

SR 160 - FAUNTLEROY FERRY TERMINAL - TRESTLE AND TRANSFER SPAN REPLACEMENT PROJECT

PLANNING AND ENVIRONMENTAL LINKAGES PURPOSE AND NEED

Background

Washington State Ferries' (WSF) Fauntleroy ferry terminal is an essential transportation hub for the South Puget Sound that served more than three million riders in 2019, including people who board ferries by walking, biking, driving and riding transit. The terminal supports the three-destination Fauntleroy, Vashon and Southworth ferry route with daily vehicle and pedestrian service between West Seattle, Vashon Island and the Kitsap Peninsula. Located in West Seattle, the terminal represents the eastern end of State Route (SR) 160, which extends west to the Sedgwick Road interchange in Kitsap County. Built in the 1950s, the Fauntleroy ferry terminal has one of the oldest docks in the WSF system. The terminal is located in a residential area and is accessed by a local arterial street, rather than a state highway.

A **purpose and need** statement describes a transportation problem and serves as the basis for a transportation agency to develop and screen alternatives or solutions to address the problem. The *purpose* element of the statement explains the problem an agency is working to address. The *need* element includes the data supporting that a problem currently exists or is likely to occur.

The purpose and need is the starting point for developing alternatives, which should include a reasonable range of alternatives and a no-build alternative. Reasonable alternatives are those that address the purpose and need and are economically and technically feasible. Through the alternatives screening process, WSF will consider all potential solutions and determine which are reasonable. WSF will

summarize the results of the Planning and Environmental Linkages (PEL) alternatives analysis in a PEL study report to inform the environmental review process.

The *Washington State Ferries 2040 Long Range Plan* (2040 LRP), published in January 2019, is the most recently approved planning document available to guide service needs and capital investment decisions for WSF. We used this document as the foundation for this purpose and need statement.

Project Purpose

The purpose of the SR 160 - Fauntleroy Ferry Terminal - Trestle and Transfer Span Replacement Project (Project) is to improve operations on the Fauntleroy/Vashon/Southworth ferry route and preserve and upgrade the facilities serving the mainland terminus of the route, consistent with the 2040 LRP.

WSF intends to achieve the Project purpose by accomplishing the following:

- Replace seismically vulnerable and aging terminal structures to meet current structural, seismic, water quality, storm and tsunami design standards.
- Raise the elevation of the terminal to account for future sea level rise and the increasing frequency and intensity of storms.
- Provide operational efficiencies that support reliable service while meeting service levels projected for the route in the 2040 LRP.
- Provide efficient and safe loading and fare processing for pedestrians, vehicles and bicycles.
- Improve multimodal connectivity and provide investments in technology that enhance the customer experience and accommodate ridership growth, consistent with the 2040 LRP.

Project Need

The Fauntleroy ferry terminal has several operational deficiencies and preservation needs, including structural reliability, resilience, operational efficiency, safety and accommodating service levels identified in the 2040 LRP. Those factors, described below, demonstrate WSF’s need to replace the terminal.

Structural Reliability

The existing 40,000-square-foot trestle is supported by creosote timber piles installed in 1957 and 1984 and steel H-piles installed at select locations in 2003 (Figure 1). In a 2012 seismic hazard evaluation, WSF documented liquefiable soil beneath the trestle and predicted pile failure at the end of the trestle in a 72-year seismic event. In this scenario, the terminal would be out of service and WSF would need to rebuild critical elements of the frame supporting the trestle and terminal building. Stronger earthquakes could lead to partial collapse.



Figure 1. Timber piles supporting the Terminal trestle

The terminal’s main structural elements are at or approaching the end of their service life. Propeller wash from vessels scours soil away at the end of the trestle, which undermines the timber piles and requires repair with steel H-piles. If not replaced, this aging terminal infrastructure will require more frequent maintenance and repair, resulting in increased maintenance costs and operational restrictions, such as temporary closures and schedule modifications that represent a risk to service reliability. In addition, the

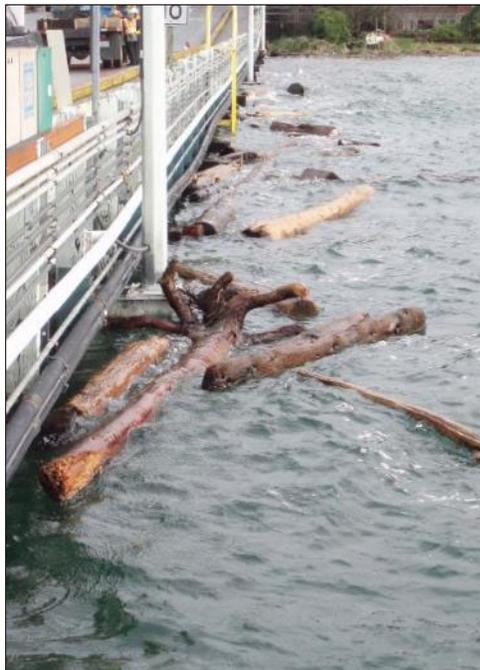


Figure 2. Debris at the Terminal during high tide

terminal does not meet current seismic or structural design standards.

Resilience

The existing bridge seat, which supports the transfer span, sits at an elevation of 15.65 feet mean lower low water, one of the lowest elevations in the WSF system and the lowest on the Triangle Route. By comparison, the elevation of the Fauntleroy terminal is 3.46 feet lower than the Vashon terminal and 3 feet lower than the Southworth terminal. Rising sea levels and the increasing frequency and intensity of storms increases the risk of damage and inundation of the terminal, creating a safety risk for passengers and WSF staff (Figure 2). WSF needs a higher-elevation terminal to meet current design standards. WSF is developing a sea level rise study to determine sea level rise estimates for the Fauntleroy ferry terminal. The elevation of any proposed new terminal will reflect the outcome of the study.

Operational Efficiency

WSF has a systemwide on-time performance goal of 95 percent. The ability to provide on-time ferry service relates to the system capacity—how many vehicles and passengers are carried. The route is currently served by three 124-car Issaquah Class ferries, with 29 to 34 sailings per day between Fauntleroy and Vashon and 23 to 27 sailings per day between Fauntleroy and Southworth. Annual on-time performance for the route was 94.1 percent in 2020. In the 12-month (pre-pandemic) period between February 2019 to February 2020, on-time performance averaged 93 percent for the Fauntleroy/Vashon route, 90 percent for the Fauntleroy/Southworth route and 91 percent for the Southworth/Vashon route.

The following factors at the existing terminal contribute to service delays and prevent WSF from meeting its on-time performance goal:

- a) The existing dock has four holding lanes that can accommodate approximately 80 vehicles, which is less than one ferry can hold. An existing shoulder lane along Fauntleroy Way SW north of the terminal can accommodate approximately 143 additional vehicles (assuming 20-foot vehicles). The shoulder holding lane is before the toll booths, which means that the time to process vehicles through the toll booths can affect the time required to fully load a ferry.
- b) Dwell time is defined as the time it takes for a ferry to dock, unload all passengers and vehicles, and load all passengers and vehicles for the next sailing. An inefficient loading process increases the dwell time. Dwell time at the terminal currently ranges from 5 to 30 minutes and averages 15 minutes. Dwell times are typically longest in the afternoon peak hours and on holidays and weekends. Inefficient vehicle staging slows fare collection at the existing terminal, which increases dwell times and delays departures during peak travel times. Cars bound for Vashon Island and Southworth are intermixed in a single-lane queue before the toll booths. The speed at which vehicles are processed is further limited by technology at the toll booth, the transaction between customer and toll booth operator and the complexity of fare options combined with dual destinations (Figure 3). These inefficiencies coupled with loading both vehicles and walk-ons on a single transfer span lead to delays in loading and limits WSF’s ability to maintain scheduled dwell times.
- c) The intersection configuration and side-street stop control at the terminal and Fauntleroy Way SW constrains the efficient flow of vehicle, bicycle and pedestrian traffic from the terminal, requiring traffic control by a uniformed police officer at peak travel times.



Figure 3. Ticketing and loading operations at Fauntleroy terminal

Safety

While the number of recorded collisions is relatively low, the configuration of the existing terminal and intersection of Fauntleroy Way SW creates conflicts between people walking, biking and driving. The terminal configuration requires that vehicles that qualify for priority loading, such as vanpools and emergency vehicles, need to use the exit lanes to reach the front of the holding area. Additionally, although the exit lanes are marked as exit only, they are used to access the parking area next to the terminal building for special needs accommodations as directed by terminal staff and are unofficially used as a passenger drop-off area. This can prevent unloading and create conflicts with people walking from the holding area to and from the terminal building.

At the intersection with Fauntleroy Way SW, people walking and biking to the terminal area, nearby transit facilities and surrounding homes cross vehicle traffic loading and unloading from the terminal and traveling on Fauntleroy Way SW. During peak travel times, uniformed police officers and WSF staff are used to control traffic to reduce conflict risk and traveler frustration. Staff controlling traffic also face the risk of collision, which can increase during high traffic demand, dark hours and inclement weather.

Growth in Travel Demand

The Triangle Route is a part of the state highway system that connects Seattle, Vashon Island and communities on the Kitsap Peninsula and provides a critical link for Vashon Island communities for evacuations, disaster relief and medical emergencies. Service levels in the 2040 LRP call for continued use of the three 124-car vessels on this route. This service level and vessel size confine the peak period vehicle capacity for the Triangle Route, but, as the 2040 LRP notes, ferry ridership demand is expected to continue to grow. Recognizing WSF's limited ability to expand, the 2040 LRP calls for managing growth by increasing accessibility, increasing walk-on ridership and improving connections and facilities between ferries and other modes, including transit, vanpool, bicycling and walking. This reinforces the need to promote sustainable modes of travel and encourage transit integration and multimodal connections at the terminal.

Project Goals

WSF has the following goals to support the purpose and need and deliver a successful Project:

- Improve the customers' overall experience when using the terminal.
- Foster solutions that balance the concerns and values of all three communities served by the Fauntleroy/Vashon/Southworth route.
- Minimize impacts to the built environment and natural environment and be sensitive to the rich cultural and natural resources in the area in a manner that respects and preserves these resources.
- Maintain constructive interagency relationships that promote coordinated transportation partnerships.
- Accommodate future electrification at the terminal to charge hybrid electric ferries.
- Be technically and economically feasible for WSF to construct, operate and maintain.

These goals are guided by the 2040 LRP, WSF's 2021–2023 Sustainability Action Plan, WSF's 2020 System Electrification Plan, and legislative and executive requirements and WSDOT's framework of providing a sustainable transportation system that "supports the economy, preserves the environment and enhances equity and quality of life in our communities" (Revised Code of Washington 47.04.280).