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Washington State Ferries Transit Asset Management Plan

In accordance with 49 CFR 625.31, enclosure (1) is the WSDOT Ferries Division Transit Asset Management Plan. The WSDOT ferries Division is classified as a Tier 2 agency per the FTA criteria. This agency owns 23 vessels, and the criteria for a Tier 2 Agency is less than 100 vehicles.

This plan documents the strategic, systematic practices of procuring, operating, inspecting, maintaining, rehabilitating and replacing WSF capital assets. It supports WSF efforts to manage capital asset performance, risks and costs over their lifecycles in order to provide safe, cost-effective and reliable public transportation.

Washington State Department of Transportation, including the Ferries Division, is also developing a comprehensive State Transportation Asset Management Plan to the requirements of FTA, FHWA and Washington State legislature. This comprehensive plan is expected to be completed in August 2019.

This Transit Asset Management Plan is effective immediately and will remain in effect until it is superseded by the comprehensive State Transportation Asset Management Plan.

A handwritten signature in black ink, appearing to read "A. Scarton", with a long horizontal line extending to the right.

Amy Scarton
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WSDOT Capital Program Development and Management
WSF Finance & Administration Department
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WSF Vessel Engineering & Maintenance Department

Enclosures:

(1) WSDOT Ferries Division Transit Asset Management Plan

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I would like to sincerely thank all my staff here at Washington State Ferries for creating this Asset Management Plan. This Plan is a product of the concerted efforts of all Washington State Ferries employees who have dedicated their resources to effectively conduct the operations and improve the management practices to make the agency more efficient.

I would like to especially thank Matt Von Ruden, Director of Vessels, Nicole McIntosh, Director of Terminal Engineering and Jeri Bernstein for their leadership in the development of this Plan and institution of asset management practices at Washington State Ferries. Special thanks to Rick Singer, Director of Finance and Administration, and John Bernhard for their continued efforts and advice. Without their invaluable suggestions and support, this Plan would be incomplete. I would also like to extend my gratitude to Zane Grant at Statewide Asset Management and Srikanth Sree Ramoju at the Terminals Division for their effort in developing content and compiling this Plan.

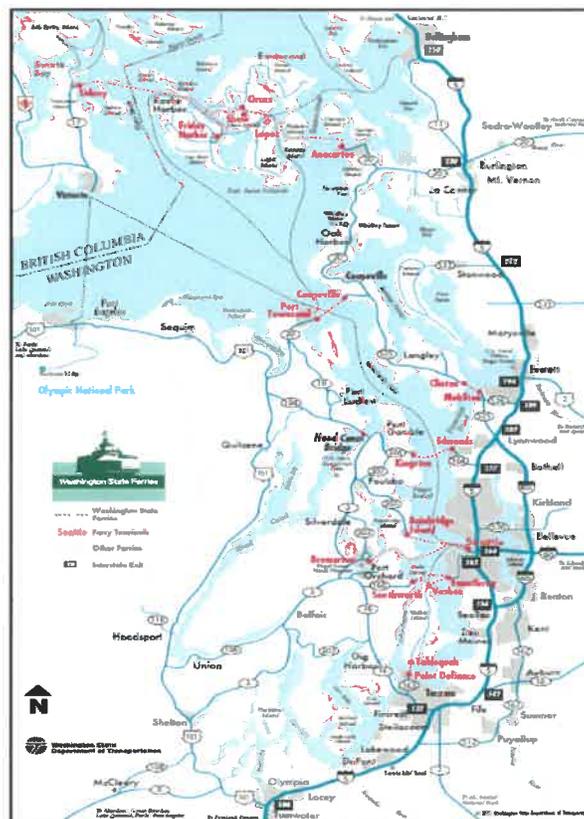
Section 0: Introduction

Washington State Ferries (WSF) plays an important role in the state’s transportation system. It is a critical link in east-west highways carrying people and freight from one side of Puget Sound to the other. The Washington State Ferries marine highway system serves as the transportation backbone providing automobile, passenger and vital commercial connections to the Olympic Peninsula, Puget Sound island communities and Canada. It is the fourth largest system in the world behind Istanbul Sea Buses, British Columbia Ferries of Canada and Sydney Ferries of Australia, and is the largest ferry operator in the United States. With a current valuation of \$4.8 B, investments are being made to renew vessel systems and terminals. The system provides 24.5 million trips annually serving business, commuters and leisure travelers. Because of expanding population in the Puget Sound Area, future ridership is trending upward. Ongoing system improvements include delivery of one new 144-vehicle ferry, and new construction underway of two modern multimodal terminal projects at Colman Dock in Downtown Seattle, and the Mukilteo Terminal, north of Seattle.

0.1. WSF System Overview

A division of Washington State Department of Transportation (WSDOT), Washington State Ferries (WSF) operates ten-ferry routes equivalent to 200 miles of highway bridges. WSF’s vessels make nearly 450 sailings per day over the routes that include travel on twenty-three vessels on the system of twenty terminals. The scope of ferry system is depicted in Exhibit 0-1.

Exhibit 0-1 Washington State Ferries System Map



*Map Source: WSF
Communications Office*

0.2. Background

Over the past 15 years, Washington’s transportation infrastructure has faced challenges from budget shortfalls, an unstable economy, and fluctuating construction costs. These conditions eventually led to organizational change in agency processes, initially called Moving Washington, and more recently termed [Practical Solutions](#). Simply stated, with Practical Solutions we collaborate with our partners to make the right investments, in the right places, at the right time, while using the right approach.

Practical Solutions approaches include:

- Lowest life cycle cost to preserve the system in a State of Good Repair,
- [Target Zero](#) strategies for safety,
- Transportation system management,
- Demand management, and
- Capital project investment.

Practical Solutions’ methods aid WSF in project prioritization by selecting the appropriate preservation work at the right time and effectively managing agency assets to minimize life cycle costs. WSF’s asset management planning reflects the costs and benefits of assets to lengthen their service life when used in conjunction with preservation activities and timely maintenance. To this end, WSF uses a risk-based life cycle management process for precisely timed preventative maintenance to extend the useful life of its assets while keeping them operating effectively. This strategy helps defer costly rehabilitation or reconstruction projects.

Exhibit 0-2 provides an overview of WSF’s Practical Solutions framework and presents a general life cycle delivery diagram of its business processes.

Exhibit 0-2 WSDOT Practical Solutions Life Cycle

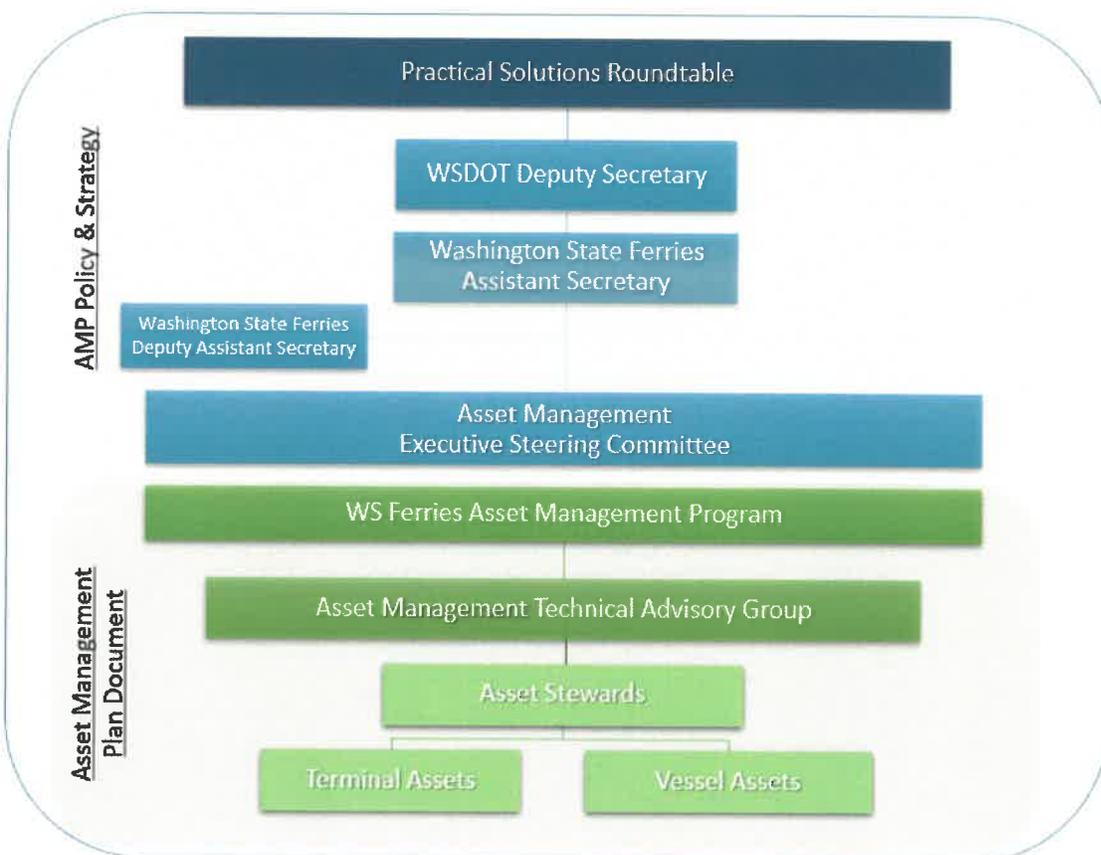


Exhibit Note: Source is from WSDOT’s [Practical Solutions](#) webpage, Version 3 posted 8/9/2017.

0.3. Organizational Framework

WSDOT established an organizational framework for Asset Management as both a means of managing assets and embracing a cultural shift within the agency (see Exhibit 0-3 below). WSDOT memorialized this framework, along with other definitions and direction related to asset management in *Executive Order 1098 – Statewide Transportation Asset Management*. Using this approach allows WSF to implement the asset management program across both Terminals and Vessel system structure in a manner consistent with the rest of WSDOT.

Exhibit 0-3 Washington State Ferries Asset Management Governance Structure



The Washington State Ferries management structure flows from Practical Solutions guidance through WSDOT executives, executive steering committee, technical advisory group, and asset class stewards. Within Ferries, there are two *Asset Stewards*, one each for terminals and vessels who lead the management of centralized planning and network analysis. *Asset Managers* are responsible for day-to-day site work, project specific design, or maintenance of assets. It is common for activities completed by an asset steward or asset manager to overlap, making the definition of rigid roles by position sometimes problematic. This fluidity is recognized and accepted within the framework, just as a position may function both in a technical and executive role at times. The WSDOT CPDM Program Management Manual – Chapter 2 Asset Management contains definitions of roles and responsibilities for asset management personnel.

0.4. Purpose of the WSDOT WSF Asset Management Plan

This plan documents the strategic, systematic practices of procuring, operating, inspecting, maintaining, rehabilitating and replacing WSF capital assets. It supports WSF efforts to manage capital asset performance, risks and costs over their lifecycles in order to provide safe, cost-effective and reliable public transportation. In short, this plan lays the foundation for sustained system reliability at Washington State Ferries.

This Plan was developed and written in collaboration with WSF and WSDOT managers, engineers, specialists and executives. Approximately forty people contributed to research, analysis, content development, and reviews.

This plan is focused on meeting the Federal Transit Administration requirements of 49 CFR 625.25. In conjunction with our parent agency, Washington State Department of Transportation (WSDOT), the Ferries Division is also developing a comprehensive State Transportation Asset Management Plan to the requirements of FTA, FHWA and Washington State legislature. This plan will meet all federal requirements under 23 CFR 515 (FHWA) and 49 CFR 625.5 (FTA) and include data, results and new processes to move forward with future investment planning. It will align asset management practices to a strategic way of prioritizing projects, incorporating asset performance scenarios, performance measures, and trade-off analysis. This will allow WSF to demonstrate how asset management practices are used to maintain our existing infrastructure at the lowest practicable cost to achieve a desired State of Good Repair. WSF continues to enhance its asset management practices across all asset classes and intends to address all assets managed by the department. Asset Management Plans will evolve over time as changes in condition, budgets, risks, constraints, and identification of strategic priorities take place.

This plan has a planning horizon of four years, and will be updated annually on or about 1 October of each year.

0.5. WSF Federal Transit Asset Management Plan Document

This Asset Management Plan explains the asset condition and inventory of all investments along with prioritization of future asset development. In addition, this document includes methods and activities that WSF uses to analyze potential future needs by using decision tools and processes. It is intended to report on the current-state asset management process. Based on an analysis of this initial view, a WSDOT WSF Asset Management Plan is being delivered in June 2019, which describes improvements to the current way of doing business. WSF is taking a systematic and comprehensive approach to maturing transportation asset management, as evidenced in the framework.

The plan includes the following asset management elements:

- Chapter 1 – Asset Inventory.
- Chapter 2 - Condition Assessment
- Chapter 3 - Analytical Processes and Decision-Support Tools
- Chapter 4 – Project-based Prioritization of Investments

Section 1: Capital Asset Inventory

This chapter provides an inventory of WSF capital assets. The system is comprised of two FTA Asset Categories – Vessels and Terminals. WSF is responsible for managing 23 vessels and 20 terminals throughout Puget Sound. A summary of vessel and terminal assets is included in Figure 1-1 below. This summary includes all assets in our system with a replacement value greater than \$50,000.

The Washington Ferry System (WFS) includes routes on the National Highway System (NHS). WSF has routes that are not on the National Highway System also. These are other principal routes and a trans-national link to Canada. Importance of this travel way roadway is defined by its use for mobility in the Puget Sound and statewide impact to tourism commerce. This summary includes assets that are and are not part of the National Highway System.

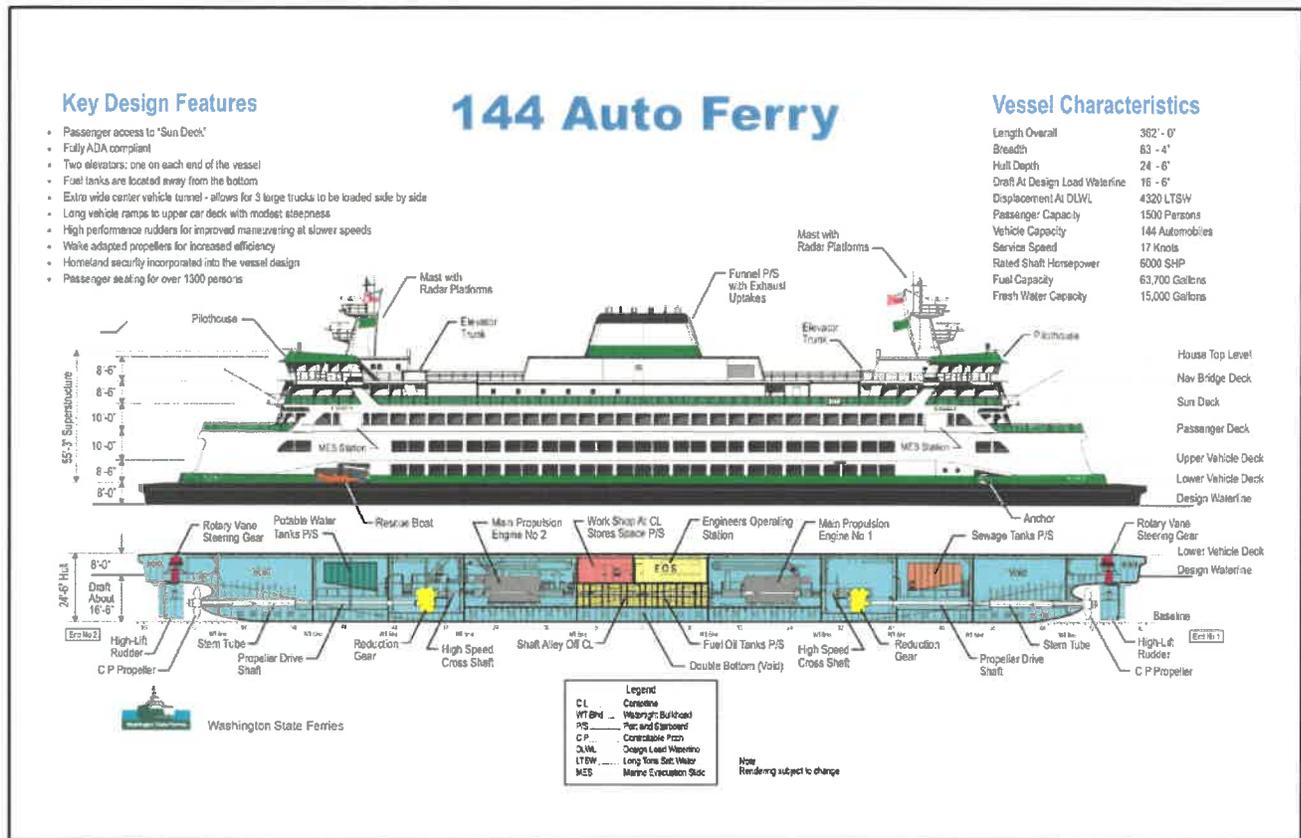
Figure 1-1 WS Ferries Asset Inventory and Condition Table

Asset	Quantity	Unit	Average Unit Replacement Value	Replacement Value (Millions of \$)	Data		Condition	
					Confidence	% Good	% Fair	% Poor
Ferry Vessels	23			\$3,476		39%	52%	9%
Jumbo Mark II Ferry	3	Each	\$ 259,400,000	\$ 778	90%	67%	33%	0%
Jumbo Mark I Ferry	2		\$ 205,000,000	\$ 410	90%	0%	100%	0%
Super Class Ferry	4		\$ 171,400,000	\$ 686	90%	25%	25%	50%
Issaquah Class Ferry	6		\$ 114,200,000	\$ 685	90%	17%	83%	0%
Evergreen State Class Ferry	1		\$ 94,900,000	\$ 95	90%	0%	100%	0%
Kwa-di Tabil Class Ferry	3		\$ 84,700,000	\$ 254	90%	100%	0%	0%
Olympic Class Ferry	4		\$ 142,000,000	\$ 568	90%	100%	0%	0%
Ferry Terminals				\$1,427				
Dolphins	141			\$231				
Timber Dolphins	34	Each	\$1,500,000	\$51	90%		26%	74%
Steel Dolphins	99		\$1,500,000	\$149	90%	52%	45%	3%
Concrete Floating Dolphins	7		\$3,890,000	\$27	90%	100%		
Timber Floating Dolphins KI	1		\$3,890,000	\$4	90%			100%
Wingwalls	35			\$102				
Steel Wingwalls	34		\$2,880,000	\$88	90%	52%	45%	3%
Floating Wingwalls-LO	1		\$3,700,000	\$4	90%		100%	
Vehicle Movable Bridges	40			\$355				
Cable Hoist w/ Manual Pins (Type 1,2)	10	Each	\$10,750,000	\$108	90%	14%	58%	28%
Cable Hoist w/Hydraulic Pins (Type 3)	15		\$10,750,000	\$161	90%	26%	71%	3%
Dual Cable Hoist (M-span) (Type 4)	2		\$10,750,000	\$22	90%	34%	58%	8%
Hydraulic Span (H-span) (Type 5)	3		\$10,750,000	\$32	90%	72%	28%	
Tie-up Slip (Type 9,10)	10		\$3,225,000	\$32	90%	7%	83%	10%
Trestles & Bulkheads	697,427			\$405				
Timber Trestle	267,021	SF	\$550	\$147	90%	5%	92%	3%
Concrete Trestle	430,380	SF	\$550	\$237	90%	36%	64%	
Bulkheads	26	Each	\$832,500	\$22	90%	15%	74%	11%
Vehicle Ferry Passenger Loading Systems (Overhead Loading)	8			\$173				
Cable Hoist (Type 6, 7)	4	Each	\$21,608,000	\$86	90%	15%	50%	35%
Hydraulic Hoist (Type 8)	4	Each	\$21,608,000	\$86	90%	72%	25%	3%
Passenger Ferry Loading System				\$11	90%			
Pavement				\$40	90%			
Buildings	137			\$105				
Main Buildings (A)	18	Each	\$2,392,389	\$43	90%	39%	61%	
Secondary Buildings (B)	43	Each	\$1,013,585	\$44	90%	63%	37%	
Storage Buildings (C)	34	Each	\$131,229	\$4	90%	50%	44%	6%
Toll Booths (D)	42	Each	\$323,140	\$14	90%	69%	31%	
Systems & Utilities				\$6	90%			
Total Ferry System Replacement Value				\$4,903				

1.1. WSF Vessel Assets

WSF owns and operates 23 auto-passenger ferries. Each ferry vessel is a complex “system of systems” that performs the function of transporting vehicles, bicycles and walk-on passengers across an assigned route. FTA considers each vessel “rolling stock,” comparable to a bus or railcar, but in fact, vessels are much larger and more complex. While shipbuilding employs some manufacturing techniques, in practice each vessel is fabricated in a shipyard over a lengthy period of time that may span up to two years. Figure 1-2 illustrates a high-level breakdown of a typical vessel asset.

Figure 1-2 WSF Vessel Drawing with Descriptions



WSDOT groups its vessel asset category into asset classes, based on their design and the shipbuilding contract under which they are procured. WSDOT currently operates 23 vessels in seven different classes. Vessels within a class share a common asset steward and asset manager.

In spite of their common design, vessels within a class are not identical. Vessels of a class are typically constructed in series over a period of several years. Over time, due to changes in the fabrication techniques, changes in requirements, and supply chain issues, there may be significant differences within a class. These differences grow greater over time due to equipment obsolescence, separate preservation and improvement contracts, and field changes that occur over the life of the asset. These differences in configuration make supporting the fleet more difficult and costly, so good asset management seeks to manage these configuration changes and keep them to a minimum.

Figure 1-3 Ferry Vessel Classes and Descriptions

Vessel Images	Vessel Asset Class Description
	<p>Class: Evergreen State Vessels: Tillikum Length: 310' 2" Beam: 73' 2" Draft: 15' 6" Displacement: 2413 Long Tons Propulsion: Diesel-Electric (AC) Engines: 2 Horsepower: 2,500 Speed in Knots: 13 Max Passengers: 1061 Max Vehicles: 87 Year Built: 1959</p>
	<p>Class: Super Vessels: Elwha, Hyak, Kaleetan, Yakima Length: 382' 2" Beam: 73' 2" Draft: 18' 6" Displacement: 3634 Long Tons Propulsion: Diesel-Electric (DC) Engines: 4 Horsepower: 8,000 Speed in Knots: 17 Max Passengers: 2000 Max Vehicles: 144 Year Built: 1967 Note: *Elwha is configured for International Service (SOLAS)</p>
	<p>Class: Issaquah Vessels: Cathlamet, Chelan*, Issaquah, Kittitas, Sealth** Length: 328' Beam: 78' 8" Draft: 16' 6" Displacement: 3310 Long Tons Propulsion: Diesel Engines: 2 Horsepower: 5,000 Speed in Knots: 16 Max Passengers: 1200 Max Vehicles: 124 Years Built: 1979-1982 Notes: *Chelan is configured for International Service (SOLAS); **Sealth is configured for 90 vehicles</p>
	<p>Class: Jumbo Vessels: Spokane, Walla Walla Length: 440' Beam: 87' Draft: 18' Displacement: 4859 Long Tons Propulsion: Diesel-Electric (DC) Engines: 4 Horsepower: 11,500 Speed in Knots: 18 Max Passengers: 2000 Max Vehicles: 188 Years Built: 1972-1973</p>

	<p>Class: Jumbo Mark II Vessels: Puyallup, Tacoma, Wenatchee Length: 460' 2" Beam: 90' Draft: 17' 3" Displacement: 6184 Long Tons Propulsion: Diesel Electric (AC) Engines: 4 Horsepower: 16,000 Speed in Knots: 18 Max Passengers: 2499 Max Vehicles: 202 Years Built: 1997-1999</p>
	<p>Class: Kwa-di Tabil Vessels: Chetzemoka, Kennewick, Salish Length: 273' 8" Beam: 64' Draft: 11' Displacement: 2415 Long Tons Propulsion: Diesel Engines: 2 Horsepower: 6,000 Speed in Knots: 15 Max Passengers: 748 Max Vehicles: 64 Years Built: 2010-2011</p>
	<p>Class: Olympic Vessels: Tokitae, Samish, Chimacum, Suquamish Length: 362' 3" Beam: 83' 2" Draft: 18' Displacement: 4384 Long Tons Propulsion: Diesel Engines: 2 Horsepower: 6,000 Speed in Knots: 17 Max Passengers: 1500 Max Vehicles: 144 Years Built: 2014-2018</p>

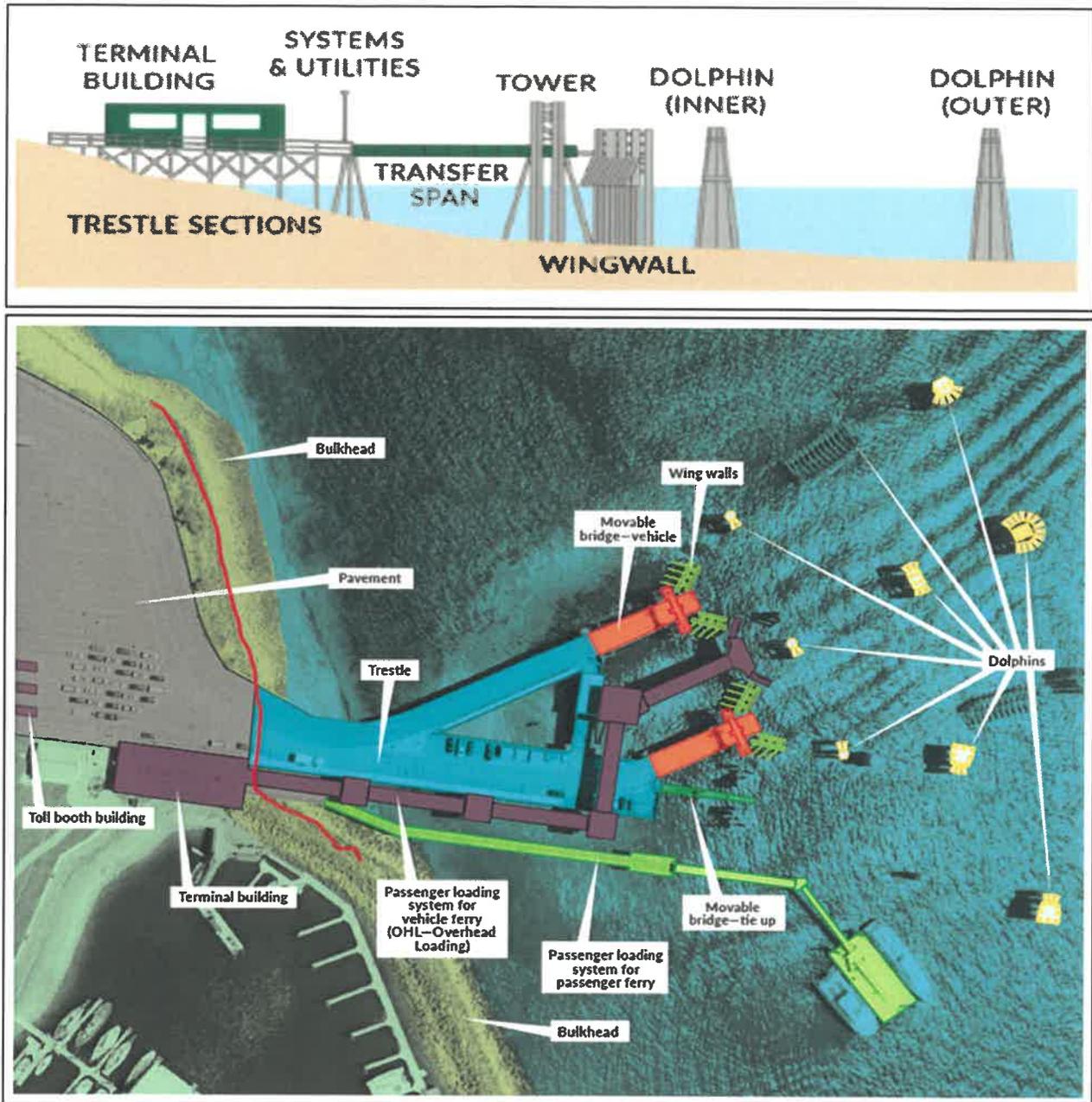
1.2. WSF Terminal Assets

Washington State Ferries' other capital asset category is Terminal Assets. WSF Terminal Engineering is responsible for 19 Operating Terminals and the Eagle Harbor Maintenance Facility. All WSF Operating Terminal Facilities are classified as FTA Passenger Facilities as listed in Figure 1-4 below. Eagle Harbor is the WSF designated Maintenance Facility.

Figure 1-4 Terminal Facility Type

Facility	Passenger Facility	Maintenance Facility
Anacortes	X	
Bainbridge Island	X	
Bremerton	X	
Clinton	X	
Coupeville	X	
Edmonds	X	
Faultleroy	X	
Friday Harbor	X	
Kingston	X	
Lopez Island	X	
Mukilteo	X	
Orcas Island	X	
Point Defiance	X	
Port Townsend	X	
Seattle	X	
Shaw Island	X	
Southworth	X	
Tahlequah	X	
Vashon Island	X	
Eagle Harbor		X

Figure 1-5 Terminal Layout Showing Sub-Assets



Ferry Terminal sub-assets are those systems beginning at the tollbooths and continuing to all of the structures over water. The elements of a Terminal Facility are a number of sub-assets that are shown in Figure 1-5 and tabulated in Table 1-6 of definitions. Furthermore, the sub-assets may comprise of a number of sub-systems or components. Vehicle Movable Bridges in particular contain six components (apron, transfer span, bridge seat, towers, mechanical systems, electrical Systems). Vehicle Ferry Passenger Loading Systems (Overhead) also contain many components including electrical and mechanical systems. The total inventory for the Terminal Facilities consists of nearly 760 components. A

more detailed listing of the assets, sub-assets and their components is included in Appendix A¹.

Figure 1-6 Table of Terminal Asset Definitions

Sub-Asset	Definition
Dolphins	Dolphins are offshore structures that provide guidance to the vessel during landing operations, act as a mooring structure for vessels. They are intended to be sacrificial structures to protect more expensive sub-assets within a Terminal such as the overhead loading system or the transfer span.
Wingwalls	Wingwalls are also offshore structure that serve as the primary structure used to stop and hold the vessel in place for loading, unloading and overnight tie-up. Wingwalls are typically pile-supported, but can also be floating if pile driving is not practical.
Vehicle Movable Bridges	The vehicle movable bridge serves to provide the connection between the fixed trestle and the vessel. It comprises a bridge seat, a transfer span (the bridge), towers, apron, and electrical and mechanical systems to operate the bridge. The towers support the offshore end of the bridge that is adjustable vertically with the help of electrical and mechanical systems to account for the tides. A bridge seat over piles supports the shoreward end of the bridge. The apron provides a connection between the transfer span and the vehicle deck of the vessel for loading and unloading.
Trestle & Bulkhead	A trestle is a pile-supported structure that serves as a roadway connection from a bulkhead to the vehicle transfer span. On some sites, the vehicle holding area is fully or partially located on the trestle and provides support to buildings and enclosures. The trestle may provide a pedestrian access path from the bulkhead to the terminal building and serve as the support structure for the overhead loading system, terminal buildings, and various utilities, related equipment and structures. A bulkhead is typically a retaining wall that serves to retain the upland soils and supports the shoreward-most deck panels if needed.
Passenger Overhead Loading	An elevated walkway system for passenger access between terminal building and the passenger deck of the ferry vessels.
Passenger Only Loading System	A system for passenger access between a trestle or a terminal building and a passenger only ferry vessel. Typically, this system comprises a gangway or a transfer span, a floating dock, and an apron.
Buildings	WSF owns and maintains all buildings onshore and offshore.
Systems & Utilities	Ferry terminal systems include generators, lighting systems, HVAC, security systems, VMS signing, electronic tolling, and visual paging.

Only sub-assets that have assigned Asset Managers and have an inspection plan are included in this list. WSF does not assign Asset Managers to all sub-assets in the Systems and Utilities category and may not

¹ Appendix 1 shows a listing of all the assets and components for Terminal Engineering

provide an associated condition rating. Those assets have a small monetary value in comparison to other assets. Examples include Cathodic Protection, Storm Drainage, Water Supply, Sewer, Signage, Fire Protection, Compressed Air systems.

Terminal Assets are managed within a database system. WSF Terminal Engineering has maintained and annually updated the asset list for over 20 years. This asset listing identifies high priority key areas for maintenance, preservation, and replacement of existing assets.

Section 2: Condition Assessment

WSF assesses the condition of each capital asset in order to monitor and predict the performance of each asset, and to inform the capital investment decision process. It is the ultimate objective of WSF to sustain all of its capital assets in a *State of Good Repair*. *State of Good Repair (SGR)* is defined as the condition in which a capital asset is able to operate at a full level of performance. The FTA criteria for meeting State of Good Repair differs for terminal and vessel asset categories. In addition, WSF applies additional schemes of condition assessment, beyond the FTA criteria, to better manage its capital assets.

2.1. Vessel Asset Condition

WSF utilizes a number of schemes to assess the condition of its ferry vessel assets. Together they are consistent with FTA Transit Model which states:

A transit system may be considered in a state of good repair when the following are met:

Agency maintains a comprehensive list of its capital assets

- Agency possesses an asset management plan which is integrated into the management processes and practices of the agency
- A high percentage of its assets are within their articulated useful life and remaining assets are performing at their required function
- Systems and components are properly maintained or replaced in accordance with owner's or OEM procedures or industry standards
- Systems satisfactorily perform intended function
- Systems are maintained and replaced before their condition deteriorates to the point of presenting a safety risk
- System meets customer expectations for comfort and reliability

Useful Life Benchmark (ULB)

Under FTA guidelines, ferry vessels are considered Rolling Stock – revenue vehicles used in providing public transportation. The FTA *State of Good Repair* performance measure for rolling stock is the percentage of revenue vehicles within a particular asset class that have either met or exceeded their Useful Life Benchmark. Useful Life Benchmark (ULB) is the expected life cycle or the acceptable period of use in service for a capital asset, as determined by a transit provider, or the default benchmark provided by the FTA. The FTA default ULB for ferryboats of 42 years. Washington State Ferries has adopted a ULB of 60 years. Thus, the asset condition data reported to the FTA is simply the number of ferry vessels that are 60 years old or greater. Note: As part of the ongoing development of its 2040 Long Range Plan, WSF is assessing the viability of the current 60 year ULB.

Lifecycle Cost Model-Based Assessment (LCCM)

WSF utilizes a Lifecycle Cost Model (LCCM) as its primary asset management tool. The LCCM is described in detail in Chapter 3 of this plan. In short, the LCCM estimates the periodicity and cost of selected systems and equipment (line items) of each vessel – roughly 100 line items per vessel. WSF computes for each asset, the percentage of systems/major equipment that are past due for replacement. The data is updated based in biennial inspections of each line item. The risk (likelihood and consequence) of failure is also considered. An overall vessel condition assessment is then determined based on the criteria detailed in Table 2-1. This methodology is consistent with the FTA Transit model in that it assesses (1) systems and components are properly maintained or replaced in accordance with owner's or OEM procedures or industry standards and (2) systems are maintained and

replaced before their condition deteriorates to the point of presenting a safety risk.

Table 2-1 Vessel Lifecycle Cost Model Condition Summary

Vessel Overall Condition	LCCM Inventory Status
	Systems Overdue for Preservation/Renewal
Good	<10% of LCCM Line Items are Condition Rating 3
Fair	≤20% of LCCM Line Items are Condition Rating 3
Poor	>20% of LCCM Line Items are Condition Rating 3

Preservation Backlog

Another complementary indicator of vessel asset condition is Preservation Backlog – the value of deferred preservation activities (LCCM based activities and other known deficiencies). This backlog is significant beyond quantifying the *known* level of investment required. It is also a good indicator of the magnitude of *unknown* investment that will likely be required to sustain a state of good repair. For example, deferring a steel painting activity will likely result in substantial steel corrosion that will also need correction once the activity can eventually be funded and completed. WSF tracks preservation backlog and reports it to the legislature as part of the annual capital budget process.

This is consistent with the FTA Transit model in that it assesses

- 1) Systems and components are properly maintained or replaced in accordance with owner’s or OEM procedures or industry standards and
- 2) Systems are maintained and replaced before their condition deteriorates to the point of presenting a safety risk.

Operational Availability

An indicator of an asset’s ability to perform its intended function is Operational Availability – the percentage of days, in which an asset was available for service. Based on the current size of WSF’s Fleet, all vessel must be available for service for 80% of the time. Vessels maybe out of service for planned maintenance/preservation, or unplanned repairs. Taken together with the other vessel condition indicators, this metric has proven to be valuable.

Vessel Condition Summary

The vessel condition summary reports vessel class, age, preservation backlog, condition rating and operational availability.

Table 2-2 Vessel Condition Summary 2018

Vessel	Class	Age in 2018	Preservation Backlog (\$M)	Systems Rated Condition 3 Based on Inspection	Vessel Condition	Operational Availability (15-17)
Target		<ULB of 60 Years	N/A	<10% = Good, <20% = Fair >20% = Poor		
Tillikum	Evergreen State	59	\$ 4.17	16%	Fair	94%
Hyak	Super	51	\$ 25.07	27%	Poor	73%
Elwha (SOLAS)	Super	51	\$ 45.46	37%	Poor	65%
Kaleetan	Super	51	\$ 1.58	9%	Good	69%
Yakima	Super	51	\$ 4.93	9%	Good	82%
Walla Walla	Jumbo	46	\$ 11.75	16%	Fair	87%
Spokane	Jumbo	46	\$ 10.87	14%	Fair	88%
Issaquah	Issaquah	39	\$ 4.76	19%	Fair	88%
Kittitas	Issaquah	38	\$ 4.58	18%	Fair	93%
Kitsap	Issaquah	38	\$ 3.99	18%	Fair	89%
Cathlamet	Issaquah	37	\$ 10.39	20%	Fair	88%
Chelan (SOLAS)	Issaquah	37	\$ 3.41	12%	Fair	87%
Sealth	Issaquah	36	\$ 6.02	20%	Fair	79%
Tacoma	Jumbo Mark II	21	\$ 12.64	13%	Fair	78%
Wenatchee	Jumbo Mark II	20	\$ 33.24	18%	Fair	82%
Puyallup	Jumbo Mark II	20	\$ 23.80	17%	Fair	82%
Chetzemoka	Kwa-di Tabil	8	\$ 1.77	4%	Good	91%
Salish	Kwa-di Tabil	7	\$ 0.60	1%	Good	84%
Kennewick	Kwa-di Tabil	7	\$ -	0%	Good	84%
Tokitae	Olympic	4	\$ -	0%	Good	85%
Samish	Olympic	3	\$ -	0%	Good	83%
Chimacum	Olympic	1	\$ -	0%	Good	N/A
Suquamish	Olympic	0	\$ -	0%	Good	N/A

2.2. Terminal Asset Condition

WSF evaluates Terminal Asset condition at the sub-asset level. This condition assessment generates information on a level of detail sufficient to monitor and predict the performance of the assets, and inform the capital investment decision process. For FTA reporting, all Terminal Assets are Passenger Facilities except the Eagle Harbor Terminal, which is a Maintenance Facility. FHWA and WSDOT both use a scale of 0-to-100 for reporting condition. FTA requires condition ratings to be on a scale from 1-to-5. Under FTA guidelines, the relevant performance measure for terminal assets is the percentage of facilities within an asset class rated below condition three on the TERM scale. The TERM Scale is a five (5) category rating system used in the Federal Transit Economics Requirement Model to describe the condition of an asset: 5.0 – Excellent, 4.0 – Good, 3.0 – Adequate, 2.0 – Marginal, 1.0 – Poor.

Table 2-3 WSF, FTA, WSDOT/FHA Rating Comparisons

Inspection Rating Comparisons by Governing Authority					
WSF	Description	FTA	Description	WSDOT /FHWA	Description
		5.0	Excellent		
90-100	Good	4.0	Good	90-100	Good
70-89	Fair	3.0	Adequate	70-89	Fair
50-69	Poor	2.0	Marginal	50-69	Poor
0-49	Substandard	1.0	Poor	0-49	Poor

2.2.1. Condition Rating Procedure

Asset Managers established condition-rating scores for sub-assets based on engineering judgement and the latest inspections. The condition of each sub-asset is rolled up to the asset level (Terminal Facilities) weighted by the replacement value of each sub-asset.

Table 2-4 Example Shaw Island Terminal Facility Sub-Assets

Sub-Asset Description	Replacement Cost	Weight	Condition Score	Weighted Score
Dolphin, Right Intermediate, 12 Steel Pile Frame, Slip 1	\$2,316,000	0.109	5	0.54
Dolphin, Right Outer, 18 Steel Pile Frame, Slip 1	\$2,316,000	0.109	5	0.54
Wingwalls (L & R), 14L/13R Steel Pile Frame, Slip 1	\$3,721,000	0.174	4	0.70
Transfer Span (M-Span), Vehicle, Steel Open Girder, Slip 1	\$2,097,000	0.098	4	0.39
Apron (Hydraulic), Vehicle, Steel, Slip 1	\$463,000	0.022	4	0.09
Towers (L & R), Pipe Pile w/Rock anchors, Slip 1	\$2,401,000	0.113	4	0.45
Bridge Seat, Pipe Pile, Slip 1	\$1,108,000	0.052	3	0.16
Transfer Span Electrical Systems, Type 4, Slip 1	\$739,000	0.035	5	0.17
Transfer Span Mechanical Systems, Type 4, Slip 1	\$3,073,000	0.144	3	0.43
Trestle, Treated Timber (Creosote), Small	\$1,941,000	0.091	2	0.18
Bulkhead (Abutment), Concrete	\$720,000	0.034	3	0.10
Timber Trestle Overlay, MMA	\$161,000	0.008	2	0.02
Holding Lanes, Paved, BST, Upland	\$81,000	0.004	3	0.01
Parking Lot (Restrooms), Paved, BST, Upland	\$27,000	0.001	3	0.00
Agent / Attendant's Booth	\$24,000	0.001	3	0.00
Rest Room Building	\$100,000	0.005	4	0.02
Passenger Waiting Shelter	\$50,000	0.002	4	0.01
Total Score for Shaw Island				4

The condition rating does not address design code revisions, seismic risk, weather risk, operator error, functional obsolescence, effects of asset closure or other risks. The condition rating does not address the importance of one ferry route over another for delivering goods and services. Some routes have a higher annual usage in comparison to others. Some routes serve islands with limited access. These items are more accurately assessed in the Asset Management Model that is described in Chapter 3 of this Plan.

2.2.2. Inspections

The terminal condition ratings are based on routine inspections of each asset. WSF has an extensive inspection plan for most terminal assets and inspections are performed based on standard procedures as outlined in the [Terminal Engineering Inspection and Condition Rating Program](#)². The terminals are inspected throughout the year to meet different regulatory compliance requirements.

The following types of inspections are conducted at the Terminals:

² This document is available upon request.

Table 2-5 Inspection Types and Assignments

	Inspection Type	Inspection Assignment
1	Structural Inspections	WSDOT Bridge and Preservation Office
2	Dive Inspections	WSDOT Bridge and Preservation Office
3	Mechanical and Electrical Systems	WSF Terminal Engineering Staff
4	Scour Inspection	WSF Terminal Engr Maintenance
5	Paving Inspection	WSF Terminal Engr Maintenance
6	Wingwalls and Dolphins	WSF Terminal Engr Maintenance
7	Building Inspection Plan	WSF Terminal Engr Maintenance
8	Security Systems	WSF IT
9	Electronic Toll Systems	WSF IT
10	Visual Paging	WSF IT
11	MPET Scheduled Inspections	WSF Eagle Harbor Maintenance Staff/Vendors

Structural aboveground inspections and dive inspections are performed on the Movable Bridges, Vehicle Ferry (Overhead) Passenger Loading Systems, Passenger Only Ferry Loading Systems, bulkheads, and trestles. These inspections are per FHWA National Bridge Inspection Standards (NBIS).

Mechanical and Electrical inspections are performed on the Movable Bridges, Vehicle (Overhead) Ferry Passenger Loading Systems, Passenger Only Ferry Loading Systems, and Upland Power and Lighting.

The condition rating for Vehicle Movable Bridges and Vehicle Ferry (Overhead) Passenger Loading Systems is a combination of the condition ratings for the electrical, mechanical, and structural systems. For instance, Vehicle Movable Bridges have six components (Bridge Seat, Apron, Transfer Span, Tower, Mechanical Systems, and Electrical Systems). The individual component condition rating is weighted based on the value of each component in establishing the overall condition rating of the system.

WSF performs scour inspections on movable bridge components that contain foundations, and bridge seats and towers, wingwalls and dolphins. Vessel propeller forces acting against the terminal structure foundations cause of Ferry Terminal scour. Condition ratings for these components are adjusted due to this scour.

Pavement at the Terminals includes upland areas such as vehicle holding areas on grade and pavement on trestle. Pavement inspections use the Pavement Surface Evaluation and Rating (PASER) rating system. Building inspections are performed similar to the WSDOT Capital Systems Plan. The scoring system is slightly modified to include a 0-100 condition rating score.

2.2.3. Terminal Condition Summary

A summary of Terminal facility conditions is included in Table 2-6 below³.

³ The data is updated annually and will be updated next in 2019.

Table 2-6 Terminal Facility Condition (TERM Rating)

Terminal	Facility Type	Performance Condition Rating End of CY 2018
Anacortes	Passenger	3
Bainbridge Island	Passenger	3
Bremerton	Passenger	3
Clinton	Passenger	4
Coupeville	Passenger	3
Edmonds	Passenger	3
Fauntleroy	Passenger	3
Friday Harbor	Passenger	3
Kington	Passenger	3
Lopez Island	Passenger	3
Mukilteo	Passenger	3
Orcas island	Passenger	3
Point Defiance	Passenger	4
Port Townsend	Passenger	3
Seattle	Passenger	3
Shaw Island	Passenger	4
Southworth	Passenger	3
Tahlequah	Passenger	3
Vashon Island	Passenger	3
Eagle Harbor	Maintenance	3

Section 3: Analysis and Tools

This chapter provides a description of analytical processes and support tools used by both Vessel Engineering and Terminal Engineering. These tools are used to estimate capital investment and to develop investment prioritization.

3.1. Vessel Asset Management Tools and Analysis

WSDOT manages its vessel asset data using its enterprise asset management software MPET, the Vessel Lifecycle Cost Model and other preservation spreadsheets. MPET is used primarily for maintenance data, and the Lifecycle Cost Model is used primarily for preservation data. In addition, WSF Financial data is managed in the agency's enterprise financial management system. Asset operational performance data is captured in the agency's AOSS application and On-Time Performance Tool. Several other tools are used to lesser degrees as described below.

3.1.1. Vessel Data Structures

To facilitate management of marine assets, owners typically utilize a common asset hierarchy across their fleets. Best practice hierarchies consist of several levels of systems, subsystems, major equipment, and components. With such a structure, meaningful performance and cost data can be collected and analyzed a number of different ways – by vessels, by system, by equipment, etc. – to facilitate sound investment decisions. WSDOT has historically utilized several different asset hierarchy methodologies based on various asset management objectives. These will be discussed in the following sections.

3.1.2. MPET – Maintenance Productivity Enhancement Tool

MPET is an enterprise Computerized Maintenance Management System (CMMS). It is hosted at WSF Headquarters, managed by the vessels department, and supports all of WSF. A dedicated maintenance program analyst/administrator coordinates the effective use of MPET throughout the agency. This analyst works directly with the software provider to maintain and update the software, improve functionality, and resolve software problems.

Various stakeholders from throughout the organization enter data into the system, including the vessel crew, procurement officials, maintenance managers, warehouse staff, and the Eagle Harbor Maintenance Facility.

The major processes used in MPET include maintenance scheduling and documentation, inventory management and procurement. The primary types of data include:

- Asset configuration data (model No., serial Number, part number, etc.)
- Parent-Child hierarchy information
- Equipment Operating Hours
- Maintenance procedures and scheduling parameters
- Work History
- Reliability performance data

- Procurement history and cost data
- Spare parts inventory and usage data
- Maintenance approval workflow data

The MPET database is indexed by Object ID – one for each asset element requiring maintenance. Object ID's are grouped by vessel or terminal. Vessel data is organized by system using an alpha-numeric hierarchy (unique to WSDOT). The vessel hierarchy is not intuitive and is not consistent across vessels, impeding data analysis and reporting. Terminal data is not structured in any sort of hierarchy.

WSDOT is currently restricting the MPET data for vessels and terminals to facilitate better data management. An example of the legacy structure for vessels (potable water system on the SPOKANE) is included in Figure 3-1 below:

Table 3-1 Potable Water System Asset Breakdown Structure on Ferry Spokane

ID	Description	Location ID
8101-R	SPOK - POTABLE; SANITARY & SEWAGE WATER SYSTEM	VESS-SPOK
8101-RA-1	SPOK - PUMP; POTABLE WATER #1	VESS-SPOK
8101-RA-2	SPOK - PUMP; POTABLE WATER #2	VESS-SPOK
8101-RA-3	SPOK - PUMP; POTABLE WATER #3	VESS-SPOK
8101-RA-R	SPOK - POTABLE WATER PUMPS ROUND - FOR PM USE ONLY	VESS-SPOK
8101-RC	SPOK - POTABLE WATER SYSTEM	VESS-SPOK
8101-RE	SPOK - PLUMBING; PIPING, VALVES & DRAINS; POTABLE	VESS-SPOK
8101-RF	SPOK - PLUMBING; PIPING, VALVES & DRAINS; SANITARY...	VESS-SPOK
8101-RH	SPOK - SEWAGE/SANITARY SYSTEMS	VESS-SPOK
8101-RJ-1	SPOK - PUMP; SEWAGE #1	VESS-SPOK
8101-RJ-2	SPOK - PUMP; SEWAGE #2	VESS-SPOK
8101-RJ-3	SPOK - PUMP; SEWAGE #3	VESS-SPOK
8101-RJ-4	SPOK - PUMP; SEWAGE #4	VESS-SPOK
8101-RJ-R	SPOK - SEWAGE PUMPS ROUND - FOR PM USE ONLY	VESS-SPOK
8101-RK-1	SPOK - PUMP; SANITARY WATER #1	VESS-SPOK
8101-RK-2	SPOK - PUMP; SANITARY WATER #2	VESS-SPOK
8101-RK-R	SPOK - SANITARY WATER PUMPS ROUND - FOR PM USE ON...	VESS-SPOK

WSF Vessel Department has not fully realized the potential benefits of MPET. The application requires continuous network connectivity, which is not yet attainable for the WSF fleet. The agency has expended considerable funds in an effort to modify the software to function with intermittent connectivity, without success. Likewise, the agency has been unable to improve its network connectivity. As a result, use by vessel crews is very limited. Most vessel spare parts inventories are not accurately reflected in the program. Maintenance data entry is untimely. Other MPET deficiencies include lack of user documentation, poor data structures and associated asset performance metrics, unpopulated maintenance procedures, and under-utilization of maintenance labor data.

WSF has issued a nation-wide Request for Information and determined that several excellent Enterprise Asset Management (EAM) tools are available that support intermittent connectivity. Many are designed specifically to support the maritime industry and/or the transportation sector. An improved CMMS/EAM

tool would greatly enhance WSF’s asset management performance. Acquisition of a replacement tool is being pursued through the agency capital budget request process.

3.1.3. Vessel Lifecycle Cost Model (LCCM)

The vessel LCCM is a capital budget development tool. It is an excel-based tool is used to record the expected lifecycle and associated replacement/investment cost of each vessel system listed in the model. It is also used to record the results of asset inspections, which are performed every two years. The outputs of the LCCM is a high level forecast of capital funding requirements, and a snapshot of fleet condition by vessel or LCCM work category.

The LCCM breaks each vessel asset down into approximately 100 inventory items, each with a unique inventory ID number. The inventory item listing is similar for each vessel, and consists of vessel systems and major equipment. There is no structured asset hierarchy within the inventory item listing, but they are grouped by vessel and by work category. There are 23 vessels and 8 work categories.

Table 3-2 Vessels LCCM Work Categories

Vessel Lifecycle Cost Model Work Categories	
1	Communication, navigation and lifesaving equipment
2	Major mechanical and electrical systems
3	Passenger and crew spaces
4	Piping Replacement
5	Propulsion system
6	Security
7	Steel Replacement
8	Structural Preservation (Paint)

3.1.4. Other Vessel Preservation Data

Vessel asset stewards maintain several additional spreadsheets to record inspection data. These include:

- Hull, Deck and Bulkhead steel thickness
- Bilge and void inspection results
- Topside paint
- Dry-docking reports that include inspection data for underwater hull paint, rudders, propeller hubs, propulsion shafting, and the catholic protection system.
- Sewage Tanks
- Potable Water Tanks

- Engine Hour data
- Propulsion generator and motor data

3.1.5. Asset Technical Information

Engineering technical information, including vessel drawings, manuals & reports is cataloged in the technical library database (TechLib). Digital material is available via TechLib on users' desktops, but TechLib also gives information about physical location for non-digital materials. Drawings, manuals and reports are each numbered somewhat differently, but include fields representing the vessel, class, the U.S. Maritime Administration (MARAD) System Identifier, Project and Manufacturer.

3.1.6. Asset Financial and Contract Management

WSF uses TRAINS, the enterprise accounting system, to track financial information. By establishing Object Codes that correspond to vessel and terminal assets, WSF can report on labor and non-labor expenses by asset. Reports can be generated for both the capital and operating programs. WSF uses CAPS, the Contract Administration and Payment System, to maintain information about ferry vessel and terminal construction contracts.

3.1.7. Operational Performance Data

WSF uses two in-house applications - AOSS and On-Time Performance Tool – to measure the operational performance of its assets. Unfortunately, the data is structured around route-specific-specific service performance, rather than asset performance. With some manual data manipulation, high-level reports such as missed trips by vessel can be developed.

3.1.8. Vessel Condition Worksheets

Each vessel submits a monthly worksheet summarizing the condition of the vessel, by system and major equipment. It also includes monthly consumption of fuel, lube oil, and hydraulic oil. Vessel report major corrective maintenance conducted throughout the preceding period, and any areas of concern. The reports are reviewed each month by the vessels management team.

3.1.9. Vessel Lifecycle Planning Process

Vessel Preservation

WSF uses the vessel Lifecycle Cost Model (LCCM) to plan the preservation program planning over a 16-year horizon. The LCCM structure facilitates management of each asset at the system or major equipment level. It consists of approximately 2,000 line items for the 23 assets. Each LCCM line item includes the following data fields:

- Item description
- Vessel
- Work Category
- Date that the item was last acquired, renewed or preserved

- Estimated lifecycle interval
- Date due for renewal
- Date of last inspection
- Condition code based on age and criticality
- Corrected condition code based on inspection
- Cost estimate for renewal or major preservation

The LCCM is maintained by a dedicated analyst. The LCCM Analyst updates the asset management data on a continual basis. In addition, he visits each vessel at least once every three years and reviews the condition of each asset with the Staff Chief Engineer. While the Staff Chief Engineer has the best knowledge of the systems on the vessel, the LCCM Analyst has valuable knowledge of how each system is performing throughout the ferry system fleet. Sources of data used to update the LCCM include:

- Shipyard inspection reports
- Hull Inspection Team reports
- Vessel Maintenance records
- Vessel reliability data
- Visual inspection
- Equipment supportability/obsolescence surveys

Risk Management

The LCCM process incorporates risk assessment into the condition rating process. The condition assessment considers both the likelihood of a vessel system failing and the likely consequences of system failure on ferry operations as the basis for prioritizing preservation of vessel systems. Many ferry systems have very long lead times when it comes to replacement. For example, the propulsion control system for a ferry may require a four- to five-year period to design, order, build, and install the replacement system. If such an item or system were to fail earlier than expected, it could take a ferry out of service for an extended period of time and significantly disrupt service. For this reason, the consequence of failure has to be considered in any decision to replace items or systems on Washington State Ferries' (WSF) vessels.

Figure 3-3 Vessels LCCM Risk Framework

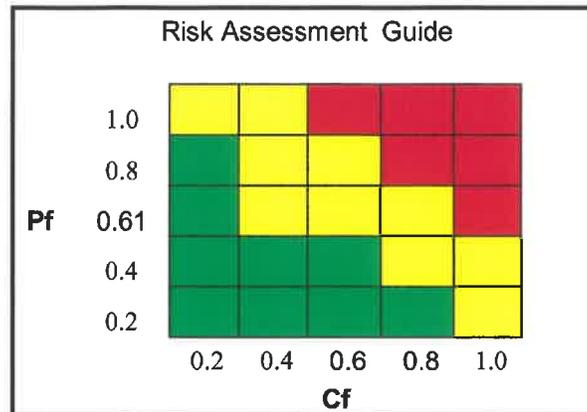


Figure 3-4 Probability Factor (Pf): Probability of Machine/System Death - End of Useful Life in Three Years

1.0	Near certainty	Beyond Life Cycle Interval
0.8	Likely	Apparent Remaining Useful Life >0% -9% of Life Cycle Interval
0.6	Possible	Apparent Remaining Useful Life = 10%-24% of Life Cycle Interval
0.4	Unlikely	Apparent Remaining Useful Life = 25%-49% of Life Cycle Interval
0.2	Very unlikely	Apparent Remaining Useful Life = >50% of Life Cycle Interval

Figure 3-5 Consequence Factor (Cf): Impact on Vessel Availability Due to Machine/System Death - End of Useful Life

1.0	Catastrophic	Unscheduled long term layup or commercial yard availability
0.8	Critical	Significant operations schedule disruption
0.6	Moderate	Moderate operations schedule disruption (1 day or more)
0.4	Marginal	Minor operations schedule disruption (less than 24 hours)
0.2	Minimal	Does not affect sailing

Condition Rating

The results of the risk matrix assessment are translated to condition ratings, with each vessel system receiving one of three condition ratings

Table 3-6 Condition Rating Definition

Condition Rating 1	Item not in need of preservation/renewal
Condition Rating 2	Item requires preservation/renewal in the current or upcoming biennium
Condition Rating 3	Item is overdue for preservation/renewal

Condition ratings are generated by the LCCM and either verified or modified by based on a physical inspection.

LCCM Data

The LCCM data is used to develop a forecast of fleet preservation requirements for the 16-year planning horizon, as well as a number of related reports that help to inform the agency's Capital Committee as it develops its prioritized capital project list. Among the reports produced are:

- Preservation backlog by vessel in dollars
- Preservation needs by vessel in dollars
- Summary of LCCM item condition ratings by vessel
- Percentage of systems past due for replacement (by count or by value)
- Overall vessel Condition Rating (Poor, Fair, Good)
- Poor = more than 20% of the systems are rated Condition 3
- Fair = 11-20% of systems are rated Condition 3
- Good = 10% or less of systems are rated Condition 3
- Vessel Age Summary relative to Useful Life Benchmark

The Vessel LCCM has a number of shortcomings:

It assumes a time-based strategy for the replacement or preservation of all vessel systems. In practice, preservation activities are driven by a number of additional factors. For example, equipment obsolescence is influenced by both technology changes and market factors; paint system performance is dependent upon surface preparation and environmental conditions at the time of application; steel corrosion is a function of paint performance and environmental factors, and propulsion system life is heavily influenced by how the vessel is operated over time. This, while the model is useful in projecting preservation funding requirements, it is insufficient for project development.

It assumes that each system will be "replaced" through a discreet event. In fact, the preservation process is more continuous, both in scope and timing. A piping system or the ships structure are never replaced in full; only portions of them are replaced as needed over many years as a result of detailed inspections. This limitation again underscores why the LCCM is insufficient for project development.

The LCCM data structure used for preservation differs from that used for maintenance. This complicates data analysis and asset management decisions.

Vessel Maintenance Program

Vessel maintenance is a substantial part of asset management and must be considered in lifecycle planning.

Levels of Maintenance

WSF employs a tri-level maintenance program, based on the competencies, facilities and time required. These are:

- **Organizational-Level (O-Level) Maintenance:** O-level maintenance is that which can be performed by the assigned vessel crew. It consists of both planned (preventive maintenance) and unplanned (corrective maintenance) activities. Examples include oil changes, engine tune-

ups, filter replacement, control system adjustments, voyage repairs, engine cylinder changes, pump and motor maintenance, etc.

- **Intermediate Level (I-Level) Maintenance:** I-Level Maintenance is that which requires skills, equipment, material or time beyond those available from the vessel's normally assigned crew. It consists of both planned (preventive maintenance) and unplanned (corrective maintenance) activities. Examples include engine overhauls, electric motor commutator maintenance, hydraulic cylinder, piping repairs, insulation renewal, and light steel repairs.
- **Depot Level (D-Level) Maintenance:** D-Level Maintenance is that which requires the vessel to be at a commercial shipyard because the work is beyond the capabilities of the assigned crew or I-Level maintenance activity. It consists of both planned (preventive maintenance) and unplanned (corrective maintenance) activities. Examples include US Coast Guard-mandated Dry-dock Inspections of the hull and underwater appendages, protective anode renewal, sea valve inspection and overhaul.

Vessel Maintenance Planning, Budgeting and Scheduling

Organizational-Level (O-Level) Maintenance is managed by the vessel Staff Chief Engineer. This maintenance is generally performed while the vessel is in service or during night tie-ups, although it may also be performed concurrent with intermediate or depot-level maintenance. The work is supervised by the on-watch Chief Engineer. O-level maintenance is funded by the vessel's operating budget, as allocated by the Vessel Maintenance Port Engineer. The work is supported by an on-board spare parts and consumable inventory. Maintenance data is managed within MPET.

Intermediate Level (I-Level) Maintenance is managed by the Maintenance Port Engineer. Routine I-Level maintenance periods (layups) are scheduled one year in advance, and project-planning efforts begin at least three months in advance of the start of work. WSF's Eagle Harbor Maintenance Facility is the primary resource, but some I-level work is performed by commercial contractors. I-Level maintenance is performed both at the maintenance yard and in the field. Material and parts are sourced from the Eagle Harbor Maintenance Facility and the WSF warehouse. Work is requested, approved and documented in MPET.

Work is generally requested by the vessel Staff Chief Engineer and approved by the Vessel Maintenance Port Engineer. It is planned, executed and supervised by the I-Level maintenance activity but signed off as complete by the Staff Chief Engineer or his/her representative. I-level maintenance is funded by Maintenance Port Engineer, with some funding pre-allocated to the Eagle Harbor Maintenance Facility.

Depot Level (D-Level) Maintenance is generally completed in conjunction with preservation and improvement activities. The D-Level maintenance program is managed and funded by the Senior Port Engineer for Preservation. D-level maintenance is supported by material and parts procured by the Preservation Port Engineer, drawn from the WSF warehouse, or included in the maintenance contract. D-Level maintenance quality is assured by the Preservation inspection staff. D-Level maintenance is not currently managed within MPET. Depot level maintenance periods are scheduled up to two years in advance. Project planning efforts begin approximately six months in advance of the start of work.

Maintenance funding levels are generally constant from biennium to biennium, without consideration for inflation. Specific requests for one-time or recurring increases in maintenance funding due to changing requirements or other factors are requested through the WSDOT budget process.

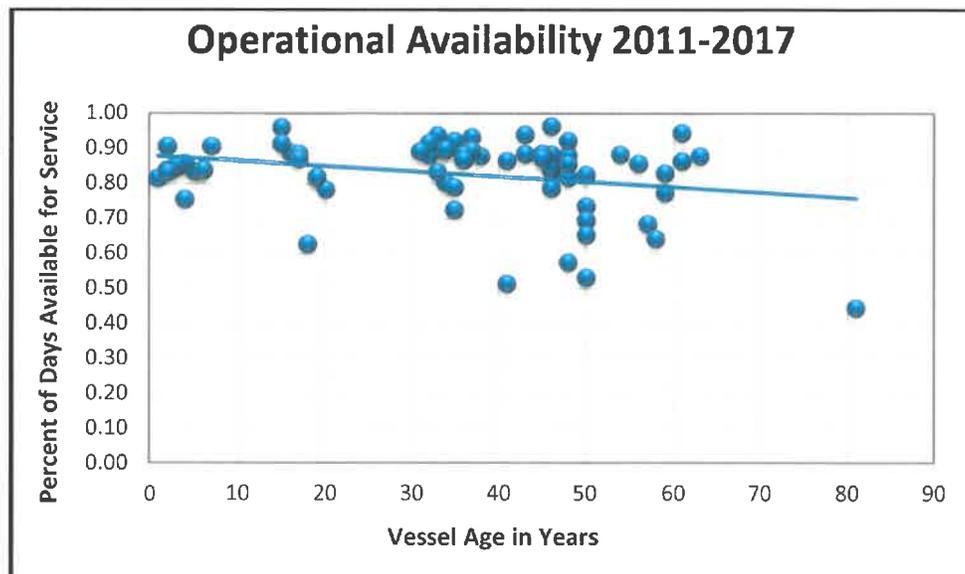
US Coast Guard Regulatory requirements are major drivers in lifecycle maintenance planning. These requirements include annual safety inspections, periodic dry-dockings and underwater body inspections, deployment of lifesaving systems, and post repair inspections. These requirements are not flexible and therefore have a major impact on budgets, schedules and service.

3.1.10. Vessel Lifecycle Performance

WSF’s standards of service and its fleet size of 23 vessel demand that each ferry asset be available for service greater than 80% of the time throughout the year. This leaves very limited time for vessel preservation and maintenance. Historically, lack of vessel availability has prevented WSF from executing its preservation and maintenance programs and contributed to a preservation backlog that totals more than \$217 million.

As illustrated in Figure 3-7 below, the operational availability of a vessel can be expected to decrease throughout its service life. Agency data over the past six years show that a new vessel can achieve 88% availability, which a vessel at the end of its sixty-year life can only be expected to achieve 78% availability. Both planned and unplanned maintenance and repairs contribute to this performance.

Figure 3-7 Operation Availability 2011 – 2017



3.1.11. Vessel Disposal

WSF must properly dispose of vessels that are permanently removed from service. If the vessel is to be sold or transferred to another operator, the agency must consider whether to keep a current US Coast Guard Certificate of inspection. Doing so comes at considerable expense, but it increases the value and the chance of a successful sale or transfer. Alternatively, the agency may decide to scrap a vessel that is no longer viable for operations. Doing so requires remediation of hazardous materials that are typically found on older vessels such as asbestos and lead. Regardless of the disposition, there will be a period in which the vessel remains in caretaker status, necessitating some level of operating funds to ensure the

vessel does not pose a human or environmental hazard. All of these end-of life expenses must be considered and planned for through the budget process.

The State of Washington also has a comprehensive regulatory process in Chapter 200-360 WAC for disposal of state-owned assets; and a statutory process in RCW 47.60.145 or disposal of designated historic ferries.

FHWA Requirements for Asset Disposal.

For ferries constructed and/or repaired with Federal Highway Administration (FHWA) funds, the disposal process shall not occur until FHWA requirements are met and approvals secured.

The provisions of 23 U.S.C. 129(c) (6) (excerpt below) require the Administrator's approval to dispose of a ferry vessel purchased with Federal Funds.

23 USC 129 (c) (6) No such ferry shall be sold, leased, or otherwise disposed of without the approval of the Secretary. The Federal share of any proceeds from such a disposition shall be credited to the unprogrammed balance of Federal-aid highway funds of the same class last apportioned to such State. Any amount so credited shall be in addition to all other funds then apportioned to such State and available for expenditure in accordance with the provisions of this title.

Additionally, under the provisions of 49 CFR 18.32(c), when equipment is no longer needed for the original program or project, the equipment may be used in other activities currently or previously supported by a Federal agency. With that said, the equipment should be offered to another DOT or other eligible Federal agency prior to being sold.

Some questions to consider of what should be included in the request for sale letter.

- Letter should be addressed to the Division Administrator.
- Identify what federal funds were used to fund the vessel and/or facilities.
- Were federal funds used to originally construct the vessel or facility?
- Identify the federal share paid on the vessel?
- Highlight what is going to happen to the Ferry service and what will be done with the facilities?
- Why is the vessel being disposed?

3.2. Terminal Tools and Analysis

WSF Terminal engineering uses various systems to track sub-assets, to estimate capital investment needs over time, and to establish prioritization of investments.

3.2.1. MPET – Maintenance Productivity Enhancement Tool

The MPET system is the same system used by the WSF Vessel Engineering department.

Eagle Harbor is WSFs maintenance facility site where materials are warehoused, and where work crews maintain vessels and are assigned terminal maintenance tasks from WSF. Maintenance work performed by Eagle Harbor labor for the Terminal Facilities is usually electrical, hydraulic, hoist, windows, non-

automatic doors, siding, plumbing, striping, and non-structural painting.

MPET provides a history of maintenance requests and maintenance performed by the WSF Eagle Harbor Maintenance Crew, contractors and vendors. These requests are for both routine and reactive terminal maintenance. This tool is updated daily as needed.

The MPET tool also serves as a method of communication between vessel captains, the Eagle Harbor Maintenance crew, and the Terminal Engineering Staff. A vessel captain needs to request MPET repairs at the terminal through the Terminal Supervisor.

Currently, MPET does not track all maintenance requests and tasks completed at the sub-asset level. This information would be useful to understand at the sub-asset level the maintenance needs and expenditures in the past. The MPET Tool would be more useful at more granular sub-asset level. Terminals MPET structure follows.

An example of MPET data structure for terminals (Clinton terminal).

Figure 3-8 Terminal MPET Data Structure for Clinton Terminal

ID	Description	Location ID
CLIN-ALARM-L1	SECURITY ALARM SYSTEM	TERM-AAIT
CLIN-APRON-S1	APRON ASSEMBLY [SLIP 1]	SLP1-APRON
CLIN-APRON-S2	APRON ASSEMBLY [SLIP 2]	SLP2-APRON
CLIN-BACKFLOW-L1	BACKFLOW PREVENTERS [0?]	TERM-AAIT
CLIN-BCHG-01	BATTERY CHARGER/JUMPER [PORTABLE]	HOLD-GEN
CLIN-BDGPIN-S1	PIN ASSEMBLY - BRIDGE [SLIP 1]	SLP1-TXSPN
CLIN-BDGPIN-S2	PIN ASSEMBLY - BRIDGE [SLIP 2]	SLP2-TXSPN
CLIN-BENCH-L1	BENCHES - WOODEN []	TBLD-WAIT
CLIN-BIRD-L1	Bird Control And Exclusion	TERM-AAIT
CLIN-BOUY-01	SAFETY BOUY	SLP1-WATER
CLIN-C-BGCWT-S1	CABLE - BRIDGE XFER SPAN CWT [SLIP 1]	SLP1-TXSPN

3.2.2. WSF Ferry Terminal Facilities Annual Report

The annual report provides a listing of all routine and reactive Terminal Maintenance activities completed in the previous year.

- Work not assigned to Eagle Harbor, as outlined above is, is completed by Terminal Engineering staff, WSDOT Northwest or Olympic Region staff, vendors, and contractors.
- Maintenance work by Terminal Engineering Maintenance Staff includes wingwalls, dolphins, piles, counterweight cables, structural painting, and paving.
- WSDOT Northwest or Olympic Region staff, vendors, and contractors perform work on mechanical, electrical, and utility systems.
- Additional maintenance activities along with the MPET maintenance activities are listed in the WSF Terminal Engineering Facilities Annual Report. This report is published in February of every

year⁴.

- Terminal Engineering Maintenance and the Eagle Harbor Maintenance Staff participate in an annual tour of all of the terminals. This tour (in the spring) aids in identifying a maintenance plan for the coming year. Additionally, the Terminal Engineering Maintenance Staff implements other maintenance needs based on the most recent inspection reports.

3.2.3. Terminals Condition Worksheet

The Condition Worksheet is a Spreadsheet that provides a listing of all Terminal Engineering sub-assets and their associated descriptions and statistics. Information includes Description of a sub-asset, Condition of sub-asset, and the Age of sub-asset. Condition of the sub-assets are based on routine inspections.

The Condition Worksheet is updated annually. The Condition Worksheet provides input into the Asset Management Model.

3.2.4. Asset Management Model

The requirement to adhere to life-cycle cost analyses for each WSF capital sub asset as a basis for estimating future terminal preservation needs is imposed by statute (RCW 47.60.345). This federal legislation was passed in 2012 to establish a performance-based program that would improve how transportation funds are allocated.

The WSF Asset Management Model⁵ includes the condition assessments of assets from the Condition Model defined above. Various risks of operational failure and the consequence of operational failure are inputs into this model. Ridership statistics are input into this model also. Busier terminals are more critical than terminals with less traffic. Seismic Risk is also included. These risks, maintenance costs, and asset condition are all inputs for determining the economic life of an asset.

The Figure below is a flowchart depicting the various elements of the Asset Management Model and the information that is analyzed to determine preservation needs. Also shown in the flowchart are the sources of the information.

The Asset Management Model (AMM) provides the basis for all preservation budget requests. This model is the primary tool for establishing investment priority of all Terminal preservation needs. Investment Priority will be discussed further in Chapter 4.

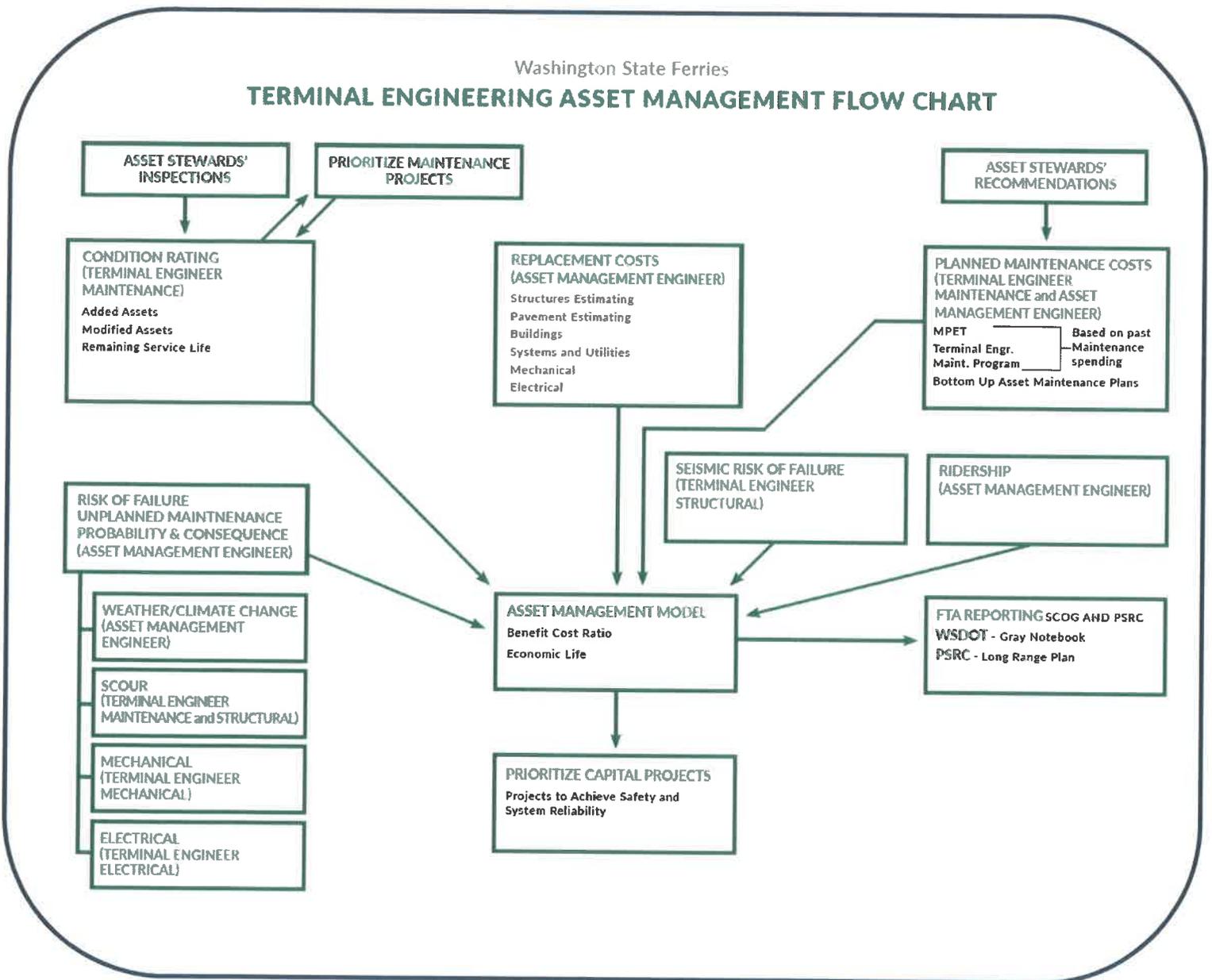
Some sub-assets do not have an economic life defined since the risks are not yet input into the model. For these sub-assets, condition only is used to define the life of the asset. Sub-assets that do not have an Economic Life include Buildings, Pavement, and Systems and Utilities.

The Asset Management Model is updated at least annually.

⁴ "The Ferry Terminal Facilities Annual Report" is available upon request.

⁵ Refer to Appendix 1 for selected elements of the Asset Management Model.

Figure 3-9 Terminal Engineering Asset Management Flow Chart



3.2.5. Asset Technical Information

Terminal Engineering technical information includes calculations, plans, specs, studies, reports, and drawings. These documents are cataloged in the Terminal Resource Records System (TRRS). This system serves as a directional aid by providing the shelf location of hard copy documents and the file path to electronic records stored on the archive drive. Project plans are indexed by year, terminal, contract number and title, and work type, and can be searched using any of these data fields. This information is updated continuously.

3.2.6. Other Information Systems

WSF utilizes a number of additional IT systems to support ferry operations, including the Vehicle Reservation System, the Vessel Watch position monitoring system, Globe Server navigational data archives, dispatch system, ticketing system, security monitoring and access control systems, payroll systems, scheduling tools, internet and intranet, and desktop computers. A complete listing is available in the WSDOT Information Technology Portfolio

3.3. Risk Management

WSF fully integrates risk management into its asset management program. The program includes the following:

- Identify risks that can affect the condition and performance of ferry system assets
- Assess each risk through an analysis of the likelihood of their occurrence and impact and consequence if they do occur.
- Prioritize the identified risks.
- Develop mitigation plans for addressing the top priority risks that involve potentially negative consequences.
- Develop an approach for monitoring top priority risks.
- Include in the analysis facilities in the state repeatedly damaged by emergency events.
- A summary of the highest priority risks is included in Table 3-10. The full risk register, which includes mitigation strategies, is included as Appendix B. This Risk register is a work-in-progress and subject to regular updates.

Table 3-10 WSF High Priority Risks

Title	Risk Statement	Risk Impact Description	Level of Risk (Untreated)
1. Workforce Development	If WSF does not address Workforce Development vulnerabilities,	then WSF may not maintain sufficient workforce capacity and skill levels to sustain service.	Very High
2. Vessel Reliability & Redundancy	If WSF vessels cannot perform as designed (within USCG requirements),	then WSF may be unable to meet service reliability targets.	Very High
3. Vessel Preservation Program	If WSF cannot execute its vessel preservation program,	then vessels may not reach their useful life benchmark.	High
4. New Vessel Construction	If timely and sufficient capital construction funding is not available for vessel replacement,	then WSF will not have sufficient vessel capacity to maintain level of service.	High
5. Maritime Safety & Security	If WSF fails to sustain the highest levels of maritime safety and security,	then there could be a loss of life.	High
6. Seismic Events	If there is a major earthquake,	then there could be a loss of life and sustained loss of assets.	High
7. Terminal Reliability & Redundancy	If WSF terminal assets cannot continue to perform as designed,	then WSF may be unable to meet service reliability targets.	High
8. Terminal Facility Integrity	If WSF does not address terminal facility integrity vulnerabilities,	then WSF may fail to meet service reliability targets.	Medium
9. Marine Environmental Protection	If WSF construction, maintenance or operations create environmental harm,	then the region may suffer economic, social costs, and WSF may suffer punitive damages and loss of public support, potentially leading to loss of service.	Medium

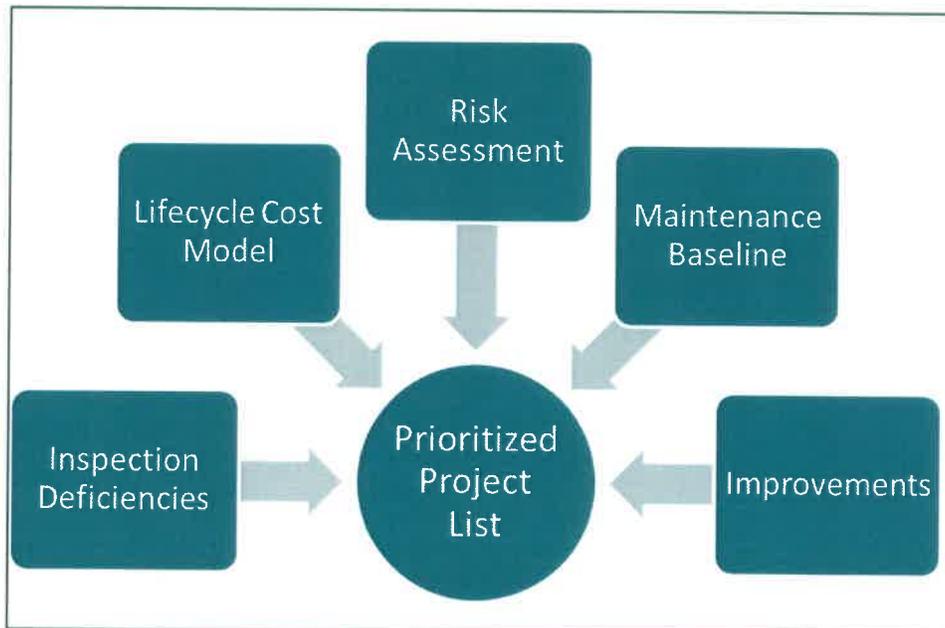
Section 4: Prioritized Investments

This chapter presents how WSF prioritizes its investments. The Terminal and Vessel capital programs, designated W1 and W2, respectively, are generally managed separately. Adjustments between programs are managed centrally through the WSF Capital Committee, in close coordination with WSDOT office of Capital Program Development and Management.

4.1. Vessels

The key elements of the project prioritization process begin with identifying asset deficiencies, and work through a process that produces a list of improvements.

Figure 4-1 Capital Investment Project List Development Process



Long Term estimates of vessel needs are maintained within the Lifecycle Cost Model (LCCM). The LCCM has a 16-year Horizon and includes estimates of preservation needs for each major system and equipment. These LCCM-based needs consider risk and are adjusted based on inspection of each individual asset. The LCCM-based list of needs is augmented with actual inspection-based deficiencies that are identified throughout the budget cycle and documented by the Asset Manager in the Maintenance Productivity Enhancement Tool (MPET) application. In addition to preservation, capital improvements are considered. Such improvements typically address emergent safety concerns, regulatory requirements, fuel efficiency initiatives, or customer requirements. Through funded through the Operating Program (X Account), Depot-level maintenance needs are also considered in this process, as they are the major cost drivers for timing of the project; e.g., the Coast Guard requires a drydock inspection for most vessels twice very five years.

The Vessels capital program is sized through the biennial capital budget development process. All of the inputs are considered, but the total needs are typically much greater than the funds available (called the control total). Asset managers and stewards apply risk management principles to make the tough

decisions of which projects to fund. Funded projects are included in the biennial capital project list. Unfunded projects remain in the vessels capital program backlog list. Other considerations include vessel availability, shipyard availability and the restrictions associated with federal funds.

Throughout the biennium, priorities and cost estimates inevitably change. Scope, cost and schedule for each project is finalized through a twelve-month project planning cycle. Funding changes are documented through a formal change management process. Projects that must be deferred are added to the vessel capital backlog list. The vessels capital backlog is currently valued at \$283M.

Vessel projects planned for the FTA 4 year horizon are included at the end of this chapter, and are consistent with the agency's 19-21 biennial budget request.

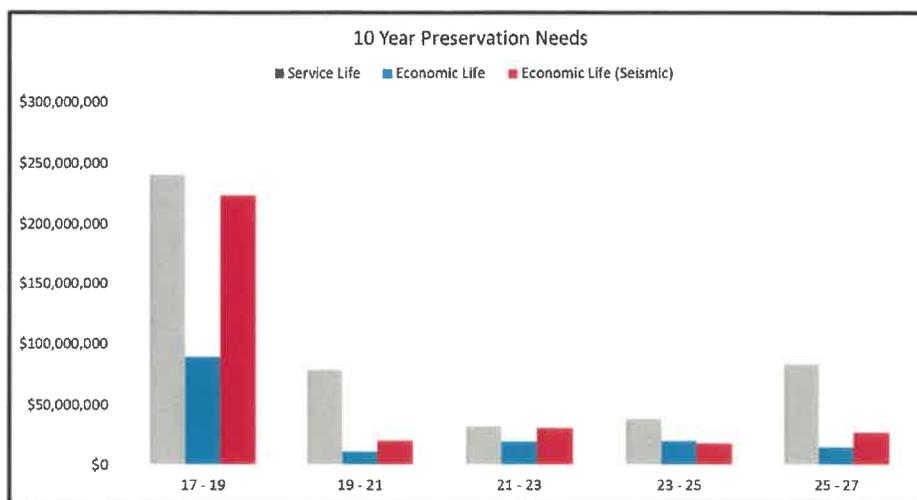
4.2. Terminals

Terminal needs are identified as improvement needs or preservation needs. Both types of needs are identified in the investment prioritization process.

In the past Terminal Engineering had prioritized preservation projects based on Condition/Service Life of individual sub-assets. 10 years ago, Terminal Engineering began development of the Asset Management Model. The original Asset Management Model did not include Seismic Risk. As shown in the table below, the Preservation Need due to Economic life was reduced from the preservation need due to Condition/Service Life.

Most recently the Asset Management Model was updated to include seismic risk. The preservation need is now based on Economic Life (Seismic). Because seismic risk is included in the Terminal Preservation needs, prioritization of individual sub-assets is different when compared to Condition/Service Life preservation needs and Economic Life preservation needs.

Figure 4-2 Terminal Capital Program Preservation Needs



Planned spending by WSF for Terminal Preservation is an average of \$75 Million a year for the next few

years. This includes preservation of the Seattle Multimodal Terminal to be completed in 2023. The unfunded preservation needs for the next few years is \$143 Million.

Customers, Code Compliance, and WSF Departments- Operations, IT, Terminal Maintenance, Environmental, and Vessels provide input into the development of the Terminal improvement needs. Accessibility requirements per [49 CFR 37.161](#) and [37.163](#) are included in Terminal improvement needs. A [Draft WSF Long Range Plan 2040](#) has recently been published. This plan has identified other necessary improvements to the WSF Terminals. Terminal Improvement needs are funded an average of \$34 Million a year for the next few years. The WSF Terminal unfunded Improvement need for the next 22 years is \$214 M.

The new Mukilteo Ferry Terminal currently under construction is classified as an improvement project. This new terminal will completely replace an existing terminal in 2021.

Developing a prioritization process for Terminal Improvement Needs is a goal for WSF. For the past few years, it has been WSDOT policy to concentrate on Preservation Needs since funding is limited.

Table 4-2 below provides the program plan at WSF Terminal Engineering for the next few years. The plan includes a combination of Preservation and Improvement needs, and is consistent with the agency's 19-21 biennial budget request.

Table 4-2 Prioritized Vessel Project List

Vessel Project Title	17 - 19	19 - 21	21 - 23
MV Spokane Preservation (15-17)	11,263,928	0	0
MV Spokane Commercial Drydock	2,930,202	0	0
MV Spokane Preservation (19-21)	0	8,372,000	0
MV Spokane Pres Future Placeholder	0	0	1,785,000
MV Spokane Improvement (17-19)	362,870	0	0
Additional Lifesaving Capacity for MV Spokane	240,000	0	0
MV Spokane Improvement (19-21)	0	179,175	0
MV Spokane Impr Future Placeholder	0	0	71,000
MV Walla Walla Commercial Drydock	2,987,000	0	0
MV Walla Walla Preservation (19-21)	0	495,000	0
MV Walla Walla Pres Future Placeholder	0	0	10,778,000
MV Walla Walla Improvement (17-19)	251,000	0	0
Additional Lifesaving Capacity for MV Walla Walla	436,000	0	0
MV Walla Walla Improvement (19-21)	0	179,175	0
MV Walla Walla Impr Future Placeholder	0	0	71,000
MV Tacoma Commercial Dockside	10,017,413	0	0
MV Tacoma Preservation (19-21)	0	13,891,926	0
MV Tacoma Pres Future Placeholder	0	0	712,000
MV Tacoma Improvement (17-19)	1,053,357	0	0
Additional Lifesaving Capacity for MV Tacoma	218,000	0	0
MV Tacoma Improvement (19-21)	0	349,175	0
MV Tacoma Impr Future Placeholder	0	0	71,000
MV Wenatchee Commercial Dockside	326,531	0	0
MV Wenatchee Preservation (19-21)	0	8,939,000	0
MV Wenatchee Pres Future Placeholder	0	0	2,891,000
MV Wenatchee Improvement (17-19)	444,540	0	0
Additional Lifesaving Capacity for MV Wenatchee	218,000	0	0
MV Wenatchee Improvement (19-21)	0	352,175	0
MV Wenatchee Impr Future Placeholder	0	0	71,000
MV Puyallup Commercial Drydock	2,263,000	0	0
MV Puyallup Preservation (19-21)	0	5,887,000	0
MV Puyallup Pres Future Placeholder	0	0	3,410,000
MV Puyallup Improvement (17-19)	719,681	0	0
Additional Lifesaving Capacity for MV Puyallup	218,000	0	0
MV Puyallup Improvement (19-21)	0	254,175	0
MV Puyallup Impr Future Placeholder	0	0	71,000
MV Hyak Commercial Drydock	1,862,340	0	0
MV Hyak Preservation (19-21)	0	1,000,000	0
MV Hyak Improvement (17-19)	93,000	0	0
Additional Lifesaving Capacity for MV Hyak	74,000	0	0
MV Kaleetan Commercial Drydock	3,182,000	0	0
MV Kaleetan Preservation (19-21)	0	210,504	0
MV Kaleetan Pres Future Placeholder	0	0	8,743,000
MV Kaleetan Improvement (17-19)	91,000	0	0

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Vessel Project Title	17 - 19	19 - 21	21 - 23
Additional Lifesaving Capacity for MV Kaleetan	218,000	0	0
MV Kaleetan Improvement (19-21)	0	179,175	0
MV Kaleetan Impr Future Placeholder	0	0	71,000
MV Yakima Commercial Drydock	2,166,950	0	0
MV Yakima Preservation (19-21)	0	5,142,000	0
MV Yakima Pres Future Placeholder	0	0	7,669,000
MV Yakima Improvement (17-19)	591,050	0	0
Additional Lifesaving Capacity for MV Yakima	218,000	0	0
MV Yakima Improvement (19-21)	0	231,175	0
MV Yakima Impr Future Placeholder	0	0	70,000
MV Elwha Commercial Drydock	18,812,000	0	0
MV Elwha Preservation (19-21)	0	2,580,554	0
MV Elwha Pres Future Placeholder	0	0	722,000
MV Elwha Improvement (17-19)	18,000	0	0
Additional Lifesaving Capacity for MV Elwha	74,000	0	0
MV Elwha Improvement (19-21)	0	83,000	0
MV Elwha Impr Future Placeholder	0	0	71,000
MV Issaquah Commercial Dockside	2,421,460	0	0
MV Issaquah Preservation (19-21)	0	2,220,446	0
MV Issaquah Pres Future Placeholder	0	0	1,912,000
MV Issaquah Improvement (17-19)	406,540	0	0
Additional Lifesaving Capacity for MV Issaquah	218,000	0	0
MV Issaquah Improvement (19-21)	0	202,175	0
MV Issaquah Impr Future Placeholder	0	0	70,000
MV Kittitas Commercial Drydock	3,724,787	0	0
MV Kittitas Preservation (19-21)	0	2,696,000	0
MV Kittitas Pres Future Placeholder	0	0	5,061,000
MV Kittitas Improvement (17-19)	264,511	0	0
Additional Lifesaving Capacity for MV Kittitas	218,000	0	0
MV Kittitas Improvement (19-21)	0	202,175	0
MV Kittitas Impr Future Placeholder	0	0	70,000
MV Kitsap Preservation (15-17)	110,000	0	0
MV Kitsap Commercial Drydock	3,575,000	0	0
MV Kitsap Preservation (19-21)	0	266,000	0
MV Kitsap Pres Future Placeholder	0	0	2,662,000
MV Kitsap Improvement (17-19)	150,000	0	0
Additional Lifesaving Capacity for MV Kitsap	218,000	0	0
MV Kitsap Improvement (19-21)	0	829,345	0
MV Kitsap Impr Future Placeholder	0	0	70,000
MV Cathlamet Commercial Dockside	368,000	0	0
MV Cathlamet Commercial Drydock	3,618,000	0	0
MV Cathlamet Preservation (19-21)	0	1,741,000	0
MV Cathlamet Pres Future Placeholder	0	0	8,743,000
MV Cathlamet Improvement (17-19)	150,000	0	0
Additional Lifesaving Capacity for MV Cathlamet	218,000	0	0
MV Cathlamet Improvement (19-21)	0	848,163	0
MV Cathlamet Impr Future Placeholder	0	0	70,000

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Vessel Project Title	17 - 19	19 - 21	21 - 23
MV Cathlamet Impr Future Placeholder	0	0	70,000
MV Chelan Commercial Drydock	2,027,908	0	0
MV Chelan Preservation (19-21)	0	4,944,058	0
MV Chelan Pres Future Placeholder	0	0	5,141,000
MV Chelan Improvement (17-19)	69,000	0	0
Additional Lifesaving Capacity for MV Chelan	74,000	0	0
MV Chelan Improvement (19-21)	0	202,175	0
MV Chelan Impr Future Placeholder	0	0	70,000
MV Sealth Commercial Dockside	1,443,000	0	0
MV Sealth Preservation (19-21)	0	250,000	0
MV Sealth Pres Future Placeholder	0	0	6,894,000
MV Sealth Improvement (17-19)	210,617	0	0
Additional Lifesaving Capacity for MV Sealth	218,000	0	0
MV Sealth Improvement (19-21)	0	202,175	0
MV Sealth Impr Future Placeholder	0	0	70,000
MV Klahowya Commercial Drydock	4,000	0	0
MV Tillikum Commercial Drydock	1,223,000	0	0
MV Tillikum Improvement (17-19)	18,000	0	0
Additional Lifesaving Capacity for MV Tillikum	37,000	0	0
MV Tillikum Impr Future Placeholder	0	0	70,000
MV Samish Pres Future Funds	0	0	4,608,000
MV Tokitae Construction_(11-13) (13-15)	1,400,000	0	0
MV Tokitae Preservation (15-17)	250,000	0	0
MV Tokitae OFE work, no dockside or drydocking	177,000	0	0
MV Tokitae Improvement (17-19)	75,000	0	0
MV Tokitae Improvement (19-21)	0	244,175	0
MV Samish Construction_(13-15)	590,000	0	0
MV Samish Commercial Drydock	1,232,733	0	0
MV Samish Preservation (19-21)	0	125,429	0
MV Samish Improvement (17-19)	267,148	0	0
MV Samish Improvement (19-21)	0	254,175	0
#3 - 144-Auto Ferry Construction	1,575,000	0	0
MV Chimacum Preservation (19-21)	0	1,184,000	0
MV Chimacum Pres Future Funds	1,000	0	1,447,000
MV Tokitae Pres Future Funds	0	0	5,799,000
MV Chimacum Improvement (19-21)	0	254,175	0
#4 - 144-Auto Ferry	42,725,000	0	0
MV Suquamish Improvement (19-21)	0	119,175	0
MV Chetzemoka Commercial Drydock	1,451,434	0	0
MV Chetzemoka Preservation (19-21)	0	731,000	0
MV Chetzemoka Pres Future Funds	0	0	1,792,000
MV Chetzemoka Improvement (17-19)	28,000	0	0
MV Chetzemoka Improvement (19-21)	0	254,175	0
MV Chetzemoka Impr Future Funds	0	0	69,000
MV Salish Commercial Drydock	1,785,500	0	0

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Vessel Project Title	17 - 19	19 - 21	21 - 23
MV Salish Preservation (19-21)	0	761,000	0
MV Salish Pres Future Funds	0	0	5,076,000
MV Salish Improvement (17-19)	18,000	0	0
MV Salish Improvement (19-21)	0	254,175	0
MV Salish Impr Future Funds	0	0	69,000
MV Kennewick OFE work, no dockside or drydocking	482,500	0	0
MV Kennewick Preservation (19-21)	0	141,000	0
MV Kennewick Pres Future Funds	0	0	2,245,000
MV Kennewick Improvement (17-19)	18,000	0	0
MV Kennewick Improvement (19-21)	0	179,175	0
MV Kennewick Impr Future Funds	0	0	69,000
WSF/Administrative Support (Allocated to W2)	3,054,000	2,940,732	5,461,000
Vessel Project Support	0	6,743,000	3,787,000
ADA Visual Paging for WSF Vessels	288,000	0	0
2015 PSGP Wireless Upgrade Vessels	361,000	0	0
Detail Design for the Use of LNG as a Fuel on Issaquah	1,000	0	0
Vessels Security -2013 PGSP- Access Control/Video Monitoring	1,330,000	0	0
Jumbo Mark II Hybrid Conversion - OFE Procurement Only	0	6,500,000	0
Vessel Planning / Design	2,113,000	0	0
Vessel Noise Control Abatement	100,000	0	0
Vessel Technical Support Activities	1,659,000	0	0
Install new equipment and associated administrative fees from CMAQ Fur	0	43,000	0
Jumbo Mark II Electrification Studies and RFP Development	600,000	0	0
	143,917,000	83,657,307	98,602,000

Table 4-4 Prioritized Terminal Project List

Terminal Project Title	17 - 19	19 - 21	21 - 23
SR 20 Spur/Anacortes Trm - Replace Building & Site Improvements	1,356,156	0	0
SR 20 Spur/Anacortes Trm Slip 1 - Timber Trestle Preservation	0	0	1,521,871
SR 20 Spur/Anacortes Trm - DHS/CBP Compound Canopies Replacement	0	1,713,260	397,951
SR 20 Spur/Anacortes Trm - Facility ADA Compliance Improvements	201,827	0	0
SR 20 Spur/Anacortes Trm - Tollbooth Replacement	0	246,218	1,625,598
SR 20 Spur/Anacortes Trm Bldg Vic - Underground Storage Tank Remediation	25,000	0	0
SR 20 Spur/Anacortes Trm - Emergency Power Improvements	466,921	109,555	0
SR 20 Spur/Anacortes Trm - VMS Electronic Reader Boards Replacement	92,040	0	0
SR 20 Spur/Anacortes Trm-Maritime Security Infrastructure Preservation	0	424,269	0
SR 305/Bainbridge Island Trm - Illumination System Rebuild	36,430	0	0
SR 305/Bainbridge Island Trm - Overhead Loading Cab Rehabilitation	996,683	2,905,329	2,841,315
SR 305/Bainbridge Trm - Maritime Security Infrastructure Preservation	255,000	0	0
SR 305/Bainbridge Island Trm - NE Parking Lot Pavement Rehabilitation	0	0	2,942,184
SR 305/Bainbridge Island Trm OHL - Pedestrian Fixed Walkway Replacement	6,087,343	5,749,308	9,678,056
SR 304/Bremerton Trm Slips 1 & 2 - Vehicle Transfer Span Replacement	0	0	2,154,595
SR 304/Bremerton Trm Slips 1 & 2 - Dolphin Replacement	0	209,276	1,042,788
SR 304/Bremerton Trm - Maritime Security Infrastructure Preservation	255,000	0	0
SR 304/Bremerton Trm Slip 2 - Left Inner Dolphin Replacement	0	0	18,213
SR 304/Bremerton Trm - Olympic Class Dolphin Modifications	1,108,073	0	0
SR 525/Ferry Dock Rd - Passenger Drop-Off & ADA Improvements	2,762,298	24,436	4,506
SR 525/Clinton Trm - Maritime Security Infrastructure Preservation	0	400,000	0
SR 525/Clinton Trm - Pedestrian Sidewalk Enhancements	0	25,000	0
SR 305/Eagle Hbr Maint Facility C & D Tie-up Slips - Wing Dolphin Replacement	0	0	70,983
SR 305/Eagle Hbr Maint Facility - Welding Shop Building Replacement	0	0	370,639
SR 305/Eagle Hbr Maint. Fac. Slip F - Drive-on Tie-up Slip Improvement &	186,475	466,714	2,171,977
SR 305/Eagle Hbr Maint Facility - Physical Security Project Installation	146,979	900,000	0
SR 305/Eagle Hbr Maint Facility - Hazmat Storage Building Replacement	84,363	0	0
SR 104/Edmonds Trm - Unocal Property Environmental Monitoring	100,005	350,000	148,733
SR 104/Edmonds Trm Bulkhead - Ground Stabilization Seismic Retrofit	3,642,463	143,117	0
SR 104/Edmonds Trm - Olympic Class Dolphin Modifications	507,485	0	0
SR 104/Edmonds Trm - Maritime Security Infrastructure Preservation	0	354,415	0
SR 160/Fauntleroy Trm - Trestle & Span Replacement	1,891,005	4,935,491	3,935,491
SR 20 Spur/Friday Harbor Trm Slip 1 - Bridge Seat Rehabilitation	0	242,094	1,354,400
SR 20/Coupeville Trm - Illumination System Rebuild	34	0	0
SR 20/Coupeville Trm - Relocated Agent's Office Installation	37,058	160,372	0
SR 104/Kingston Trm Slip 1 - Timber Floating Dolphin Replacement	61,257	266,070	891,737
SR 104/Kingston Trm Slip 1/2 - Trestle and Bseat Preservation	1,145,109	1,272,950	1,489,597
SR 104/Kingston Trm - Maritime Security Infrastructure Preservation	0	379,622	0
SR 20 Spur/Lopez Island Trm - Trestle Retrofit & Transfer Span Rehab	0	405,355	3,553,324
SR 20 Spur/Lopez Island Trm - Olympic Class Dolphin Modifications	531,282	0	0
SR 525/Mukilteo Trm (Proviso) - Multimodal Ferry Terminal Relocation	58,793,000	52,201,000	0
SR 20 Spur/Orcas Island Trm - Vehicle Transfer Span Rehabilitation	0	274,963	1,695,244
SR 20 Spur/Orcas Island Trm - Facility ADA Compliance Improvements	35,489	0	0
SR 20 Spur/Orcas Island Trm - ADA Compliance Improvements Phase 2	53,080	74,089	626,864
SR 163/Point Defiance Trm - Emergency Generator Improvement	393,909	0	0

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Terminal Project Title	17 - 19	19 - 21	21 - 23
SR 163/Point Defiance Trm - 4th Holding Lane	0	200,000	0
SR 20/Port Townsend Trm - Illumination System Rebuild	21	0	0
SR 519/Seattle Trm Slip 2 - Vehicle Transfer Span Rehabilitation	0	0	84,835
SR 519/Seattle Trm Slip 2 - Passenger Overhead Loading Replacement	0	0	361,113
SR 519/Seattle Trm Slip 3 - OHL & Transfer Span Replacement	13,178,000	0	0
SR 519/Seattle Trm - Terminal Bldg & N. Trestle Replacement	136,779,000	105,150,000	71,565,000
SR 339/Seattle Trm (Agreement) - County Ferry District POF Capital Fund	198,607	0	0
SR 519/Seattle Trm - Terminal Bldg and Trestle Replacement Risk Reserve	0	2,500,000	2,500,000
SR 339/Seattle Trm - Passenger-Only Ferry Facilities Replacement	25,006,000	0	0
SR 519/Seattle Trm - TWIC Card Reader Security Improvement	26,773	0	0
SR 519/Seattle Trm Vic - Elliot Bay Seawall Project Agreement	892,242	0	0
SR 519/Seattle Trm - Electrical Connection for Hybrid	0	3,500,000	0
SR 160/Southworth Trm - Timber Trestle & Trm Bldg Replacement	534,075	2,309,000	18,139,886
SR 163/Tahlequah Trm - Shoreline Slope Stabilization	80,173	360,262	0
SR 163/Tahlequah Trm - Facility ADA Compliance Improvements	59,933	339,660	0
SR 339/Vashon Trm (Agreement) - County Ferry District POF Capital Fund	67,016	0	0
SR 160/Vashon Trm - Building Renovation	0	0	43,930
SR 160/Vashon Trm Slip 3 - Timber Outer Dolphin Replacement	0	0	74,563
SR 160/Vashon Trm Slip 2 - Vehicle Transfer Span Rehabilitation	127,117	469,802	1,917,752
RFP Development and Installation of a One Account-Based Ticketing System	242,517	0	0
Life Extension of Electronic Fare System (EFS)	706,992	0	0
WSF/IT Terminal Telecommunications	0	500,000	0
WSF/Systemwide - Ladder Safety	0	259,344	0
WSF/IT EFS Preservation	0	450,000	0
WSF/Positive Restraint Pilot Project	0	700,000	2,800,000
DPS/Trm Project Support - Terminal Engineering Project Controls	1,562,744	0	0
DPS/Trm Project Support - Terminal Engineering Technical Support	416,000	0	0
DPS/Trm Project Support - Terminal Program Planning & Design Standards	187,000	0	0
DPS/Trm Project Support - Terminal Engineering Studies	690,147	0	0
DPS/Trm Project Support - Regulatory Compliance & Inspections	2,039,000	0	0
DPS/Trm Project Support - TE Supervision, Office Support & Supplies	2,174,000	0	0
DPS/Terminal Project Support - Out Biennia Placeholder	0	6,981,000	7,136,000
DPS/Trm Project Support - PMRS/Primavera Implementation	277,000	0	0
DPS/Trm Project Support - Primavera/PMRS Out Biennia Placeholder	0	348,000	361,000
WSF/Administrative Support - Allocated to W1	6,746,700	0	0
WSF/Administrative Support (Allocated to W1) - Out Biennia Placeholder	0	7,626,736	5,148,382
WSF/Systemwide - Dispatch System Replacement	700,000	13,700,000	0
Security System Upgrades Placeholder for W1	227,361	0	0
WSF/Terminals Security - 2013 PSGP Access Control/Video Monitoring	111,768	0	0
WSF/Terminal IT - 2015 PSGP Wireless Network Upgrade	638,336	0	0
WSF/Terminal Security - Key Control Cylinder Locks Recore	96,463	0	0
WSF/Terminal Security - Maritime Security Infrastructure Upgrades 15-17	147,776	0	0
WSF/Systemwide Terminal Security - Future Preservation Placeholder	0	0	4,700,000
WSF/Systemwide Terminals - Maritime Security Infrastructure Preservation	240,474	0	310,205
WSF/Systemwide - ITS Communication System Improvements	-1	0	0
WSF Systemwide - ORCA Participation in Regional Program	0	2,300,000	1,200,000
WSF/Systemwide - Ferry Vessel and Terminal Preservation	104,000	0	4,192,000
	275,509,000	221,926,709	159,070,732

Appendix A - WSF Terminal Asset Compilation

Table A-1 List of Sub-Assets and Components with Relevant Statistics

Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Anacortes	Bridge	Apron	1	AN-3B-1	1994	84	\$465,000	2027
Anacortes	Bridge	Bseat	1	AN-3D-1	1994	80	\$1,033,000	2054
Anacortes	Bridge	Elec	1	AN-3E-1	1994	76	\$1,059,000	2018
Anacortes	Bridge	Mech	1	AN-3F-1	1994	66	\$3,383,000	2025
Anacortes	Bridge	Tower	1	AN-3C-1	1994	75	\$1,010,000	2036
Anacortes	Bridge	Tspan	1	AN-3A-1	1959	85	\$3,753,000	2098
Anacortes	Bridge	Apron	2	AN-3B-2	2002	92	\$465,000	2035
Anacortes	Bridge	Bseat	2	AN-3D-2	2002	92	\$1,033,000	2062
Anacortes	Bridge	Elec	2	AN-3E-2	2002	88	\$1,059,000	2018
Anacortes	Bridge	Mech	2	AN-3F-2	2002	74	\$3,383,000	2033
Anacortes	Bridge	Tower	2	AN-3C-2	1971	91	\$1,010,000	2043
Anacortes	Bridge	Tspan	2	AN-3A-2	1971	91	\$3,753,000	2106
Anacortes	Bridge	Elec	3	AN-3E-3	2002	88	\$163,000	2025
Anacortes	Bridge	Mech	3	AN-3F-3	2002	79	\$136,000	2022
Anacortes	Bridge	Tie-up	3	AN-3A-3	2001	67	\$511,000	2062
Anacortes	Bridge	Elec	4	AN-3E-4	2002	92	\$163,000	2029
Anacortes	Bridge	Mech	4	AN-3F-4	2002	79	\$136,000	2029
Anacortes	Bridge	Tie-up	4	AN-3A-4	2001	72	\$511,000	2067
Anacortes	Buildings	Main	1	AN-9A-1	1959	70	\$2,741,000	2159
Anacortes	Buildings	Secondary	1	AN-9B-1	1975	91	\$904,000	2175
Anacortes	Buildings	Temporary	1	AN-9C-1	1998	84	\$312,000	2198
Anacortes	Buildings	Toll Booth	1	AN-9D-1	1984	88	\$329,000	2184
Anacortes	Buildings	Secondary	2	AN-9B-2	1993	93	\$991,000	2193
Anacortes	Buildings	Temporary	2	AN-9C-2	1995	82	\$299,000	2195
Anacortes	Buildings	Toll Booth	2	AN-9D-2	1984	88	\$329,000	2184
Anacortes	Buildings	Secondary	3	AN-9B-3	1995	80	\$308,000	2195
Anacortes	Buildings	Temporary	3	AN-9C-3	1995	95	\$94,000	2195
Anacortes	Buildings	Toll Booth	3	AN-9D-3	1984	85	\$329,000	2184
Anacortes	Buildings	Secondary	4	AN-9B-4	1975	91	\$594,000	2175
Anacortes	Buildings	Toll Booth	4	AN-9D-4	1984	85	\$329,000	2184
Anacortes	Buildings	Toll Booth	5	AN-9D-5	2005	86	\$22,000	2205
Anacortes	Buildings	Temporary	6	AN-9C-9	2007	98	\$42,000	2207
Anacortes	Buildings	Toll Booth	6	AN-9D-6	2006	85	\$19,000	2206
Anacortes	Buildings	Temporary	7	AN-9C-7	2000	92	\$43,000	2200
Anacortes	Buildings	Temporary	8	AN-9C-8	1995	76	\$226,000	2195
Anacortes	Dolphins		1	AN-1-1-RI	2000	75	\$960,000	2047
Anacortes	Dolphins		1	AN-1-1-RM	2002	87	\$2,341,000	2092
Anacortes	Dolphins		1	AN-1-1-RO	2002	91	\$3,413,000	2084
Anacortes	Dolphins		1	AN-1-1-LI	2007	90	\$1,129,000	2072
Anacortes	Dolphins		1	AN-1-1-LO	2007	90	\$2,232,000	2095
Anacortes	Dolphins		2	AN-1-2-LI	2003	70	\$960,000	2050
Anacortes	Dolphins		2	AN-1-2-RM	2002	90	\$1,129,000	2067
Anacortes	Dolphins		2	AN-1-2-RO	2002	92	\$2,232,000	2090
Anacortes	Dolphins		2	AN-1-2-RI	2007	88	\$960,000	2067
Anacortes	Dolphins		3	AN-1-3-LO	1996	79	\$1,039,000	2088
Anacortes	Dolphins		3	AN-1-3-LM	2016	100	\$1,223,000	2112
Anacortes	Dolphins		3	AN-1-3-RI	2016	100	\$700,000	2078
Anacortes	Dolphins		3	AN-1-3-RO	2016	100	\$2,536,000	2151

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Anacortes	Dolphins		4	AN-1-4-RO	2016	100	\$1,039,000	2105
Anacortes	OHL	Apron	1	AN-5C-1	1994	90	\$1,441,000	2027
Anacortes	OHL	Cab	1	AN-5B-1	1971	90	\$2,305,000	2067
Anacortes	OHL	Elec	1	AN-5G-1	1994	93	\$1,034,000	2018
Anacortes	OHL	Fdn	1	AN-5F-1	1971	58	\$4,244,000	2026
Anacortes	OHL	Lift Tower	1	AN-5A-1	1994	73	\$2,067,000	2021
Anacortes	OHL	Mech	1	AN-5H-1	1971	66	\$5,304,000	2024
Anacortes	OHL	Tspan	1	AN-5D-1	1971	84	\$1,523,000	2062
Anacortes	OHL	Walkway	1	AN-5E-1	2011	85	\$5,336,000	2137
Anacortes	Pavement	Holding Area	1	AN-7C-1	2011	95	\$2,048,000	2211
Anacortes	Pavement	On Trestle	1	AN-7A-2	2002	93	\$133,000	2202
Anacortes	Pavement	On Trestle	1	AN-7A-1	2009	93	\$136,000	2209
Anacortes	Pavement	Parking	1	AN-7D-1	2011	88	\$108,000	2211
Anacortes	Pavement	Traffic Lanes	1	AN-7B-1	1989	80	\$403,000	2189
Anacortes	Pavement	Holding Area	2	AN-7C-2	2011	95	\$342,000	2211
Anacortes	Pavement	Parking	2	AN-7D-2	2011	73	\$740,000	2209
Anacortes	Pavement	Traffic Lanes	2	AN-7B-2	1975	69	\$652,000	2175
Anacortes	Pavement	Holding Area	3	AN-7C-3	2013	89	\$215,000	2213
Anacortes	Pavement	Other	3	AN-7E-1	2005	80	\$162,000	2205
Anacortes	Pavement	Parking	3	AN-7D-3	1975	60	\$316,000	2175
Anacortes	Pavement	Parking	4	AN-7D-4	1989	60	\$82,000	2189
Anacortes	Pavement	Parking	5	AN-7D-5	1955	80	\$108,000	2155
Anacortes	Pavement	Parking	6	AN-7D-6	1981	60	\$263,000	2181
Anacortes	Pavement	Parking	7	AN-7D-7	2005	93	\$1,944,000	2205
Anacortes	TrestleSys	Bulkhead	1	AN-4B-1	1959	48	\$2,019,000	2030
Anacortes	TrestleSys	Trestle	1	AN-4A-1	1959	83	\$4,813,000	2021
Anacortes	TrestleSys	Trestle	2	AN-4A-2	1971	87	\$4,718,000	2030
Anacortes	TrestleSys	Trestle	3	AN-4A-3	1971	90	\$209,000	2018
Anacortes	TrestleSys	Trestle	4	AN-4A-4	1978	90	\$209,000	2018
Anacortes	Wingwalls		1	AN-2-1	1997	84	\$3,585,000	2042
Anacortes	Wingwalls		2	AN-2-2	1997	79	\$3,585,000	2042
Anacortes	Wingwalls		3	AN-2-3	2016	100	\$1,272,000	2055
Anacortes	Wingwalls		4	AN-2-4	2016	100	\$1,300,000	2047
Bainbridge Island	Bridge	Apron	1	BA-3B-1	1972	89	\$466,000	2028
Bainbridge Island	Bridge	Bseat	1	BA-3D-1	1995	92	\$1,035,000	2050
Bainbridge Island	Bridge	Elec	1	BA-3E-1	1972	85	\$1,062,000	2018
Bainbridge Island	Bridge	Mech	1	BA-3F-1	1972	71	\$3,389,000	2019
Bainbridge Island	Bridge	Tower	1	BA-3C-1	1972	90	\$1,013,000	2021
Bainbridge Island	Bridge	Tspan	1	BA-3A-1	1972	84	\$3,759,000	2106
Bainbridge Island	Bridge	Apron	2	BA-3B-2	2006	92	\$466,000	2039
Bainbridge Island	Bridge	Bseat	2	BA-3D-2	2006	92	\$1,035,000	2061
Bainbridge Island	Bridge	Elec	2	BA-3E-2	2006	91	\$1,062,000	2044
Bainbridge Island	Bridge	Mech	2	BA-3F-2	2006	86	\$3,389,000	2047
Bainbridge Island	Bridge	Tower	2	BA-3C-2	2006	92	\$1,013,000	2032
Bainbridge Island	Bridge	Tspan	2	BA-3A-2	2006	92	\$3,759,000	2117
Bainbridge Island	Bridge	Elec	3	BA-3E-3	2006	85	\$163,000	2034
Bainbridge Island	Bridge	Mech	3	BA-3F-3	2006	84	\$136,000	2033
Bainbridge Island	Bridge	Tie-up	3	BA-3A-3	1995	74	\$512,000	2061

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Bainbridge Island	Buildings	Main	1	BA-9A-1	1950	95	\$5,998,000	2214
Bainbridge Island	Buildings	Secondary	1	BA-9B-1	1997	98	\$493,000	2197
Bainbridge Island	Buildings	Temporary	1	BA-9C-1	1995	93	\$60,000	2195
Bainbridge Island	Buildings	Toll Booth	1	BA-9D-1	1992	93	\$329,000	2192
Bainbridge Island	Buildings	Toll Booth	2	BA-9D-2	1992	92	\$329,000	2192
Bainbridge Island	Buildings	Toll Booth	3	BA-9D-3	1992	93	\$329,000	2192
Bainbridge Island	Buildings	Toll Booth	4	BA-9D-4	1992	91	\$329,000	2192
Bainbridge Island	Dolphins		1	BA-1-1-LI	2002	90	\$961,000	2070
Bainbridge Island	Dolphins		1	BA-1-1-LO	2002	94	\$2,235,000	2101
Bainbridge Island	Dolphins		1	BA-1-1-RI	2002	90	\$1,592,000	2087
Bainbridge Island	Dolphins		1	BA-1-1-RO	2002	95	\$3,418,000	2123
Bainbridge Island	Dolphins		2	BA-1-2-RI	1998	91	\$1,592,000	2083
Bainbridge Island	Dolphins		2	BA-1-2-RO	1998	91	\$2,345,000	2100
Bainbridge Island	Dolphins		3	BA-1-3-RO	2002	96	\$1,132,000	2105
Bainbridge Island	OHL	Apron	1	BA-5C-1	1994	58	\$1,444,000	2018
Bainbridge Island	OHL	Cab	1	BA-5B-1	1989	90	\$2,310,000	2055
Bainbridge Island	OHL	Elec	1	BA-5G-1	1989	86	\$1,036,000	2018
Bainbridge Island	OHL	Fdn	1	BA-5F-1	1989	87	\$1,440,000	2028
Bainbridge Island	OHL	Lift Tower	1	BA-5A-1	1989	87	\$2,071,000	2018
Bainbridge Island	OHL	Mech	1	BA-5H-1	1989	71	\$5,314,000	2018
Bainbridge Island	OHL	Tspan	1	BA-5D-1	1989	89	\$1,525,000	2037
Bainbridge Island	OHL	Walkway	1	BA-5E-1	1972	71	\$5,345,000	2064
Bainbridge Island	OHL	Walkway	2	BA-5E-2	1972	71	\$1,810,000	2028
Bainbridge Island	OHL	Walkway	3	BA-5E-3	1989	85	\$1,810,000	2053
Bainbridge Island	Pavement	Holding Area	1	BA-7C-1	2003	80	\$602,000	2203
Bainbridge Island	Pavement	On Trestle	1	BA-7A-1	1984	90	\$237,000	2184
Bainbridge Island	Pavement	Traffic Lanes	1	BA-7B-1	1984	90	\$264,000	2184
Bainbridge Island	Pavement	On Trestle	3	BA-7A-3	2006	90	\$480,000	2206
Bainbridge Island	Pavement	Parking	3	BA-7D-1	1967	40	\$939,000	2165
Bainbridge Island	TrestleSys	Bulkhead	1	BA-4B-1	1984	84	\$603,000	2037
Bainbridge Island	TrestleSys	Trestle	1	BA-4A-1	2006	93	\$8,308,000	2056
Bainbridge Island	TrestleSys	Bulkhead	2	BA-4B-2	2006	93	\$214,000	2043
Bainbridge Island	TrestleSys	Trestle	4	BA-4A-4	1984	83	\$11,198,000	2026
Bainbridge Island	TrestleSys	Trestle	5	BA-4A-5	1995	78	\$2,048,000	2050
Bainbridge Island	Wingwalls		1	BA-2-1	1995	91	\$3,592,000	2060
Bainbridge Island	Wingwalls		2	BA-2-2	1995	93	\$3,592,000	2060
Bainbridge Island	Wingwalls		3	BA-2-3	1998	92	\$1,177,000	2054
Bremerton	Bridge	Apron	1	BR-3B-1	1989	91	\$466,000	2024
Bremerton	Bridge	Bseat	1	BR-3D-1	1989	90	\$1,035,000	2042
Bremerton	Bridge	Elec	1	BR-3E-1	1989	91	\$1,062,000	2018
Bremerton	Bridge	Mech	1	BR-3F-1	1989	67	\$3,389,000	2024
Bremerton	Bridge	Tower	1	BR-3C-1	1989	71	\$1,013,000	2018
Bremerton	Bridge	Tspan	1	BR-3A-1	1989	90	\$3,759,000	2120
Bremerton	Bridge	Apron	2	BR-3B-2	1989	88	\$466,000	2031
Bremerton	Bridge	Bseat	2	BR-3D-2	1989	77	\$1,035,000	2031
Bremerton	Bridge	Elec	2	BR-3E-2	1996	77	\$1,062,000	2021
Bremerton	Bridge	Mech	2	BR-3F-2	1996	64	\$3,389,000	2044
Bremerton	Bridge	Tower	2	BR-3C-2	1964	66	\$1,013,000	2018

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Bremerton	Bridge	Tspan	2	BR-3A-2	1964	68	\$3,759,000	2127
Bremerton	Buildings	Main	1	BR-9A-1	2000	96	\$4,008,000	2200
Bremerton	Buildings	Secondary	1	BR-9B-1	2009	97	\$804,000	2209
Bremerton	Buildings	Temporary	1	BR-9C-1	2007	92	\$224,000	2207
Bremerton	Buildings	Toll Booth	1	BR-9D-1	2009	99	\$390,000	2209
Bremerton	Buildings	Secondary	2	BR-9B-2	1999	95	\$70,000	2199
Bremerton	Buildings	Temporary	2	BR-9C-2	2009	98	\$45,000	2209
Bremerton	Buildings	Toll Booth	2	BR-9D-2	2009	97	\$329,000	2209
Bremerton	Buildings	Secondary	3	BR-9B-3	2009	97	\$715,000	2209
Bremerton	Buildings	Toll Booth	3	BR-9D-3	2009	99	\$329,000	2209
Bremerton	Buildings	Toll Booth	4	BR-9D-4	1990	92	\$46,000	2190
Bremerton	Dolphins		1	BR-1-1-LI	1980	76	\$961,000	2018
Bremerton	Dolphins		1	BR-1-1-LO	1999	87	\$961,000	2044
Bremerton	Dolphins		1	BR-1-1-RI	1999	84	\$961,000	2069
Bremerton	Dolphins		1	BR-1-1-RO	2003	94	\$2,235,000	2106
Bremerton	Dolphins		2	BR-1-2-LI	1997	93	\$961,000	2067
Bremerton	Dolphins		2	BR-1-2-LO	1998	82	\$961,000	2068
Bremerton	Dolphins		2	BR-1-2-RI	1989	71	\$961,000	2018
Bremerton	Dolphins		2	BR-1-2-RO	1998	70	\$961,000	2068
Bremerton	OHL	Apron	1	BR-5C-1	1999	95	\$1,444,000	2034
Bremerton	OHL	Cab	1	BR-5B-1	1999	95	\$2,310,000	2062
Bremerton	OHL	Elec	1	BR-5G-1	1999	93	\$1,036,000	2021
Bremerton	OHL	Fdn	1	BR-5F-1	1999	95	\$738,000	2033
Bremerton	OHL	Lift Tower	1	BR-5A-1	1999	95	\$2,071,000	2018
Bremerton	OHL	Mech	1	BR-5H-1	1999	79	\$5,314,000	2029
Bremerton	OHL	Tspan	1	BR-5D-1	1999	95	\$1,952,000	2058
Bremerton	OHL	Walkway	1	BR-5E-1	1999	95	\$1,113,000	2058
Bremerton	Pavement	Holding Area	1	BR-7C-1	2000	95	\$939,000	2200
Bremerton	Pavement	On Trestle	1	BR-7A-1	2000	93	\$188,000	2200
Bremerton	Pavement	Traffic Lanes	1	BR-7B-1	2000	97	\$135,000	2200
Bremerton	TrestleSys	Bulkhead	1	BR-4B-1	1989	83	\$1,429,000	2080
Bremerton	TrestleSys	Trestle	1	BR-4A-1	1989	85	\$6,388,000	2018
Bremerton	Wingwalls		1	BR-2-1	1999	91	\$3,592,000	2066
Bremerton	Wingwalls		2	BR-2-2	2015	93	\$2,529,000	2050
Clinton	Bridge	Apron	1	CL-3B-1	1984	76	\$466,000	2035
Clinton	Bridge	Bseat	1	CL-3D-1	2000	85	\$1,035,000	2056
Clinton	Bridge	Elec	1	CL-3E-1	2000	90	\$1,062,000	2022
Clinton	Bridge	Mech	1	CL-3F-1	2000	71	\$3,389,000	2035
Clinton	Bridge	Tower	1	CL-3C-1	1984	86	\$1,013,000	2018
Clinton	Bridge	Tspan	1	CL-3A-1	1984	84	\$3,759,000	2121
Clinton	Bridge	Apron	2	CL-3B-2	2003	92	\$466,000	2038
Clinton	Bridge	Bseat	2	CL-3D-2	2003	92	\$1,035,000	2067
Clinton	Bridge	Elec	2	CL-3E-2	2003	94	\$1,062,000	2025
Clinton	Bridge	Mech	2	CL-3F-2	2003	77	\$3,389,000	2051
Clinton	Bridge	Tower	2	CL-3C-2	2003	92	\$1,013,000	2052
Clinton	Bridge	Tspan	2	CL-3A-2	2003	92	\$3,759,000	2124
Clinton	Buildings	Main	1	CL-9A-1	2000	95	\$992,000	2200
Clinton	Buildings	Secondary	1	CL-9B-1	2000	95	\$599,000	2200

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Clinton	Buildings	Temporary	1	CL-9C-1	2005	89	\$43,000	2205
Clinton	Buildings	Toll Booth	1	CL-9D-2	2000	94	\$329,000	2200
Clinton	Buildings	Secondary	2	CL-9B-2	2000	93	\$1,499,000	2200
Clinton	Buildings	Toll Booth	2	CL-9D-1	2003	95	\$390,000	2203
Clinton	Buildings	Secondary	3	CL-9B-3	2000	99	\$138,000	2200
Clinton	Buildings	Toll Booth	3	CL-9D-3	2003	93	\$329,000	2203
Clinton	Buildings	Toll Booth	4	CL-9D-4	2003	93	\$565,000	2203
Clinton	Dolphins		1	CL-1-1-LI	2000	72	\$961,000	2059
Clinton	Dolphins		1	CL-1-1-LM	2000	91	\$1,132,000	2064
Clinton	Dolphins		1	CL-1-1-LO	2000	91	\$2,235,000	2086
Clinton	Dolphins		1	CL-1-1-RI	2000	84	\$961,000	2059
Clinton	Dolphins		1	CL-1-1-RM	2000	91	\$1,132,000	2064
Clinton	Dolphins		1	CL-1-1-RO	2000	88	\$2,235,000	2086
Clinton	Dolphins		2	CL-1-2-LI	2003	86	\$961,000	2091
Clinton	Dolphins		2	CL-1-2-LM	2003	96	\$1,132,000	2097
Clinton	Dolphins		2	CL-1-2-LO	2003	94	\$2,235,000	2133
Clinton	Dolphins		2	CL-1-2-RI	2003	94	\$961,000	2091
Clinton	Dolphins		2	CL-1-2-RM	2003	96	\$1,132,000	2097
Clinton	Dolphins		2	CL-1-2-RO	2003	94	\$2,235,000	2133
Clinton	Pavement	On Trestle	1	CL-7A-1	2003	80	\$1,924,000	2203
Clinton	Pavement	Parking	1	CL-7D-1	1990	80	\$1,568,000	2190
Clinton	Pavement	Traffic Lanes	1	CL-7B-1	2000	80	\$215,000	2200
Clinton	TrestleSys	Trestle	1	CL-4A-1	2000	93	\$21,838,000	2018
Clinton	TrestleSys	Bulkhead	2	CL-4B-2	2000	93	\$603,000	2063
Clinton	TrestleSys	Trestle	2	CL-4A-2	2003	93	\$29,023,000	2018
Clinton	TrestleSys	Bulkhead	4	CL-4B-4	2003	93	\$754,000	2074
Clinton	Wingwalls		1	CL-2-1	2000	87	\$3,592,000	2059
Clinton	Wingwalls		2	CL-2-2	2003	92	\$2,529,000	2054
Coupeville	Bridge	Apron	1	CO-3B-1	2015	86	\$466,000	2050
Coupeville	Bridge	Bseat	1	CO-3D-1	1979	70	\$1,035,000	2038
Coupeville	Bridge	Elec	1	CO-3E-1	2004	89	\$1,062,000	2018
Coupeville	Bridge	Mech	1	CO-3F-1	2004	64	\$3,389,000	2029
Coupeville	Bridge	Tower	1	CO-3C-1	1979	97	\$1,013,000	2050
Coupeville	Bridge	Tspan	1	CO-3A-1	1979	81	\$3,759,000	2112
Coupeville	Buildings	Main	1	CO-9A-1	1982	84	\$583,000	2182
Coupeville	Buildings	Temporary	1	CO-9C-1	1998	94	\$51,000	2198
Coupeville	Buildings	Toll Booth	1	CO-9D-1	2011	92	\$329,000	2211
Coupeville	Buildings	Toll Booth	2	CO-9D-2	1992	81	\$329,000	2192
Coupeville	Dolphins		1	CO-1-1-LO	1982	56	\$2,235,000	2055
Coupeville	Dolphins		1	CO-1-1-RM	1979	56	\$1,132,000	2033
Coupeville	Dolphins		1	CO-1-1-RO	2002	94	\$2,235,000	2084
Coupeville	Pavement	Holding Area	1	CO-7C-1	1979	80	\$353,000	2179
Coupeville	Pavement	Parking	1	CO-7D-1	1979	90	\$82,000	2179
Coupeville	Pavement	Traffic Lanes	1	CO-7B-1	1979	90	\$55,000	2179
Coupeville	TrestleSys	Bulkhead	1	CO-4B-1	1979	75	\$300,000	2027
Coupeville	Wingwalls	Wingwalls	1	CO-2-1	2010	97	\$2,529,000	2057
Eagle Harbor	Bridge	Elec	A	EH-3E-A	1989	65	\$163,000	2022
Eagle Harbor	Bridge	Mech	A	EH-3F-A	1989	75	\$136,000	2020

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Eagle Harbor	Bridge	Tie-up	A	EH-3A-A	1989	77	\$512,000	2057
Eagle Harbor	Bridge	Apron	B	EH-3B-B	2006	95	\$466,000	2056
Eagle Harbor	Bridge	Bseat	B	EH-3D-B	2006	95	\$1,035,000	2206
Eagle Harbor	Bridge	Elec	B	EH-3E-B	2006	90	\$1,062,000	2080
Eagle Harbor	Bridge	Mech	B	EH-3F-B	2006	84	\$3,389,000	2119
Eagle Harbor	Bridge	Tower	B	EH-3C-B	2006	95	\$1,013,000	2128
Eagle Harbor	Bridge	Tspan	B	EH-3A-B	2006	95	\$3,759,000	2179
Eagle Harbor	Bridge	Elec	C	EH-3E-C	1989	66	\$163,000	2022
Eagle Harbor	Bridge	Mech	C	EH-3F-C	1989	65	\$136,000	2020
Eagle Harbor	Bridge	Tie-up	C	EH-3A-C	1989	70	\$512,000	2057
Eagle Harbor	Bridge	Elec	D	EH-3E-D	1989	66	\$163,000	2022
Eagle Harbor	Bridge	Mech	D	EH-3F-D	1989	80	\$136,000	2020
Eagle Harbor	Bridge	Tie-up	D	EH-3A-D	1989	68	\$512,000	2057
Eagle Harbor	Bridge	Apron	E	EH-3B-E	1964	84	\$466,000	2031
Eagle Harbor	Bridge	Bseat	E	EH-3D-E	1981	81	\$1,035,000	2181
Eagle Harbor	Bridge	Elec	E	EH-3E-E	1981	88	\$1,062,000	2055
Eagle Harbor	Bridge	Mech	E	EH-3F-E	1981	76	\$3,389,000	2125
Eagle Harbor	Bridge	Tower	E	EH-3C-E	1981	68	\$1,013,000	2103
Eagle Harbor	Bridge	Tspan	E	EH-3A-E	1964	49	\$3,759,000	2139
Eagle Harbor	Bridge	Elec	F	EH-3E-F	1989	82	\$163,000	2022
Eagle Harbor	Bridge	Mech	F	EH-3F-F	1989	77	\$136,000	2020
Eagle Harbor	Bridge	Tie-up	F	EH-3A-F	1989	68	\$512,000	2057
Eagle Harbor	Buildings	Main	1	EH-9A-1	1943	83	\$18,493,000	2210
Eagle Harbor	Buildings	Secondary	1	EH-9B-1	1981	77	\$4,394,000	2181
Eagle Harbor	Buildings	Temporary	1	EH-9C-1	2009	88	\$45,000	2209
Eagle Harbor	Buildings	Secondary	2	EH-9B-2	1981	84	\$639,000	2181
Eagle Harbor	Buildings	Temporary	2	EH-9C-2	2009	88	\$45,000	2209
Eagle Harbor	Buildings	Secondary	3	EH-9B-3	1994	67	\$1,695,000	2194
Eagle Harbor	Buildings	Temporary	3	EH-9C-3	1993	61	\$50,000	2193
Eagle Harbor	Buildings	Temporary	4	EH-9C-4	1993	76	\$50,000	2193
Eagle Harbor	Buildings	Secondary	5	EH-9B-5	2001	92	\$79,000	2201
Eagle Harbor	Dolphins		A	EH-1-A-LW	1998	75	\$609,000	2093
Eagle Harbor	Dolphins		A	EH-1-A-RW	1998	75	\$609,000	2093
Eagle Harbor	Dolphins		A/B	EH-1-A-LM	1998	82	\$612,000	2094
Eagle Harbor	Dolphins		A/B	EH-1-A-LO	1998	88	\$612,000	2094
Eagle Harbor	Dolphins		B	EH-1-B-LW	2006	89	\$847,000	2117
Eagle Harbor	Dolphins		B	EH-1-B-RW	2006	89	\$847,000	2117
Eagle Harbor	Dolphins		B/A	EH-1-B-RO	2006	93	\$612,000	2102
Eagle Harbor	Dolphins		B/C	EH-1-B-LO	1998	87	\$612,000	2094
Eagle Harbor	Dolphins		B/C	EH-1-B-LM	1981	80	\$612,000	2077
Eagle Harbor	Dolphins		C	EH-1-C-LW	1981	70	\$609,000	2076
Eagle Harbor	Dolphins		C	EH-1-C-RW	1981	70	\$609,000	2076
Eagle Harbor	Dolphins		C	EH-1-C-RM	1981	80	\$612,000	2077
Eagle Harbor	Dolphins		C/D	EH-1-C-LM	1981	63	\$612,000	2077
Eagle Harbor	Dolphins		C/D	EH-1-C-LO	1981	73	\$612,000	2077
Eagle Harbor	Dolphins		D	EH-1-D-LW	1981	60	\$609,000	2076
Eagle Harbor	Dolphins		D	EH-1-D-LM	1981	63	\$612,000	2077
Eagle Harbor	Dolphins		D	EH-1-D-LO	1981	63	\$612,000	2077

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Eagle Harbor	Dolphins		D	EH-1-D-RW	1981	52	\$609,000	2076
Eagle Harbor	Dolphins		E	EH-1-E-LO	1981	82	\$612,000	2077
Eagle Harbor	Dolphins		E	EH-1-E-RI	1981	65	\$612,000	2077
Eagle Harbor	Dolphins		E	EH-1-E-RO	1981	63	\$612,000	2077
Eagle Harbor	Dolphins		E/F	EH-1-E-RM	1981	42	\$612,000	2076
Eagle Harbor	Dolphins		F	EH-1-F-LW	1981	67	\$609,000	2076
Eagle Harbor	Dolphins		F	EH-1-F-LI	1981	63	\$612,000	2077
Eagle Harbor	Dolphins		F	EH-1-F-LO	1981	63	\$612,000	2077
Eagle Harbor	Dolphins		F	EH-1-F-RW	1981	60	\$609,000	2076
Eagle Harbor	Dolphins		F	EH-1-F-RI	1981	80	\$612,000	2077
Eagle Harbor	Dolphins		F	EH-1-F-RM	1981	63	\$612,000	2077
Eagle Harbor	Dolphins		F	EH-1-F-RO	1981	45	\$612,000	2077
Eagle Harbor	Pavement	On Trestle	1	EH-7A-1	1977	70	\$343,000	2177
Eagle Harbor	Pavement	Parking	1	EH-7D-1	1995	90	\$1,663,000	2195
Eagle Harbor	Pavement	On Trestle	2	EH-7A-3	1981	90	\$152,000	2181
Eagle Harbor	Pavement	On Trestle	2	EH-7A-2	1981	90	\$110,000	2181
Eagle Harbor	PO	Float	1	EH-6A-1	1989	44	\$600,000	2158
Eagle Harbor	PO	Tspan	1	EH-6D-1	1989	58	\$144,000	2181
Eagle Harbor	PO	Float	2	EH-6A-2	1995	95	\$480,000	2195
Eagle Harbor	PO	Tspan	2	EH-6D-2	1989	77	\$144,000	2189
Eagle Harbor	TrestleSys	Bulkhead	1	EH-4B-1	1977	77	\$810,000	2177
Eagle Harbor	TrestleSys	Trestle	1	EH-4A-1	1943	96	\$10,664,000	2210
Eagle Harbor	TrestleSys	Bulkhead	2	EH-4B-2	1970	46	\$356,000	2129
Eagle Harbor	TrestleSys	Trestle	2	EH-4A-2	1977	96	\$12,963,000	2177
Eagle Harbor	TrestleSys	Trestle	3	EH-4A-3	1981	94	\$7,749,000	2158
Eagle Harbor	TrestleSys	Trestle	9	EH-4A-9	1970	89	\$10,605,000	2170
Eagle Harbor	Wingwalls		E	EH-2-E	1981	69	\$1,651,000	2052
Edmonds	Bridge	Apron	1	ED-3B-1	1995	82	\$469,000	2025
Edmonds	Bridge	Bseat	1	ED-3D-1	1995	84	\$1,042,000	2044
Edmonds	Bridge	Elec	1	ED-3E-1	1995	76	\$1,069,000	2018
Edmonds	Bridge	Mech	1	ED-3F-1	1995	71	\$3,413,000	2022
Edmonds	Bridge	Tower	1	ED-3C-1	1995	83	\$1,020,000	2018
Edmonds	Bridge	Tspan	1	ED-3A-1	1995	77	\$3,787,000	2077
Edmonds	Buildings	Main	1	ED-9A-1	1999	92	\$1,952,000	2199
Edmonds	Buildings	Secondary	1	ED-9B-1	1999	91	\$494,000	2199
Edmonds	Buildings	Toll Booth	1	ED-9D-1	1991	88	\$332,000	2191
Edmonds	Buildings	Secondary	2	ED-9B-2	1989	97	\$43,000	2189
Edmonds	Buildings	Toll Booth	2	ED-9D-2	1991	91	\$332,000	2191
Edmonds	Buildings	Secondary	3	ED-9B-3	1989	88	\$43,000	2209
Edmonds	Buildings	Toll Booth	3	ED-9D-3	1991	88	\$332,000	2191
Edmonds	Buildings	Toll Booth	4	ED-9D-4	1989	91	\$332,000	2189
Edmonds	Dolphins		1	ED-1-1-LI	1998	89	\$968,000	2040
Edmonds	Dolphins		1	ED-1-1-LM	1998	88	\$2,252,000	2057
Edmonds	Dolphins		1	ED-1-1-RM	1998	88	\$2,252,000	2057
Edmonds	Dolphins		1	ED-1-1-RO	1998	72	\$2,252,000	2041
Edmonds	Dolphins		1	ED-1-1-RI	2011	86	\$1,140,000	2055
Edmonds	Dolphins		2	ED-1-1-LO	1998	85	\$2,252,000	2054
Edmonds	OHL	Apron	1	ED-5C-1	1999	72	\$741,000	2025

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Edmonds	OHL	Cab	1	ED-5B-1	1999	95	\$2,327,000	2066
Edmonds	OHL	Elec	1	ED-5G-1	1999	95	\$1,043,000	2020
Edmonds	OHL	Fdn	1	ED-5F-1	1999	94	\$1,450,000	2043
Edmonds	OHL	Lift Tower	1	ED-5A-1	1999	95	\$2,087,000	2034
Edmonds	OHL	Mech	1	ED-5H-1	1999	79	\$5,353,000	2028
Edmonds	OHL	Tspan	1	ED-5D-1	1999	95	\$1,536,000	2050
Edmonds	OHL	Walkway	1	ED-5E-1	1999	92	\$7,071,000	2120
Edmonds	Pavement	Holding Area	1	ED-7C-1	1971	60	\$632,000	2171
Edmonds	Pavement	On Trestle	1	ED-7A-1	2011	95	\$239,000	2211
Edmonds	Pavement	Parking	1	ED-7D-1	1971	80	\$239,000	2171
Edmonds	Pavement	On Trestle	2	ED-7A-2	2011	95	\$356,000	2211
Edmonds	TrestleSys	Bulkhead	1	ED-4B-1	1989	72	\$2,217,000	2065
Edmonds	TrestleSys	Trestle	1	ED-4A-1	1952	79	\$7,613,000	2018
Edmonds	TrestleSys	Bulkhead	2	ED-4B-2	1992	72	\$1,809,000	2068
Edmonds	Wingwalls		1	ED-2-1	1995	92	\$3,618,000	2029
Fauntleroy	Bridge	Apron	1	FA-3B-1	2002	88	\$469,000	2034
Fauntleroy	Bridge	Bseat	1	FA-3D-1	1984	74	\$1,042,000	2037
Fauntleroy	Bridge	Elec	1	FA-3E-1	2005	91	\$1,069,000	2018
Fauntleroy	Bridge	Mech	1	FA-3F-1	2005	71	\$3,413,000	2037
Fauntleroy	Bridge	Tower	1	FA-3C-1	1994	74	\$1,020,000	2018
Fauntleroy	Bridge	Tspan	1	FA-3A-1	2002	88	\$3,787,000	2103
Fauntleroy	Buildings	Main	1	FA-9A-1	1957	89	\$1,125,000	2157
Fauntleroy	Buildings	Temporary	1	FA-9C-1	1984	80	\$9,000	2184
Fauntleroy	Buildings	Toll Booth	1	FA-9D-1	2000	87	\$332,000	2200
Fauntleroy	Buildings	Temporary	2	FA-9C-2	1993	90	\$28,000	2193
Fauntleroy	Buildings	Toll Booth	2	FA-9D-2	2000	83	\$569,000	2200
Fauntleroy	Dolphins		1	FA-1-1-LI	2000	93	\$968,000	2049
Fauntleroy	Dolphins		1	FA-1-1-LO	2000	89	\$2,252,000	2070
Fauntleroy	Dolphins		1	FA-1-1-RI	2000	91	\$968,000	2049
Fauntleroy	Dolphins		1	FA-1-1-RM	2000	79	\$1,140,000	2052
Fauntleroy	Dolphins		1	FA-1-1-RO	1999	76	\$2,252,000	2069
Fauntleroy	Pavement	On Trestle	1	FA-7A-1	2002	60	\$632,000	2191
Fauntleroy	Pavement	Traffic Lanes	1	FA-7B-1	2000	70	\$163,000	2200
Fauntleroy	TrestleSys	Bulkhead	1	FA-4B-1	1984	89	\$296,000	2018
Fauntleroy	TrestleSys	Trestle	1	FA-4A-1	1957	81	\$10,643,000	2018
Fauntleroy	TrestleSys	Trestle	1	FA-4A-3	1957	89	\$1,636,000	2022
Fauntleroy	TrestleSys	Bulkhead	2	FA-4B-2	2002	89	\$287,000	2043
Fauntleroy	TrestleSys	Trestle	2	FA-4A-2	1984	81	\$10,096,000	2018
Fauntleroy	Wingwalls		1	FA-2-1	2002	84	\$3,618,000	2045
Friday Harbor	Bridge	Apron	1	FH-3B-1	2005	86	\$463,000	2036
Friday Harbor	Bridge	Bseat	1	FH-3D-1	2005	62	\$1,108,000	2018
Friday Harbor	Bridge	Elec	1	FH-3E-1	2005	92	\$739,000	2018
Friday Harbor	Bridge	Mech	1	FH-3F-1	2005	80	\$3,073,000	2034
Friday Harbor	Bridge	Tower	1	FH-3C-1	2005	86	\$2,401,000	2061
Friday Harbor	Bridge	Tspan	1	FH-3A-1	2005	86	\$2,097,000	2085
Friday Harbor	Bridge	Elec	2	FH-3E-2	2006	90	\$162,000	2035
Friday Harbor	Bridge	Mech	2	FH-3F-2	2006	71	\$135,000	2030
Friday Harbor	Bridge	Tie-up	2	FH-3A-2	1995	60	\$510,000	2051

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Friday Harbor	Buildings	Main	1	FH-9A-1	1992	92	\$477,000	2192
Friday Harbor	Buildings	Secondary	1	FH-9B-1	1983	89	\$263,000	2183
Friday Harbor	Buildings	Temporary	1	FH-9C-1	1992	92	\$54,000	2192
Friday Harbor	Buildings	Secondary	2	FH-9B-2	2005	97	\$171,000	2205
Friday Harbor	Dolphins		1	FH-1-1-LM	1995	100	\$957,000	2053
Friday Harbor	Dolphins		1	FH-1-1-LO	2005	87	\$2,223,000	2090
Friday Harbor	Dolphins		1	FH-1-1-RO	2005	89	\$2,223,000	2090
Friday Harbor	Dolphins		1	FH-1-1-RI	2013	88	\$1,125,000	2092
Friday Harbor	Dolphins		2	FH-1-2-RO	2005	88	\$2,223,000	2160
Friday Harbor	Dolphins		2	FH-1-2-RM	2013	100	\$957,000	2123
Friday Harbor	Pavement	Holding Area	1	FH-7C-1	1982	80	\$427,000	2182
Friday Harbor	Pavement	On Trestle	1	FH-7A-1	2007	93	\$107,000	2207
Friday Harbor	Pavement	Traffic Lanes	1	FH-7B-1	1982	60	\$163,281	2182
Friday Harbor	Pavement	Holding Area	2	FH-7C-2	1982	80	\$236,000	2182
Friday Harbor	Pavement	On Trestle	2	FH-7A-2	2005	93	\$107,000	2205
Friday Harbor	Pavement	On Trestle	2	FH-7A-3	2005	93	\$54,000	2205
Friday Harbor	Pavement	Holding Area	3	FH-7C-3	1986	80	\$351,000	2186
Friday Harbor	TrestleSys	Bulkhead	0	FH-4B-3	2005	90	\$255,000	2051
Friday Harbor	TrestleSys	Bulkhead	1	FH-4B-1	1968	81	\$583,000	2032
Friday Harbor	TrestleSys	Trestle	1	FH-4A-1	1968	83	\$4,205,000	2019
Friday Harbor	TrestleSys	Bulkhead	2	FH-4B-2	1992	81	\$144,000	2031
Friday Harbor	TrestleSys	Trestle	2	FH-4A-2	2005	88	\$278,000	2044
Friday Harbor	TrestleSys	Trestle	3	FH-4A-3	1982	83	\$937,000	2034
Friday Harbor	TrestleSys	Trestle	4	FH-4A-4	1992	83	\$2,895,000	2075
Friday Harbor	TrestleSys	Trestle	5	FH-4A-5	2005	88	\$2,362,000	2120
Friday Harbor	Wingwalls		1	FH-2-1	2005	95	\$3,572,000	2063
Friday Harbor	Wingwalls		2	FH-2-2	2005	94	\$1,171,000	2050
Kingston	Bridge	Apron	1	KI-3B-1	2001	92	\$466,000	2035
Kingston	Bridge	Bseat	1	KI-3D-1	1987	74	\$1,035,000	2018
Kingston	Bridge	Elec	1	KI-3E-1	2001	86	\$1,062,000	2039
Kingston	Bridge	Mech	1	KI-3F-1	2001	74	\$3,389,000	2082
Kingston	Bridge	Tower	1	KI-3C-1	2001	89	\$1,013,000	2018
Kingston	Bridge	Tspan	1	KI-3A-1	2001	92	\$3,759,000	2120
Kingston	Bridge	Apron	2	KI-3B-2	1990	88	\$466,000	2024
Kingston	Bridge	Bseat	2	KI-3D-2	1990	78	\$1,035,000	2054
Kingston	Bridge	Elec	2	KI-3E-2	2009	83	\$1,062,000	2047
Kingston	Bridge	Mech	2	KI-3F-2	2009	74	\$3,389,000	2106
Kingston	Bridge	Tower	2	KI-3C-2	1990	88	\$1,013,000	2020
Kingston	Bridge	Tspan	2	KI-3A-2	1990	87	\$3,759,000	2109
Kingston	Bridge	Elec	3	KI-3E-3	1990	74	\$176,000	2018
Kingston	Bridge	Mech	3	KI-3F-3	1990	74	\$136,000	2018
Kingston	Bridge	Tie-up	3	KI-3A-3	1990	79	\$512,000	2056
Kingston	Buildings	Main	1	KI-9A-1	1991	94	\$1,072,000	2191
Kingston	Buildings	Secondary	1	KI-9B-1	1968	91	\$313,000	2168
Kingston	Buildings	Temporary	1	KI-9C-1	1986	75	\$30,000	2186
Kingston	Buildings	Toll Booth	1	KI-9D-1	2006	95	\$329,000	2206
Kingston	Buildings	Secondary	2	KI-9B-2	1991	99	\$291,000	2191
Kingston	Buildings	Temporary	2	KI-9C-2	1986	91	\$42,000	2186

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Kingston	Buildings	Toll Booth	2	KI-9D-2	2006	96	\$329,000	2206
Kingston	Buildings	Secondary	3	KI-9B-3	1991	97	\$759,000	2191
Kingston	Buildings	Temporary	3	KI-9C-3	1986	91	\$42,000	2186
Kingston	Buildings	Toll Booth	3	KI-9D-3	2006	96	\$329,000	2206
Kingston	Buildings	Secondary	4	KI-9B-4	2006	92	\$86,000	2206
Kingston	Buildings	Temporary	4	KI-9C-4	1986	91	\$42,000	2186
Kingston	Dolphins		1	KI-1-1-LI	2002	93	\$961,000	2068
Kingston	Dolphins		1	KI-1-1-LM	2000	48	\$3,770,000	2093
Kingston	Dolphins		1	KI-1-1-LO	2001	92	\$2,235,000	2097
Kingston	Dolphins		1	KI-1-1-RI	1996	84	\$961,000	2062
Kingston	Dolphins		1	KI-1-1-RM	2002	93	\$1,592,000	2084
Kingston	Dolphins		1	KI-1-1-RO	2001	90	\$3,418,000	2118
Kingston	Dolphins		2	KI-1-2-LI	2002	85	\$1,041,000	2070
Kingston	Dolphins		2	KI-1-2-RI	2002	90	\$961,000	2068
Kingston	Dolphins		2	KI-1-2-RO	2001	93	\$2,235,000	2097
Kingston	Dolphins		3	KI-1-3-LM	2000	93	\$2,422,000	2158
Kingston	Dolphins		3	KI-1-3-RM	1990	62	\$1,132,000	2101
Kingston	Dolphins		3	KI-1-3-RO	2000	93	\$2,235,000	2152
Kingston	OHL	Apron	1	KI-5C-1	1993	84	\$1,444,000	2027
Kingston	OHL	Cab	1	KI-5B-1	1993	90	\$2,310,000	2056
Kingston	OHL	Elec	1	KI-5G-1	1993	91	\$1,036,000	2018
Kingston	OHL	Fdn	1	KI-5F-1	1993	89	\$1,440,000	2037
Kingston	OHL	Lift Tower	1	KI-5A-1	1993	90	\$2,071,000	2031
Kingston	OHL	Mech	1	KI-5H-1	1993	75	\$5,314,000	2021
Kingston	OHL	Tspan	1	KI-5D-1	1993	90	\$1,525,000	2044
Kingston	OHL	Walkway	1	KI-5E-1	1993	89	\$8,773,000	2131
Kingston	Pavement	Holding Area	1	KI-7C-1	2016	93	\$939,000	2216
Kingston	Pavement	On Trestle	1	KI-7A-1	2016	97	\$108,000	2216
Kingston	Pavement	Traffic Lanes	1	KI-7B-1	1968	95	\$135,000	2216
Kingston	Pavement	On Trestle	2	KI-7A-2	2016	97	\$343,000	2216
Kingston	TrestleSys	Trestle	1	KI-4A-1	1986	87	\$3,518,000	2018
Kingston	TrestleSys	Trestle	2	KI-4A-2	1990	87	\$12,630,000	2018
Kingston	Wingwalls		1	KI-2-1	1993	89	\$3,592,000	2057
Kingston	Wingwalls		2	KI-2-2	1994	90	\$3,592,000	2058
Kingston	Wingwalls		3	KI-2-3	2000	88	\$1,177,000	2055
Lopez Island	Bridge	Apron	1	LO-3B-1	1981	80	\$463,000	2018
Lopez Island	Bridge	Bseat	1	LO-3D-1	1998	84	\$1,108,000	2064
Lopez Island	Bridge	Elec	1	LO-3E-1	1981	72	\$1,056,000	2018
Lopez Island	Bridge	Mech	1	LO-3F-1	1981	70	\$3,369,000	2026
Lopez Island	Bridge	Tower	1	LO-3C-1	1981	86	\$1,084,000	2033
Lopez Island	Bridge	Tspan	1	LO-3A-1	1981	86	\$3,739,000	2097
Lopez Island	Buildings	Main	1	LO-9A-1	1981	83	\$134,000	2181
Lopez Island	Buildings	Secondary	1	LO-9B-1	1981	91	\$306,000	2181
Lopez Island	Buildings	Temporary	1	LO-9C-1	1995	55	\$332,000	2185
Lopez Island	Buildings	Secondary	2	LO-9B-2	2014	100	\$90,000	2214
Lopez Island	Dolphins		1	LO-1-1-LM	2007	89	\$2,409,000	2094
Lopez Island	Dolphins		1	LO-1-1-LO	2007	95	\$4,061,000	2126
Lopez Island	Pavement	Holding Area	1	LO-7C-1	1979	90	\$351,000	2179

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Lopez Island	Pavement	On Trestle	1	LO-7A-1	2013	80	\$54,000	2213
Lopez Island	Pavement	Parking	1	LO-7D-1	1979	90	\$351,000	2179
Lopez Island	Pavement	Parking	2	LO-7D-2	1979	80	\$161,000	2179
Lopez Island	TrestleSys	Bulkhead	1	LO-4B-1	1964	90	\$354,000	2033
Lopez Island	TrestleSys	Trestle	1	LO-4A-1	1964	87	\$1,559,000	2018
Lopez Island	Wingwalls		1	LO-2-1	1981	95	\$3,739,000	2037
Mukilteo	Bridge	Apron	1	MU-3B-1	1952	79	\$469,000	2018
Mukilteo	Bridge	Bseat	1	MU-3D-1	2000	67	\$1,123,000	2042
Mukilteo	Bridge	Elec	1	MU-3E-1	1982	96	\$1,069,000	2022
Mukilteo	Bridge	Mech	1	MU-3F-1	1982	66	\$3,413,000	2018
Mukilteo	Bridge	Tower	1	MU-3C-1	1982	76	\$1,098,000	2019
Mukilteo	Bridge	Tspan	1	MU-3A-1	1952	62	\$3,787,000	2064
Mukilteo	Buildings	Main	1	MU-9A-1	1997	80	\$487,000	2197
Mukilteo	Buildings	Secondary	1	MU-9B-1	1997	95	\$602,000	2197
Mukilteo	Buildings	Temporary	1	MU-9C-1	1997	98	\$14,000	2197
Mukilteo	Buildings	Toll Booth	1	MU-9D-1	1991	81	\$332,000	2191
Mukilteo	Buildings	Temporary	2	MU-9C-2	1997	96	\$17,000	2197
Mukilteo	Buildings	Toll Booth	2	MU-9D-2	1991	81	\$332,000	2191
Mukilteo	Buildings	Toll Booth	3	MU-9D-3	1991	88	\$332,000	2191
Mukilteo	Dolphins		1	MU-1-1-LI	1982	64	\$1,049,000	2020
Mukilteo	Dolphins		1	MU-1-1-RI	2008	94	\$1,049,000	2051
Mukilteo	Dolphins		1	MU-1-1-LO	2011	97	\$4,113,000	2110
Mukilteo	Pavement	Holding Area	1	MU-7C-1	1991	80	\$406,000	2191
Mukilteo	Pavement	On Trestle	1	MU-7A-1	1994	60	\$55,000	2191
Mukilteo	Pavement	Parking	1	MU-7D-1	1991	60	\$136,000	2191
Mukilteo	Pavement	Traffic Lanes	1	MU-7B-1	1991	70	\$25,000	2191
Mukilteo	TrestleSys	Bulkhead	1	MU-4B-1	1982	68	\$682,000	2030
Mukilteo	TrestleSys	Trestle	1	MU-4A-1	1982	80	\$2,240,000	2039
Mukilteo	TrestleSys	Bulkhead	2	MU-4B-2	1982	65	\$847,000	2026
Mukilteo	Wingwalls		1	MU-2-1	2001	85	\$3,920,000	2039
Orcas Island	Bridge	Apron	1	OR-3B-1	1979	87	\$463,000	2018
Orcas Island	Bridge	Bseat	1	OR-3D-1	1987	56	\$1,069,000	2018
Orcas Island	Bridge	Elec	1	OR-3E-1	1987	92	\$1,056,000	2018
Orcas Island	Bridge	Mech	1	OR-3F-1	1987	70	\$3,369,000	2018
Orcas Island	Bridge	Tower	1	OR-3C-1	2000	82	\$1,046,000	2033
Orcas Island	Bridge	Tspan	1	OR-3A-1	1979	83	\$3,739,000	2095
Orcas Island	Buildings	Secondary	1	OR-9B-1	1998	93	\$401,000	2198
Orcas Island	Buildings	Toll Booth	1	OR-9D-1	2015	98	\$328,000	2215
Orcas Island	Dolphins		1	OR-1-1-LO	2008	94	\$3,749,000	2121
Orcas Island	Dolphins		1	OR-1-1-RO	2008	95	\$3,749,000	2121
Orcas Island	Dolphins		1	OR-1-1-RI	2013	95	\$957,000	2060
Orcas Island	Pavement	Holding Area	1	OR-7C-1	1980	80	\$688,000	2180
Orcas Island	Pavement	On Trestle	1	OR-7A-1	2012	95	\$81,000	2212
Orcas Island	Pavement	Parking	1	OR-7D-1	1980	80	\$187,000	2180
Orcas Island	Pavement	Traffic Lanes	1	OR-7B-1	1980	90	\$187,000	2180
Orcas Island	Pavement	Traffic Lanes	1	OR-7B-2	1980	90	\$27,000	2180
Orcas Island	TrestleSys	Bulkhead	1	OR-4B-1	1959	89	\$266,000	2018
Orcas Island	TrestleSys	Trestle	1	OR-4A-1	1959	84	\$1,926,000	2056

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Orcas Island	Wingwalls		1	OR-2-1	2000	85	\$3,721,000	2046
Point Defiance	Bridge	Apron	1	PD-3B-1	1994	90	\$469,000	2029
Point Defiance	Bridge	Bseat	1	PD-3D-1	1994	83	\$1,041,000	2031
Point Defiance	Bridge	Elec	1	PD-3E-1	2006	90	\$1,069,000	2023
Point Defiance	Bridge	Mech	1	PD-3F-1	2006	73	\$3,411,000	2035
Point Defiance	Bridge	Tower	1	PD-3C-1	1994	82	\$1,019,000	2025
Point Defiance	Bridge	Tspan	1	PD-3A-1	1994	90	\$3,783,000	2117
Point Defiance	Buildings	Main	1	PD-9A-1	1994	86	\$380,000	2194
Point Defiance	Buildings	Temporary	1	PD-9C-1	1994	92	\$35,000	2194
Point Defiance	Buildings	Temporary	1	PD-9C-2	2013	97	\$30,000	2213
Point Defiance	Buildings	Toll Booth	1	PD-9D-1	1992	83	\$332,000	2192
Point Defiance	Dolphins		1	PD-1-1-RO	1995	72	\$968,000	2059
Point Defiance	Dolphins		1	PD-1-1-LO	2014	97	\$3,306,935	2181
Point Defiance	Pavement	Holding Area	1	PD-7C-1	1998	70	\$216,000	2198
Point Defiance	Pavement	On Trestle	1	PD-7A-1	1994	93	\$55,000	2194
Point Defiance	Pavement	Traffic Lanes	1	PD-7B-1	1998	70	\$108,000	2198
Point Defiance	TrestleSys	Bulkhead	1	PD-4B-1	1994	80	\$540,000	2072
Point Defiance	TrestleSys	Trestle	1	PD-4A-1	1958	81	\$1,797,000	2018
Point Defiance	TrestleSys	Trestle	2	PD-4A-2	1994	81	\$1,042,000	2042
Point Defiance	Wingwalls		1	PD-2-1	1994	89	\$2,545,000	2045
Port Townsend	Bridge	Apron	1	PT-3B-1	2013	94	\$467,000	2050
Port Townsend	Bridge	Bseat	1	PT-3D-1	2013	94	\$1,038,000	2082
Port Townsend	Bridge	Elec	1	PT-3E-1	2013	95	\$1,064,000	2035
Port Townsend	Bridge	Mech	1	PT-3F-1	2013	87	\$3,398,000	2089
Port Townsend	Bridge	Tower	1	PT-3C-1	2013	94	\$1,015,000	2049
Port Townsend	Bridge	Tspan	1	PT-3A-1	2013	94	\$3,770,000	2147
Port Townsend	Bridge	Apron	2	PT-3B-2	1966	75	\$467,000	2019
Port Townsend	Bridge	Bseat	2	PT-3D-2	1982	83	\$1,038,000	2051
Port Townsend	Bridge	Elec	2	PT-3E-2	1982	69	\$1,064,000	2018
Port Townsend	Bridge	Mech	2	PT-3F-2	1982	63	\$3,398,000	2073
Port Townsend	Bridge	Tower	2	PT-3C-2	1938	72	\$1,015,000	2018
Port Townsend	Bridge	Tspan	2	PT-3A-2	1938	55	\$3,770,000	2110
Port Townsend	Buildings	Main	1	PT-9A-1	1982	91	\$996,000	2196
Port Townsend	Buildings	Temporary	1	PT-9C-1	1996	80	\$65,000	2196
Port Townsend	Buildings	Temporary	1	PT-9C-2	1995	89	\$19,000	2213
Port Townsend	Buildings	Toll Booth	1	PT-9D-1	2011	93	\$330,000	2211
Port Townsend	Buildings	Toll Booth	2	PT-9D-2	1992	83	\$330,000	2192
Port Townsend	Dolphins		1	PT-1-1-LI	2011	94	\$964,000	2054
Port Townsend	Dolphins		1	PT-1-1-LO	2011	95	\$2,242,000	2071
Port Townsend	Dolphins		1	PT-1-1-RO	2011	98	\$2,242,000	2070
Port Townsend	Dolphins		2	PT-1-2-LO	1982	51	\$2,242,000	2062
Port Townsend	Dolphins		2	PT-1-2-RO	1982	65	\$2,242,000	2062
Port Townsend	Pavement	On Trestle	1	PT-7A-1	2013	95	\$768,000	2213
Port Townsend	Pavement	Traffic Lanes	1	PT-7B-1	1982	93	\$162,000	2182
Port Townsend	TrestleSys	Trestle	1	PT-4A-1	1982	87	\$22,078,000	2046
Port Townsend	Wingwalls		1	PT-2-1	2009	97	\$2,536,000	2066
Port Townsend	Wingwalls		2	PT-2-2	2005	86	\$1,655,000	2052
Seattle	Bridge	Apron	1	SE-3B-1	1971	90	\$469,000	2029

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Seattle	Bridge	Bseat	1	SE-3D-1	1990	86	\$1,123,000	2060
Seattle	Bridge	Elec	1	SE-3E-1	2005	93	\$1,069,000	2027
Seattle	Bridge	Mech	1	SE-3F-1	2005	75	\$3,413,000	2028
Seattle	Bridge	Tower	1	SE-3C-1	1971	86	\$1,975,000	2018
Seattle	Bridge	Tspan	1	SE-3A-1	1971	86	\$3,787,000	2121
Seattle	Bridge	Apron	2	SE-3B-2	1964	85	\$469,000	2048
Seattle	Bridge	Bseat	2	SE-3D-2	1964	76	\$1,123,000	2032
Seattle	Bridge	Elec	2	SE-3E-2	1964	92	\$1,069,000	2034
Seattle	Bridge	Mech	2	SE-3F-2	1964	77	\$3,413,000	2044
Seattle	Bridge	Tower	2	SE-3C-2	1998	86	\$1,975,000	2018
Seattle	Bridge	Tspan	2	SE-3A-2	1964	80	\$3,787,000	2092
Seattle	Bridge	Apron	3	SE-3B-3	1964	78	\$469,000	2018
Seattle	Bridge	Bseat	3	SE-3D-3	1987	81	\$1,123,000	2057
Seattle	Bridge	Elec	3	SE-3E-3	1964	72	\$1,069,000	2018
Seattle	Bridge	Mech	3	SE-3F-3	1964	57	\$3,413,000	2018
Seattle	Bridge	Tower	3	SE-3C-3	1964	62	\$1,975,000	2018
Seattle	Bridge	Tspan	3	SE-3A-3	1964	81	\$3,787,000	2092
Seattle	Buildings	Main	1	SE-9A-1	1966	81	\$19,515,000	2166
Seattle	Buildings	Secondary	1	SE-9B-1	1992	93	\$756,000	2192
Seattle	Buildings	Temporary	1	SE-9C-1	2004	96	\$274,000	2204
Seattle	Buildings	Toll Booth	1	SE-9D-1	1992	91	\$332,000	2192
Seattle	Buildings	Temporary	2	SE-9C-2	1993	89	\$50,000	2193
Seattle	Buildings	Toll Booth	2	SE-9D-2	1992	91	\$332,000	2192
Seattle	Buildings	Secondary	3	SE-9B-3	1992	96	\$1,830,000	2192
Seattle	Buildings	Toll Booth	3	SE-9D-3	1992	91	\$332,000	2192
Seattle	Buildings	Secondary	4	SE-9B-4	1997	94	\$737,000	2197
Seattle	Buildings	Toll Booth	4	SE-9D-4	1992	91	\$332,000	2192
Seattle	Buildings	Secondary	6	SE-9B-6	1966	80	\$36,000	2166
Seattle	Buildings	Secondary	7	SE-9B-7	1985	87	\$44,000	2185
Seattle	Buildings	Secondary	7	SE-9B-2	1966	78	\$832,000	2166
Seattle	Buildings	Secondary	7	SE-9B-9	1966	78	\$421,000	2166
Seattle	Buildings	Secondary	7	SE-9B-10	2013	100	\$451,000	2213
Seattle	Buildings	Secondary	8	SE-9B-8	1966	79	\$44,000	2166
Seattle	Dolphins		1	SE-1-1-RO	1990	77	\$6,420,000	2162
Seattle	Dolphins		2	SE-1-2-RI	1984	32	\$1,235,000	2040
Seattle	Dolphins		2	SE-1-2-RO	1984	78	\$6,420,000	2118
Seattle	Dolphins		3	SE-1-3-LI	1984	29	\$1,235,000	2018
Seattle	OHL	Apron	1	SE-5C-1	2002	97	\$787,000	2031
Seattle	OHL	Cab	1	SE-5B-1	2002	97	\$2,505,000	2084
Seattle	OHL	Elec	1	SE-5G-1	2000	96	\$1,043,000	2022
Seattle	OHL	Fdn	1	SE-5F-1	1994	97	\$1,790,000	2059
Seattle	OHL	Lift Tower	1	SE-5A-1	1994	97	\$2,654,000	2018
Seattle	OHL	Mech	1	SE-5H-1	2000	66	\$5,353,000	2032
Seattle	OHL	Tspan	1	SE-5D-1	1994	97	\$1,654,000	2054
Seattle	OHL	Walkway	1	SE-5E-1	1994	97	\$1,963,000	2077
Seattle	OHL	Apron	2	SE-5C-2	1964	52	\$787,000	2018
Seattle	OHL	Cab	2	SE-5B-2	1964	94	\$2,505,000	2046
Seattle	OHL	Elec	2	SE-5G-2	1964	89	\$1,043,000	2028

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Seattle	OHL	Fdn	2	SE-5F-2	1964	89	\$1,790,000	2029
Seattle	OHL	Lift Tower	2	SE-5A-2	1998	75	\$2,654,000	2040
Seattle	OHL	Mech	2	SE-5H-2	1964	67	\$5,353,000	2042
Seattle	OHL	Tspan	2	SE-5D-2	1964	82	\$1,903,000	2028
Seattle	OHL	Walkway	2	SE-5E-2	1964	78	\$1,006,000	2022
Seattle	OHL	Apron	3	SE-5C-3	1964	35	\$787,000	2018
Seattle	OHL	Cab	3	SE-5B-3	1964	69	\$2,505,000	2046
Seattle	OHL	Elec	3	SE-5G-3	1964	87	\$1,043,000	2019
Seattle	OHL	Fdn	3	SE-5F-3	1964	68	\$1,790,000	2029
Seattle	OHL	Lift Tower	3	SE-5A-3	1964	65	\$2,654,000	2018
Seattle	OHL	Mech	3	SE-5H-3	1964	61	\$5,353,000	2022
Seattle	OHL	Tspan	3	SE-5D-3	1964	30	\$1,903,000	2018
Seattle	OHL	Walkway	3	SE-5E-3	1964	52	\$1,006,000	2022
Seattle	Pavement	On Trestle	1	SE-7A-1	1987	40	\$1,650,000	2165
Seattle	Pavement	On Trestle	2	SE-7A-2	1992	93	\$2,019,000	2192
Seattle	Pavement	On Trestle	3	SE-7A-3	1987	80	\$190,000	2187
Seattle	PO	Apron	1	SE-6C-1	1996	97	\$100,000	2196
Seattle	PO	Bseat	1	SE-6E-1	1996	88	\$200,000	2196
Seattle	PO	Float	1	SE-6A-1	1996	81	\$500,000	2196
Seattle	PO	Trestle	1	SE-6F-1	1996	96	\$2,508,000	2196
Seattle	PO	Tspan	1	SE-6D-1	1996	96	\$420,000	2196
Seattle	TrestleSys	Bulkhead	1	SE-4B-1	1971	76	\$922,000	2040
Seattle	TrestleSys	Trestle	1	SE-4A-1	1990	82	\$72,756,000	2108
Seattle	TrestleSys	Trestle	2	SE-4A-2	1964	77	\$9,243,000	2022
Seattle	TrestleSys	Bulkhead	3	SE-4B-3	1971	39	\$2,157,000	2058
Seattle	TrestleSys	Trestle	3	SE-4A-3	1964	77	\$33,441,000	2044
Seattle	TrestleSys	Trestle	4	SE-4A-4	1938	77	\$23,001,000	2018
Seattle	TrestleSys	Trestle	5	SE-4A-5	1964	77	\$7,839,000	2052
Seattle	TrestleSys	Trestle	6	SE-4A-6	1971	77	\$7,025,000	2034
Seattle	Wingwalls		1	SE-2-1	1993	72	\$3,920,000	2058
Seattle	Wingwalls		2	SE-2-2	1998	85	\$3,920,000	2063
Seattle	Wingwalls		3	SE-2-3	1996	80	\$3,920,000	2061
Shaw Island	Bridge	Apron	1	SH-3B-1	2004	91	\$463,000	2034
Shaw Island	Bridge	Bseat	1	SH-3D-1	2004	80	\$1,108,000	2074
Shaw Island	Bridge	Elec	1	SH-3E-1	2004	98	\$739,000	2022
Shaw Island	Bridge	Mech	1	SH-3F-1	2004	78	\$3,073,000	2077
Shaw Island	Bridge	Tower	1	SH-3C-1	2004	91	\$2,401,000	2087
Shaw Island	Bridge	Tspan	1	SH-3A-1	2004	90	\$2,097,000	2092
Shaw Island	Buildings	Secondary	1	SH-9B-1	2004	84	\$24,000	2204
Shaw Island	Buildings	Secondary	2	SH-9B-2	1992	90	\$100,000	2192
Shaw Island	Buildings	Secondary	3	SH-9B-3	2004	93	\$50,000	2204
Shaw Island	Dolphins		1	SH-1-1-RM	2010	97	\$2,316,000	2096
Shaw Island	Dolphins		1	SH-1-1-RO	2010	98	\$2,316,000	2083
Shaw Island	Pavement	Holding Area	1	SH-7C-1	1973	80	\$81,000	2173
Shaw Island	Pavement	On Trestle	1	SH-7A-1	2005	60	\$161,000	2191
Shaw Island	Pavement	Parking	1	SH-7D-1	1992	80	\$27,000	2192
Shaw Island	TrestleSys	Bulkhead	1	SH-4B-1	1955	72	\$720,000	2088
Shaw Island	TrestleSys	Trestle	1	SH-4A-1	1973	59	\$1,941,000	2026

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Shaw Island	Wingwalls	Wingwalls	1	SH-2-1	2004	93	\$3,721,000	2063
Southworth	Bridge	Apron	1	SO-3B-1	2002	88	\$466,000	2037
Southworth	Bridge	Bseat	1	SO-3D-1	2002	88	\$1,035,000	2065
Southworth	Bridge	Elec	1	SO-3E-1	2005	88	\$1,062,000	2020
Southworth	Bridge	Mech	1	SO-3F-1	2005	70	\$3,389,000	2031
Southworth	Bridge	Tower	1	SO-3C-1	2002	73	\$1,013,000	2050
Southworth	Bridge	Tspan	1	SO-3A-1	2002	87	\$3,759,000	2120
Southworth	Buildings	Main	1	SO-9A-1	1957	87	\$877,000	2157
Southworth	Buildings	Secondary	1	SO-9B-1	2004	97	\$73,000	2204
Southworth	Buildings	Toll Booth	1	SO-9D-1	1995	94	\$390,000	2195
Southworth	Buildings	Toll Booth	2	SO-9D-2	1995	93	\$565,000	2195
Southworth	Dolphins		1	SO-1-1-LI	2002	90	\$1,132,000	2061
Southworth	Dolphins		1	SO-1-1-LO	2002	85	\$2,235,000	2082
Southworth	Dolphins		1	SO-1-1-RI	2002	91	\$1,132,000	2061
Southworth	Dolphins		1	SO-1-1-RO	2002	95	\$2,235,000	2082
Southworth	Dolphins		1	SO-1-1-LM	2002	89	\$1,132,000	2061
Southworth	Dolphins		1	SO-1-1-RM	2002	90	\$1,132,000	2061
Southworth	Pavement	Holding Area	1	SO-7C-1	1981	90	\$628,000	2181
Southworth	Pavement	On Trestle	1	SO-7A-1	2006	90	\$505,000	2206
Southworth	Pavement	Parking	1	SO-7D-1	1981	70	\$1,497,000	2181
Southworth	Pavement	Parking	1	SO-7D-2	1996	93	\$289,000	2196
Southworth	Pavement	Traffic Lanes	1	SO-7B-1	1981	80	\$237,000	2181
Southworth	Pavement	Traffic Lanes	1	SO-7B-2	1996	93	\$108,000	2196
Southworth	TrestleSys	Bulkhead	1	SO-4B-1	1957	89	\$670,000	2027
Southworth	TrestleSys	Trestle	1	SO-4A-1	1958	86	\$11,488,000	2018
Southworth	Wingwalls		1	SO-2-1	2000	78	\$3,592,000	2051
Tahlequah	Bridge	Apron	1	TA-3B-1	1994	93	\$466,000	2028
Tahlequah	Bridge	Bseat	1	TA-3D-1	1994	82	\$1,033,000	2031
Tahlequah	Bridge	Elec	1	TA-3E-1	2006	88	\$1,061,000	2023
Tahlequah	Bridge	Mech	1	TA-3F-1	2006	77	\$3,385,000	2037
Tahlequah	Bridge	Tower	1	TA-3C-1	1994	82	\$1,973,000	2047
Tahlequah	Bridge	Tspan	1	TA-3A-1	1994	94	\$3,756,000	2116
Tahlequah	Buildings	Secondary	1	TA-9B-1	1994	85	\$103,000	2194
Tahlequah	Buildings	Temporary	1	TA-9C-1	1993	80	\$8,000	2193
Tahlequah	Buildings	Temporary	2	TA-9C-2	1995	88	\$49,000	2195
Tahlequah	Dolphins		1	TA-1-1-LO	2003	87	\$2,233,000	2066
Tahlequah	Dolphins		1	TA-1-1-RM	2004	74	\$960,000	2060
Tahlequah	Dolphins		1	TA-1-1-RO	2003	76	\$2,233,000	2066
Tahlequah	Pavement	On Trestle	1	TA-7A-1	2006	90	\$188,000	2206
Tahlequah	Pavement	Parking	1	TA-7D-1	1995	93	\$162,000	2195
Tahlequah	TrestleSys	Bulkhead	1	TA-4B-1	1994	89	\$486,000	2074
Tahlequah	TrestleSys	Trestle	1	TA-4A-1	1958	85	\$4,387,000	2018
Tahlequah	TrestleSys	Trestle	2	TA-4A-2	1994	85	\$412,000	2047
Tahlequah	Wingwalls		1	TA-2-1	1994	78	\$2,527,000	2040
Vashon Island	Bridge	Apron	1	VA-3B-1	1997	86	\$466,000	2029
Vashon Island	Bridge	Bseat	1	VA-3D-1	1997	86	\$1,033,000	2048
Vashon Island	Bridge	Elec	1	VA-3E-1	2005	84	\$1,061,000	2023
Vashon Island	Bridge	Mech	1	VA-3F-1	2005	73	\$3,385,000	2036

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Terminal Facility	Sub-Asset	Component	Slip	Inventory ID	Install Year	Condition Rating	Replacement Cost	Economic Year
Vashon Island	Bridge	Tower	1	VA-3C-1	1997	88	\$1,012,000	2018
Vashon Island	Bridge	Tspan	1	VA-3A-1	1997	89	\$3,756,000	2075
Vashon Island	Bridge	Apron	2	VA-3B-2	1993	89	\$466,000	2025
Vashon Island	Bridge	Bseat	2	VA-3D-2	1993	92	\$1,033,000	2044
Vashon Island	Bridge	Elec	2	VA-3E-2	2005	87	\$1,061,000	2023
Vashon Island	Bridge	Mech	2	VA-3F-2	2005	74	\$3,385,000	2036
Vashon Island	Bridge	Tower	2	VA-3C-2	1993	90	\$1,012,000	2024
Vashon Island	Bridge	Tspan	2	VA-3A-2	1993	92	\$3,756,000	2071
Vashon Island	Bridge	Elec	3	VA-3E-3	1995	66	\$163,000	2018
Vashon Island	Bridge	Mech	3	VA-3F-3	1995	79	\$136,000	2018
Vashon Island	Bridge	Tie-up	3	VA-3A-3	1995	87	\$512,000	2061
Vashon Island	Buildings	Main	1	VA-9A-1	1957	87	\$1,383,000	2183
Vashon Island	Buildings	Temporary	1	VA-9C-1	2008	94	\$60,000	2208
Vashon Island	Dolphins		1	VA-1-1-LI	2009	94	\$960,000	2075
Vashon Island	Dolphins		1	VA-1-1-RI	2009	94	\$960,000	2075
Vashon Island	Dolphins		1	VA-1-2-LI	2009	94	\$960,000	2075
Vashon Island	Dolphins		1	VA-1-1-LO	2009	95	\$2,233,000	2106
Vashon Island	Dolphins		1	VA-1-1-RO	2009	95	\$2,233,000	2106
Vashon Island	Dolphins		2	VA-1-2-LO	1997	72	\$960,000	2063
Vashon Island	Dolphins		2	VA-1-2-RI	2002	87	\$1,591,000	2085
Vashon Island	Dolphins		2	VA-1-2-RO	1996	72	\$1,591,000	2079
Vashon Island	Dolphins		3	VA-1-3-RO	1992	15	\$1,039,000	2065
Vashon Island	Pavement	On Trestle	1	VA-7A-1	2016	100	\$1,205,000	2216
Vashon Island	Pavement	On Trestle	2	VA-7A-2	2016	100	\$193,205	2216
Vashon Island	PO	Apron	1	VA-6C-1	1989	50	\$100,000	2178
Vashon Island	PO	Bseat	1	VA-6E-1	1989	86	\$200,000	2189
Vashon Island	PO	Float	1	VA-6A-1	1989	72	\$500,000	2189
Vashon Island	PO	Trestle	1	VA-6F-1	1989	99	\$1,568,000	2189
Vashon Island	PO	Tspan	1	VA-6D-1	1989	85	\$400,000	2189
Vashon Island	TrestleSys	Bulkhead	1	VA-4B-1	1957	73	\$723,000	2043
Vashon Island	TrestleSys	Trestle	1	VA-4A-1	1958	79	\$22,341,000	2084
Vashon Island	TrestleSys	Trestle	2	VA-4A-2	2016	100	\$1,040,000	2085
Vashon Island	Wingwalls		1	VA-2-1	1996	76	\$3,589,000	2046
Vashon Island	Wingwalls		2	VA-2-2	1993	92	\$3,589,000	2043
Vashon Island	Wingwalls		3	VA-2-3	1995	60	\$1,176,000	2050

Figure A-1 Sub-Asset Level Inputs and Outputs from Asset Management Model

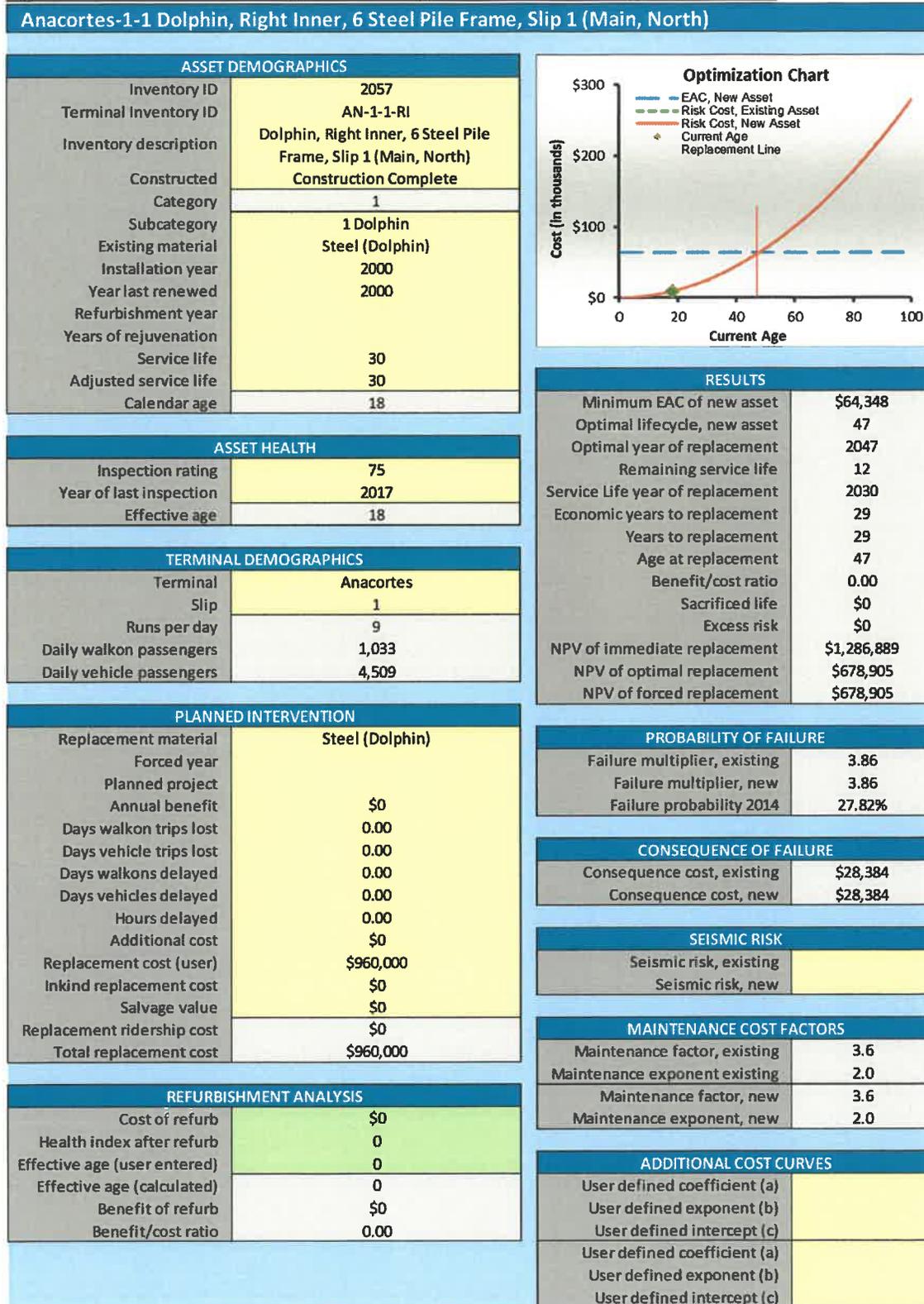


Figure A-2 Ridership Statistics for Prioritization in Asset Management Model

Washington State Ferries Federal Transit Administration Asset Management Plan

TERMINAL	WALKON RIDERSHIP	VEHICLE RIDERSHIP	WALKON DELAY	WALKON TRIP LOSS	VEHICLE DELAY	VEHICLE TRIP LOSS	TERMINAL - SLIP	RUNS PER DAY
Anacortes	1033	4509	\$32	\$45	\$32	\$30	Anacortes-1	9
Bainbridge	9047	8839	\$32	\$68	\$32	\$45	Anacortes-2	9
Bremerton	4789	2824	\$32	\$44	\$32	\$29	Anacortes-3	2
Clinton	1116	10131	\$32	\$83	\$32	\$55	Anacortes-4	1
Edmonds	1657	9674	\$32	\$60	\$32	\$40	Bainbridge-1	21
Eagle Harbor	0	0	\$32	\$0	\$32	\$0	Bainbridge-2	2
Fauntleroy	1227	6774	\$32	\$53	\$32	\$35	Bainbridge-3	0
Friday Harbor	649	2005	\$32	\$150	\$32	\$100	Bremerton-1	14
Coupeville	331	1879	\$32	\$113	\$32	\$75	Bremerton-2	1
Kingston	1657	9674	\$32	\$60	\$32	\$40	Clinton-1	39
Lopez	121	825	\$32	\$150	\$32	\$100	Clinton-2	1
Mukilteo	1116	10131	\$32	\$83	\$32	\$55	Eagle Harbor-A	1
Orcas	213	1750	\$32	\$150	\$32	\$100	Eagle Harbor-B	2
Point Defiance	231	2081	\$32	\$53	\$32	\$35	Eagle Harbor-C	1
Port Townsend	331	1879	\$32	\$113	\$32	\$75	Eagle Harbor-D	1
Seattle	13837	11663	\$32	\$68	\$32	\$45	Eagle Harbor-E	2
Shaw	16	74	\$32	\$150	\$32	\$100	Eagle Harbor-F	1
Southworth	575	2537	\$32	\$53	\$32	\$35	Edmonds-1	26
Tahlequah	231	2081	\$32	\$53	\$32	\$35	Fauntleroy-1	40
Vashon	1077	4856	\$32	\$105	\$32	\$70	Friday Harbor-1	11
							Friday Harbor-2	2
							Coupeville-1	17
							Kingston-1	24
							Kingston-2	2
							Kingston-3	0
							Lopez-1	13
							Mukilteo-1	40
							Orcas-1	14
							Point Defiance-1	20
							Port Townsend-1	16
							Port Townsend-2	1
							Seattle-1	14
							Seattle-2	2
							Seattle-3	22
							Shaw-1	12
							Southworth-1	30
							Tahlequah-1	20
							Vashon-1	33
							Vashon-2	20
							Vashon-3	2

Appendix B - WSF Asset Management Active Risk Register

(Attached)