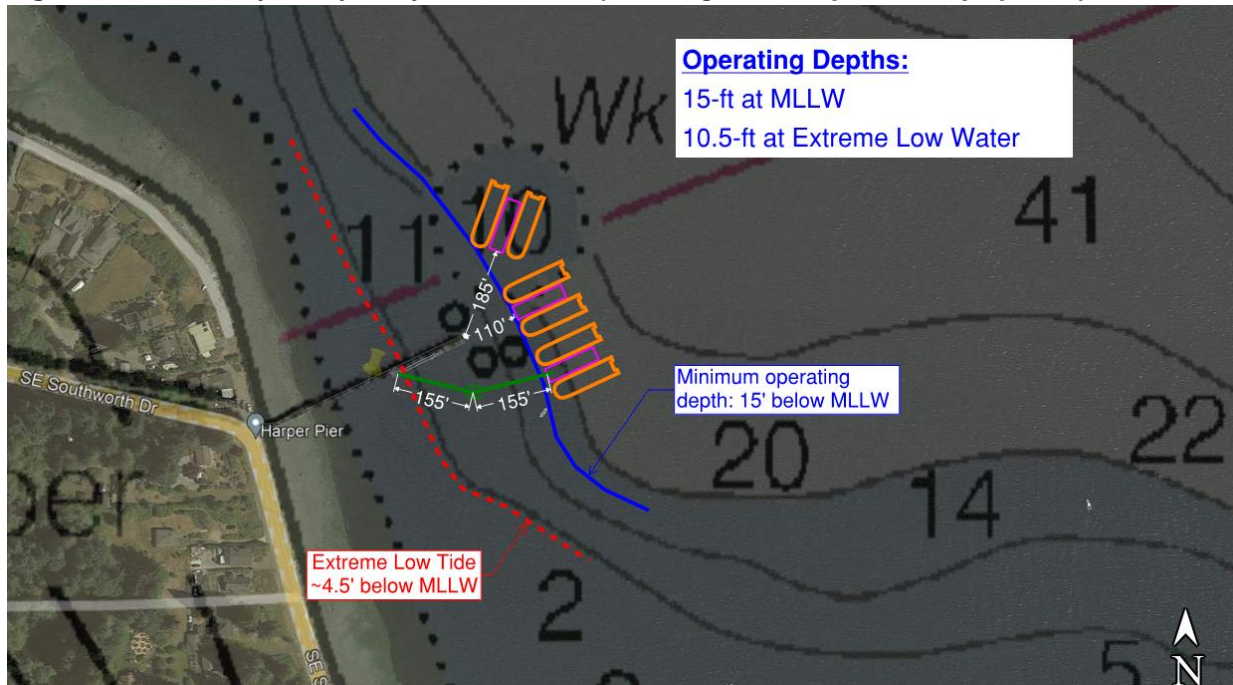
¹ Totals include Saturday service (May-September only)

² If the vessel is tied up at Harper Pier, two additional weekday service trips could replace deadhead transits directly to and from Seattle resulting in additional passenger service and revenue potential, and increasing total weekly deadhead savings to 650 minutes and 256 miles.

Preliminary Engineering Feasibility

To review water depths in relation to potential float locations, the project team initially developed three alternative design concepts, with a tie-up float oriented to the south, to the north, and to the east off the end of the existing pier, as shown below in Figure 2.

Figure 2: Preliminary Bathymetry Assessment (showing all three preliminary options)³



Review of bathymetric data, including the approximate location of sunken vessels, found that locating the float off the south or north of the existing pier would likely place the vessel in insufficient water depths during extreme low tides, or would require significant improvements to install a ramp long enough to reach necessary water depths. However, locating the float directly to the east off the end of the pier would locate the vessels in sufficient water depths of at least 15 feet of water during mean low low water (MLLW), and 10.5 feet at extreme low tides. The draft of the Southworth vessel is 5.1 feet.

Design Concepts

Two concept options were developed showing the float located off the east end of the pier, connected by a ramp spanning approximately 110 feet, in order to show the scale of the tie-up float and vessels compared to the existing pier. Development of conceptual options included review of bathymetry to establish ramp length requirements; however, preliminary load and pile sizes were not calculated at this time. Conceptual layouts and renderings for both options are presented in the following pages.

³ NOAA Chart 18449 overlaid on Google Earth map image. Soundings in feet. MLLW = 0.00.

Option 1: Float and Ramp Directly off the East End of the Pier

Option 1: Aerial View



Option 1: Street View from the North



Option 1: Street View from the South



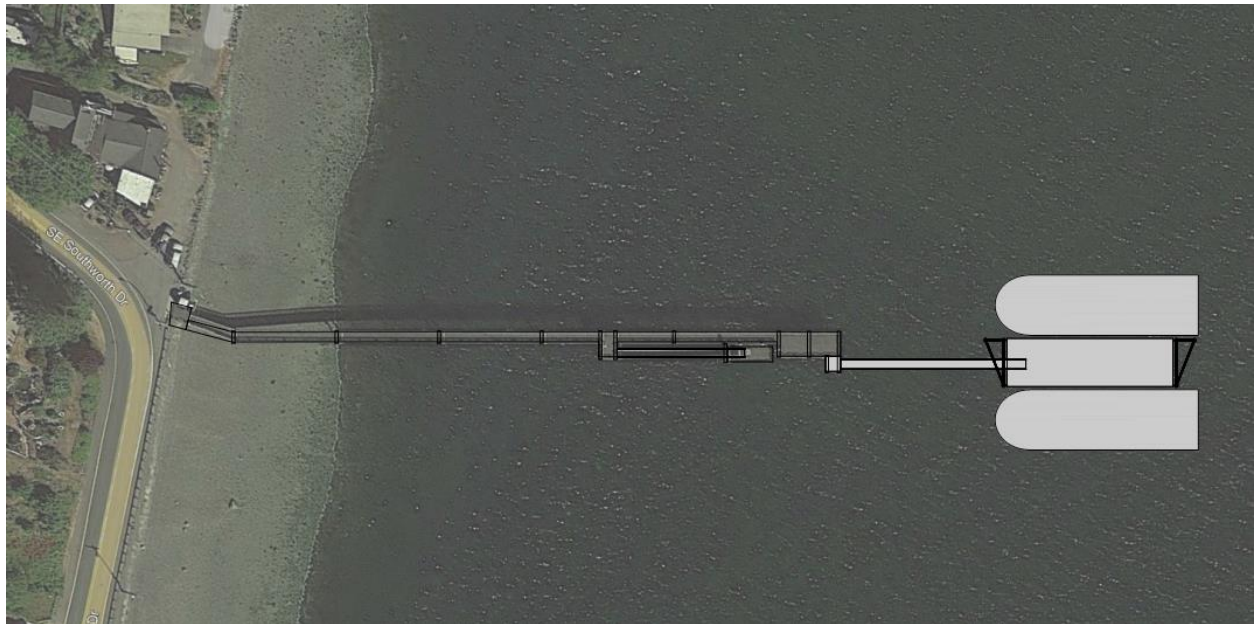
Option 1: Close-up View from the South



Option 2: Float and ramp attached to a 10-foot-by-10-foot bump-out to the south adjacent to the east end of the pier

Option 2 shows an attached bump-out added to the end of the pier to connect the ramp, with the goal of maintaining access to the rail at the end the pier for recreational fishing.

Option 2: Aerial View



Option 2: Street View from the North



Option 2: Street View from the South



Option 2: Close-up View from the South



Environmental and Permitting Considerations

A high-level review of environmental concerns in the area identified the following potential concerns:

- Macroalgae or eelgrass is possible in this area, which could be impacted by overwater structure or propeller wash. A video survey or dive survey could be performed to identify/delineate macroalgae and aquatic vegetation at the site.
- Harper Pier is located approximately one quarter mile from the Harper Estuary, a shallow embayment and salt marsh currently undergoing habitat restoration. Further assessment of the Harper Pier location would include review and recommendation of operational protocols for vessel approach angle and speed to ensure minimal vessel wakes and no impacts to the estuary area.
- The project area is near a pre-spawn holding area for herring, although it is not located in the immediate project area.

Permitting

Permitting for addition of a tie-up float in this location would likely take 1.5 to 3 years. In-water work at Harper Pier would require approvals from the following agencies:

- Federal:
 - U.S. Army Corps of Engineers
 - National Marine Fisheries/U.S. Fish and Wildlife
 - U.S. Coast Guard
 - Compliance with the National Environmental Policy Act (NEPA) would be required for this project if federal funds (FTA or FHWA) are used for project implementation
- State:
 - Washington Department of Fish and Wildlife
 - Washington State Department of Natural Resources
 - Washington State Department of Ecology
 - Washington Department of Archeology and Historic Preservation
- Local:
 - Kitsap County

Tribal Fishing Rights and Outreach

Identification and resolution of tribal treaty rights would be important in the early planning stages (before and during public comment period and before submittal of permits). This would be done through meeting directly with tribes, as well as inviting them to general public/community meetings to discuss the project.



The Suquamish and Tulalip tribes have adjudicated treaty rights in the Harper Pier area. There could be additional tribes having an interest under Section 106 of the National Historic Preservation Act (NHPA).

Mitigation requirements may include natural resources and environmental impacts, treaty fishing impacts, potential operational protocols to the reduce risk of gear damage/net moves/lost fishing time resulting from Kitsap Transit vessels interfering with Tribal fishing activities, and procedures for compensation if impacts/damage occurs.

Conclusion

The preliminary assessment found installation of a moorage float at the Harper Pier to be feasible based on water depths and preliminary review of environmental considerations. More thorough study would be required to design the required structural enhancements and assess the overall feasibility of the location.