SERVICE PLAN AND INVESTMENT NEEDS

The goal of this Plan is to identify a single package of service improvements, demand management strategies, LOS standards, and funding requirements that is responsive to the legislative direction set forth during the 2009 session, and allows the ferry system to maximize the efficiency of existing assets while meeting the needs of local customers and communities.

There are multiple ways to build a plan, each of which includes a different set of tradeoffs with respect to who assumes system costs and how those costs are borne. For example, the ferry system could choose to do nothing other than maintain existing assets and services while allowing degradation in LOS. Conversely, the system could choose to maintain existing LOS standards while adding new services to meet growing demand.

The Revised Draft Plan submitted to Legislature on January 31, 2009 presented two different visions ("bookends") for the future of WSF. Scenario A assumed that current levels of service remained constant with minor improvements, operational strategies were implemented over time, and several new vessels would come online. Scenario B assumed a reduced State-run marine highway system and that most operational strategies would be implemented over time. The detailed discussions of Scenarios A and B are included in Appendix M as a reference.

Using these two scenarios as bookends, the Legislature offered a number of clear policy directives, which have been incorporated into this Final Long-Range Plan. These directives include:

- Funding support so that existing service levels can be maintained.
- Funding support of capital projects to include essential projects that are absolutely necessary to support existing service levels.
- Deferring projects that are either not immediately necessary or where the benefits have not yet been adequately demonstrated.

In addition to the above directives, there was conditional support for two key operational strategies:

- Vehicle reservations (a final decision will come in the 2010 legislative session after a pre-design report due November 2009).
- Transit enhancement investments in terminals, which will be

Moving Washington

Moving Washington is WSDOT's vision for prioritizing transportation investment over the next 10 years to increase mobility and reduce congestion. Its three strategies are:

- Adding capacity strategically to best use limited resources
- Operating efficiently to get the most out of infrastructure
- Managing demand by offering more choices

The Long-Range Plan aligns with the vision and strategies of Moving Washington:

- Reservations delay the need to upgrade terminals and boats by maximizing the use of existing assets
- There are strategic capacity improvements achieved through the replacement of retired and retiring vessels with larger capacity vessels
- Reservations and pricing strategies manage vehicle demand by encouraging mode and time shifts

reviewed as the need is demonstrated over time through growth in walk-on passengers and an assessment of the availability of local transit service.

15. LEGISLATIVE PLAN COMMITMENT

The Legislative policy direction was incorporated into the Legislature's 16-year final plan. This plan captures the level of future funding commitment for the operating and capital programs that were approved as part of the 2009 legislative session.

This section includes a discussion of the program-level detail contained in the 16-year legislative funding plan. This section also extends the basic logic that underlies the 16-year legislative funding plan by six additional years. This 22-year plan represents a vision of the future for ferry services.

15.1 Operating Program

The package of operating and pricing strategies will assume a continuation of current service levels with minor adjustments to reflect vessel deployment changes due to vessel acquisitions and recommended vessel slowing to reduce fuel consumption.

The proposed vehicle reservation system would be such a fundamental change in how customers make use of ferry services, that it is difficult to estimate the actual ridership response. Recognizing this, the proposed operating program will provide marginal capacity improvements on several routes related to the vessel procurement program.

The vessel procurement program also restores the system's capability of having a viable standby vessel so that service can be maintained in the event of a vessel breakdown.

Proposed 2030 Service Details

The proposed vessel deployment plan is shown in Exhibit 21 for both 2015 (which is the end of the first vessel procurement cycle) and for 2030 (which is the end of the second vessel procurement cycle). **Error! Reference source not found.** uses the summer sailing schedule to illustrate the specific impacts to routes from new vessel deliveries. Appendix N includes similar exhibits for all schedule seasons.

Exhibit 21
Summary of Proposed Long-Range Plan Fleet Deployment

	2015 Proposed Fleet Deployment Plan			
Route	**# of Vessels**	**Fall, Winter, Spring**	**Shoulder**	**Summer**
Bainbridge	2	2 Jumbo		
Bremerton	2	2 Large		1 Medium 1 Jumbo
Clinton	2	1 Large 1 Medium		
Kingston	2	2 Jumbo		
Point Defiance	1	1 Small		
Port Townsend	1 or 2	1 Small	2 Small	
San Juans & Sidney	3 or 4	2 Large 1 Med. (Sidney ex. Winter)		4 Large
Interisland	1	1 Small (Winter)	1 Mid-Size	
Fauntleroy-Vashon-Southworth	3	2 Medium 1 Mid-Size		
Total Deployed		**17**	**18**	**19**

	2031 Proposed Fleet Deployment Plan			
Route	**# of Vessels**	**Fall, Winter, Spring**	**Shoulder**	**Summer**
Bainbridge	2	2 Jumbo		
Bremerton	2	2 Large		1 Large 1 Jumbo
Clinton	2	2 Large		
Kingston	2	2 Jumbo		
Point Defiance	1	1 Small		
Port Townsend	1 or 2	1 Small	2 Small	
San Juans & Sidney	3 or 4	2 Large 1 Med. (Sidney ex. Winter)		3 Large 1 Medium
Interisland	1	1 Small (Winter)	1 Mid-Size	
Fauntleroy-Vashon-Southworth	3	2 Medium (2 in Winter) 1 Mid-Size (Winter Only)	3 Medium	
Total Deployed		**17**	**18**	**19**

Vessel class	Vehicle capacity
Jumbo	188-202
Large	144
Medium	124
Mid-Size	87-90
Small	34-64

Exhibit 22
Vessel Assignments & Procurement Impacts – Final Long-Range Plan (Summer)

	2009-11	2011-13	2013-2025	2025 - 2031
Anacortes - Sidney (Vessel makes two daily round-trips to Sidney & one to San Juans)	124	124	144 + 20	124
Anacortes - San Juan Islands	144, 144, 144	144, 144, 144	144, 144, 144 New	144 New, 144 New, 144 New
Interisland	87	87	90	90
Port Townsend - Keystone	64, 64 + 64	64, 64 + 64	64, 64 + 64	64, 64 + 64
Mukilteo - Clinton	124, 124	124, 124	144 New, 124 + 20	144 New, 144 New + 40
Edmonds - Kingston	202, 188	202, 188	202, 188	202, 188
Seattle - Bainbridge	202, 202	202, 202	202, 202	202, 202
Seattle - Bremerton	124, 188	124, 188	124, 188	144 New, 188 + 20
Fauntleroy - Vashon - Southworth	87, 87, 124	87, 87, 124	124, 87, 124 + 37	124, 124, 124 + 74
Pt. Defiance - Tahlequah	48	64 + 16	64 + 16	64 + 16
Standby (emergency reserve)	34	34	87 + 53	144 + 110
Maintenance Reserve	144, 90	144, 90	144, 124	144 New, 124

KEY

- 202, 188 — Jumbo Vessel
- 144 — Large Vessel
- 124 — Medium Vessel
- 90, 87 — Mid-Size Vessel
- 64, 34 — Small Vessel
- No Change
- Change in Capacity
- + 16 — Change in vehicle capacity

2009-11

- **Two 64-car vessel (Island Home) are delivered**
- **Funding for one 64-car vessels (under construction)**
- Two new 64-car vessels are delivered; one in 2010 & one in 2011 (Port Townsend - Keystone)

2011-13

- **64-car vessel program is complete; delivery of final 64-car vessel**
- **Start new 144-car vessel program**
- One new 64-car vessel is delivered (Pt. Defiance - Tahlequah) in 2012
- Rhododendron is retired

2013-2025

- **Two new 144-car vessels are delivered**
- One new 144-car vessel is delivered in 2014 (Mukilteo - Clinton)
- 124 from Mukilteo - Clinton moves to Fauntleroy - Vashon - Southworth and increases route capacity
- One new 144-car vessel to San Juan Domestic in 2014. 144 from San Juan Domestic moves to Sidney and increases route capacity to both Sidney and San Juan Domestic routes
- 124 from Sidney moves to Fauntleroy - Vashon - Southworth and increases route capacity
- 87 bumped from Fauntleroy - Vashon - Southworth increases standby capacity
- Evergreen State and Hiyu are retired

2025 - 2031

- **Five new 144-car vessels are delivered**
- One new 144-car vessel is delivered in 2027 (Mukilteo - Clinton)
- 124 from Mukilteo - Clinton moves to Fauntleroy - Vashon - Southworth and increases route capacity
- Two new 144-car vessels are delivered in 2028 and 2029 (San Juan Domestic)
- One new 144-car vessel to maintenance in 2028 moves Hyak to standby and retires Klahowya
- One new 144-car vessel is delivered in 2029 to Bremerton.
- 124 from Bremerton moves up to Sidney
- Tillikum and three 144-car vessels are retired (Elwha, Kaleetan, and Yakima)

Seattle-Bainbridge

- Two 202-car Jumbo Mark II vessels running full-time year-round.

Seattle-Bremerton

- At the end of the planning period there would be two 144-car vessels running in the fall, winter, and spring; one 144-car and one 188-car Jumbo Mark I running in the summer. Beginning in 2015, the second new 144-car vessel will run in the fall, spring, and winter replacing a 124-car vessel. Beginning in 2029, a new 144-car vessel will run in the summer and replace a 124-car vessel.

Mukilteo-Clinton

- Current service is provided by two 124-car vessels. The first new 144-car vessel delivered would replace a 124-car vessel in 2014. Beginning in 2027, a new 144-car vessel would replace the remaining 124-car vessel.

Edmonds-Kingston

- One 202-car Jumbo Mark II and one 188-car Jumbo Mark I year-round.

Fauntleroy-Vashon-Southworth

- By 2015 one of the two 87-car Evergreen Class vessels, would be replaced by a 124-car vessel.
- By 2030 there will be three 124-car vessels operating fall-winter-spring on this route and two 124-car and the 90-car Sealth would operate in winter.

Point Defiance-Tahlequah

- This route would be served by a 64-car Island Home Class vessel on a 16 hour/day schedule, replacing the 48-car Rhododendron in 2012.

Port Townsend-Keystone

- Under this proposal, one 64-car Island Home Class vessel would be assigned to the route year-round by mid-2010. A second 64-car Island Home vessel would be assigned to the route for eight hours/day in the shoulder and summer schedule periods starting in 2012.

San Juan Islands and International

Winter. Under this proposal, the San Juan Islands would be served by two 144-car vessels, one 124-car vessel, and a 64-car Island Home as the interisland vessel. As with the existing winter schedule, the interisland vessel would not operate on weekends, and one of the

Changes in Financial Assumptions

Since release of the Revised Draft Long-Range Plan on January 31, 2009, a number of changes have been made to the revenues and costs presented in this document.

Many of the updates reflect legislative direction and are discussed in detail in this Final Plan.

In addition to the programmatic changes, a number of other refinements and modifications were made as follows:

- Revenue forecasts updated to June 2009 State forecast
- Review and modifications to cost escalation assumptions
- Re-scoped several terminal projects
- Updated cost estimates for reservations
- Reduced administrative and support costs associated with on-going capital support functions

144-car vessels would be crewed nine hours per day Monday through Thursday. Currently there is no Sidney service during the winter.

Spring and Fall. Anacortes-San Juan Islands service would be provided by two 144-car vessels for 16 hours/day and with the 124-car vessel when it is not engaged in Sidney service. The 90-car Sealth would provide interisland service and is available to make one round trip to Anacortes on weekends to assist with peak weekend traffic. All vessel assignments would be implemented with the deployment of the second 144-car vessel in 2015. Sidney service would be provided for one round-trip per day with the 124-car vessel Chelan.

Summer. Two round trips to Sidney with the 124-car Chelan, three new 144-car vessels would be assigned to the route from Anacortes to the San Juan Islands. However, between 2013 and 2025 a 144-car vessel will replace the 124-car Chelan on the Sidney route. The ferry system could continue to operate with an increased capacity in the San Juans after 2025, however this would reduce the amount of maintenance weeks for the 144-car vessel class and would require that one of the new 144-car vessels be built to SOLAS standards.

Interisland. The interisland vessel provides necessary connections between the four ferry-served San Juan Islands. By one vessel providing interisland service, the other vessels on the route can be scheduled in more efficient ways to move traffic between the San Juan Islands and the Anacortes/Skagit County mainland. For instance, a mainland vessel can make up to five round trips in a 16-hour operating day if it does not have to operate on the interisland circuit; making interisland stops would reduce its overall capacity to three round trips in a 16-hour operating day.

As there is a considerable amount of truck traffic on the interisland route, and there are multiple destinations, traffic either has to turn around on the vessel or back on, so it is important that the interisland vessel has a relatively unobstructed vehicle deck. For future projected winter service volumes, an Island Home class 64-car vessel should be adequate for the service. For the Spring, Summer, and Fall, however, the 90-car Sealth is proposed as an interisland vessel, because:

- It has an unobstructed car deck for turning large interisland vehicles around instead of backing on.
- There is flexibility to use the Sealth on Anacortes-based route on weekends when interisland traffic is lower; potentially to address recreational travel sensitivity tests which indicate the possibility for higher growth rates during those time periods.

15.2 Capital Program

With the passage of the 2009-11 Budget, the Legislature provided WSF with direction on how it intends to fund the first 16 years of the Long-Range Plan.

The Legislative plan funds capital projects that are absolutely necessary to support existing service levels. This includes the preservation of terminals and vessels, replacing retiring vessels (largely in-kind), funding selected terminal improvements, and providing an allowance for emergency repairs and vessel improvements to meet regulatory (i.e. Coast Guard) requirements.

The Long-Range Plan has taken this direction and extended it six more years to construct a full 22-year plan of capital expenditures. This 22-year capital program is summarized below in Exhibit 23.

Some of the WSF capital needs that were identified in the Revised Draft Plan were determined by the Legislature to be non-essential and excluded from the current level of Legislative commitment. These projects could reconsidered in the future, if conditions changed or additional funding sources, primarily Federal, were to become available. These projects will be discussed in the next section.

Exhibit 23
22-Year Capital Expenditures (YOE$)

	Emergency Repairs	Terminal Preservation	New Vessel Construction	Terminal & Vessel Improvements	Vessel Preservation	Admin, Support, & Indirect	Expenditure Total
2009-11	6.3	50.7	117.3	36.2	50.3	24.0	**284.8**
2011-13	4.6	69.3	139.4	24.4	33.4	21.2	**292.3**
2013-15	4.9	55.9	249.0	20.6	68.3	21.7	**420.4**
2015-17	5.2	173.2	0.0	40.6	101.6	22.3	**342.9**
2017-19	5.6	95.9	0.0	24.2	98.9	23.1	**247.8**
2019-21	6.0	129.2	0.0	7.3	99.1	24.0	**265.6**
2021-23	6.4	49.3	0.0	7.8	112.7	24.9	**201.1**
2023-25	6.9	49.2	13.6	7.5	126.8	25.8	**229.8**
16-Yr Subtotal	**46.0**	**672.7**	**519.2**	**168.5**	**691.1**	**187.0**	**2,284.6**
2025-27	7.4	129.7	655.7	8.0	140.5	26.8	**968.0**
2027-29	7.9	79.3	718.7	8.6	219.5	27.8	**1,061.8**
2029-31	8.5	103.4	0.0	9.2	227.2	28.8	**377.1**
LRP Total	**69.8**	**985.1**	**1,893.6**	**194.3**	**1,278.2**	**270.4**	**4,691.5**

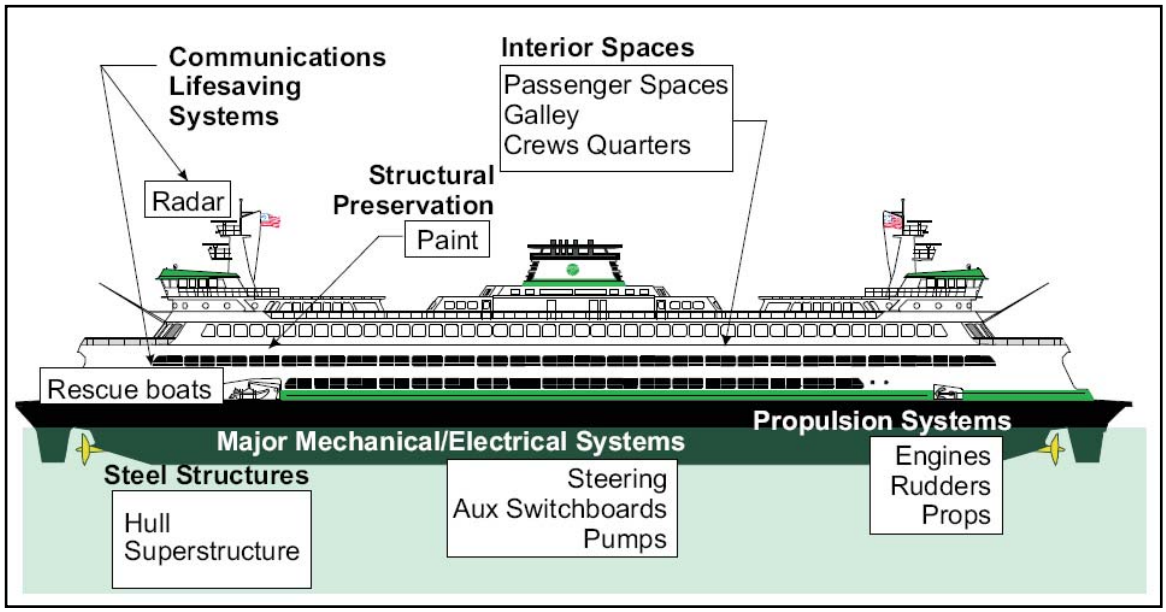
Vessel Program

WSF faces a significant fleet recapitalization requirement over the next 22 years. The fleet is among the oldest of any major ferry operator, with an average vessel age of more than 35 years (with oldest vessel being 62 years old, and the newest being 11 years old). The needs are significant over the next 22 years, as WSF will continue to invest in the ongoing preservation of its aging fleet as well as invest in a significant new vessel construction program to replace retiring vessels. The elements of the vessel program include:

1. Preservation
2. Procurement of new vessels
3. Improvements

For purposes of the following discussion, Exhibit 24 below shows examples of vessels systems that typically that require preservation and improvements.

Exhibit 24
Examples of Vessel Systems



Vessel Preservation. Vessel preservation needs are developed using the Life Cycle Cost Model (LCCM), which identifies when assets are expected to be replaced, based on current condition ratings and an expected useful life. The total 22-Year cost of this program is estimated to be $1.2 billion (YOE$).

Vessel Improvements. The plan includes approximately $83 million over 22 years to address future vessel improvement needs. These include investments in the following three areas:

- Fuel conservation. These vessel investments are designed to support the fuel conservation program in the 2009-11 biennium. No further investments are assumed, because in new vessels, fuel conservation measures will be incorporated into the design.
- Regulatory-related and other target improvements. This is a biennial allowance of about $3.6 million to address issues raised by regulatory compliance agencies, such as the Coast Guard or the EPA, as well as the kind of vessel investments which cannot be foreseen. An example of this type of investment is the fuel conservation investments in the 2009-11 biennium.

Emergency Repairs. Consists of expenditures related to the emergency repair of vessels.

Vessel Procurement. The most significant capital funding need over the next 22 years is new vessel acquisitions to support the upcoming retirements of several aging vessels in the fleet. The proposed procurement program, summarized in Exhibit 25, includes the following elements:

- In the near-term, acquire three Island Home Class vessels estimated to cost a total of $184.2 million (YOE$).
- Invest approximately $17.6 million in the Hyak to extend its life 20 years.
- After the initial three Island Homes are built there will be a procurement of 144-car vessels, assuming funding is available. The first grouping will include the procurement and construction of two 144-car vessels. Both will be constructed and delivered in 2014. The total procurement costs of new vessels constructed between 2010 and 2014 are estimated to be $321.4 million (YOE$). (see sidebar for discussion of alternative procurement plan).
- A second procurement grouping of 144-car vessels will include five additional vessels with pre-design beginning in 2024 and the first delivery to occur in 2027. The total new vessel costs of the last five vessels are estimated to be $1,387.9 million (YOE$); this includes pre-design expenditure totals of $13.6M (YOE$).
- Once the second new 144-car vessel is built and put into operation in 2014, WSF will be able to maintain a de-crewed 87-

Implications of Alternate Initial Procurement Plan (4+1)

For the purposes of the operating plan contained in the 22-Yr Long-Range Plan, the funding assumption is that initially, three Island Home 64-car vessels will be constructed, followed by two 144-car vessels.

An alternative option that could be considered would be to construct four Island Homes and only one 144-car vessel. The fourth new 64-car vessel would allow an 87-car vessel to serve as a standby reserve and would also allow the Hiyu to be retired. However, there are some disadvantages to this plan which include:

- **Fleet Composition.** Due to its small size, the 64-car vessel would not effectively substitute on routes more suitable for larger vessels. This limits the ferry system's flexibility in terms of serving the greatest number of routes.
- **Interisland.** The 4+1 plan would downsize the Interisland route by running the small 64-car vessel year-round instead of only in the winter. Given the fleet composition discussed above, additional service capacity would not be possible for other routes.

car vessel to serve as standby so that it will be available for emergency backup service.

This vessel procurement program results in a fleet of 22 vessels, which provides sufficient capacity to meet fleet preservation needs while maintaining an adequate standby vessel.

Exhibit 25
Vessel Procurement

Year	Vessel	Notes
2010	Island Home #1	Replace a Steel Electric (Port Townsend)
2011	Island Home #2	Replace a Steel Electric (Port Townsend)
2011	Hyak reinvestment	Invest in the Hyak to extend life 20 years
2012	Island Home #3	Replace the Rhododendron (go to Point Defiance)
Procurement #1 (144's)		
2014	144-car vessel #1	Replace the Evergreen State
2014	144-car vessel #2	Restore standby/reserve capacity; 87-car vessel moved to standby
Procurement #2 (144's)		
2027	144-car vessel #3	Replace the Tillikum
2028	144-car vessel #4	Replace the Klahowya
2028	144-car vessel #5	Replace the Elwha
2029	144-car vessel #6	Replace the Kaleetan
2029	144-car vessel #7	Replace the Yakima

This procurement schedule is different than the one that has been put forward previously and that had been the basis of the 2008 Legislative Financial Plan. This procurement program was developed in response to several changes in conditions, including:

1. Financial and funding challenges in the next biennial budget
2. Findings and recommendations from the JTC Vessel Acquisition Sizing and Timing report

The revised program better reflects the current and expected needs of the system, assuming a continuation of current service levels, and extends vessels to their full service lives before retirement. The Legislature has directed WSF to develop a comprehensive vessel maintenance plan. The purpose of this plan is to ensure that out-of-service time is minimized across the fleet.

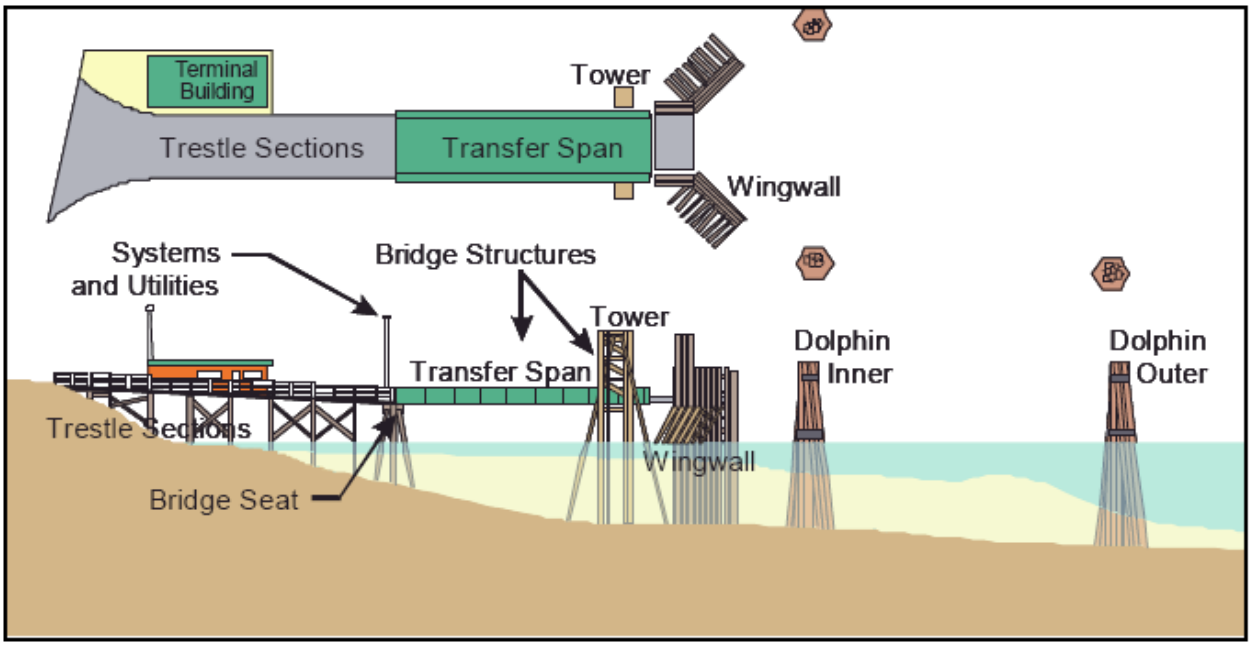
Maintenance Plan. WSF has been asked by Legislature to assess the design of its vessel maintenance plan in order to minimize vessel out-of-service time and free-up additional weeks of stand-by. By minimizing vessel out-of-service time, WSF may be able to operate with one fewer vessel. The cost savings impact to the

operating and capital programs would include reduced fixed vessel costs and a reduced vessel construction program.

Terminal Program

For purposes of the following discussion, Exhibit 26 below shows examples of terminal systems that typically require preservation and improvements.

Exhibit 26
Examples of Terminal Systems



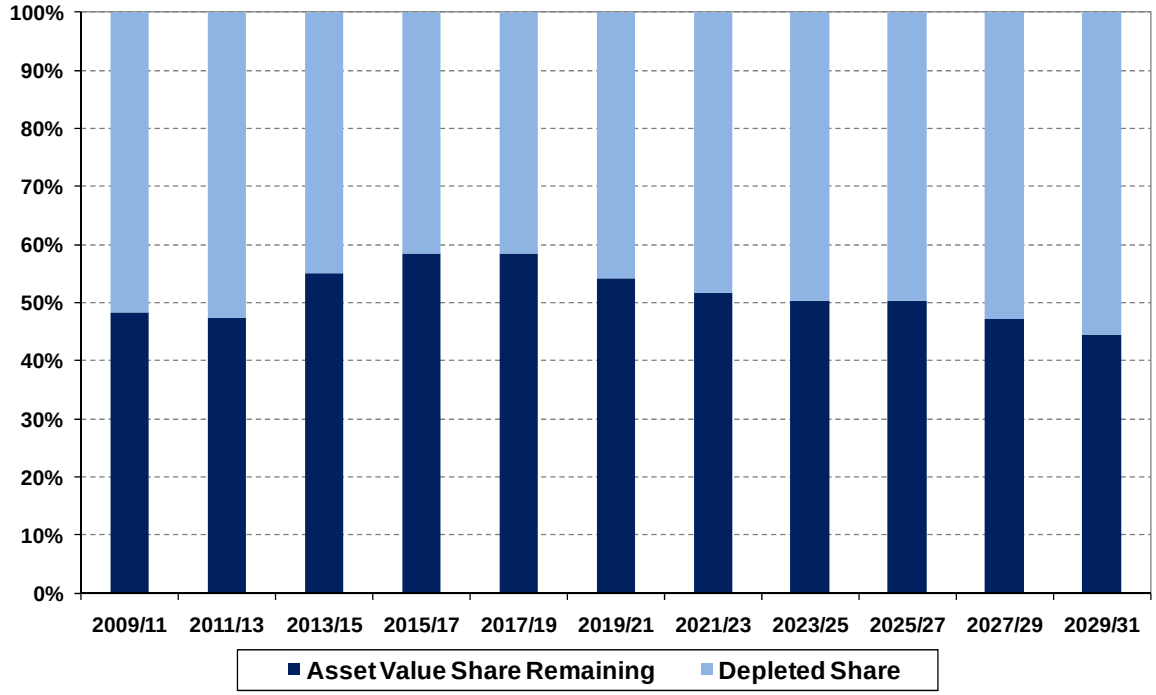
Terminal Preservation. The preservation program for terminals focuses on identifying the needs for operating at current service levels and maintaining, preserving, and replacing existing capital assets. Terminal preservation needs are developed using a Life Cycle Cost Model (LCCM), which has been updated for current facility condition ratings and to reflect current costs of asset replacement. Legislative direction for the 16-Year Plan was to reduce work on non-vital systems to get closer to WSF's asset maintenance performance goals, and to defer projects not due in the LCCM. Total asset maintenance costs for the 16-Year Plan amount to $570.0 million ($ '08). Extending the Plan six more years would add an additional $247 million ($ '08). Exhibit 27 provides a brief summary of the key preservation activities at each facility.

Exhibit 27
Summary of Essential Terminal Preservation Projects
($ '08 millions)

Terminal	Slip Preservation	Trestle	Wingwalls & Dolphins	Buildings & Overhead Loading	Other	Total
Point Defiance	$1.1	$3.5	$10.6	$0.9	$0.7	**$16.8**
Tahlequah	$1.1	$4.0	$5.1	$0.3	$0.6	**$11.0**
Fauntleroy	$1.6	$34.0	$7.1	$1.8	$1.6	**$46.1**
Southworth	$1.0	$15.5	$7.9	$2.2	$1.3	**$27.9**
Vashon	$2.3	$32.5	$18.5	$3.2	$1.8	**$58.2**
Seattle	$27.2	$101.2	$19.4	$69.3	$3.6	**$220.6**
Bremerton	$9.6	$0.0	$16.8	$3.4	$1.1	**$30.9**
Bainbridge	$4.1	$0.0	$14.1	$8.7	$1.7	**$28.6**
Edmonds	$1.0	$8.0	$13.6	$3.6	$1.4	**$27.7**
Kingston	$7.7	$1.0	$27.8	$7.1	$1.2	**$44.8**
Clinton	$2.0	$0.0	$13.0	$2.4	$2.3	**$19.7**
Mukilteo	$2.5	$0.0	$6.1	$0.0	$0.0	**$8.6**
Keystone	$11.1	$0.0	$6.6	$0.0	$0.9	**$18.6**
Port Townsend	$18.5	$0.0	$7.0	$0.3	$2.6	**$28.4**
Anacortes	$8.0	$17.7	$21.4	$39.7	$7.5	**$94.3**
Friday Harbor	$1.5	$8.4	$7.9	$1.6	$3.1	**$22.4**
Orcas	$4.6	$2.8	$7.1	$1.0	$1.4	**$17.0**
Lopez	$11.7	$2.2	$6.5	$0.7	$1.6	**$22.8**
Shaw	$1.3	$3.2	$3.1	$0.1	$0.3	**$8.1**
Eagle Harbor	$4.4	$15.3	$22.9	$18.3	$3.7	**$64.6**
Total	**$122.2**	**$249.3**	**$242.6**	**$164.5**	**$38.4**	**$817.0**

As shown in Exhibit 28, the result of this level of preservation investment is that the average remaining value of the terminal asset base will fluctuate between approximately 40% and 59% throughout the planning horizon.

Exhibit 28
Asset Value Remaining per Biennium (All Terminals)



Terminal Improvements**.** Legislative direction for the Long-Range Plan reflects some modest terminal improvements, where these improvements can be demonstrated to add significant value. All improvements projects fall within the 16-year funding timeframe and total $125.6M ($ '08), of which $99.2 million ($ '08) is funded from expected resources. One improvement project is scheduled to be completed at Edmonds in the 2029-31 biennium and will total $26.0M ($ '08). The difference will likely need to be made up through higher federal funding commitments for several key projects. A summary of the major terminal improvement elements include:

- Major terminal projects at Mukilteo, Seattle, Anacortes, and Edmonds $114.5 million ($ '08). The Edmonds improvements are assumed to occur outside the 16-year legislative planning window.
- Addition of modifications to support the proposed vehicle reservation program $16.4 million ($ '08).
- Modest improvements including utility investments, building preservation, seismic strengthening and ADA requirements $20.7 million ($ '08).

The following is a brief summary of the major elements of the Terminal Improvement Program.

Vehicle Reservation System

A vehicle reservation system is the key adaptive management strategy included in this Plan, moving vehicle queues away from the terminals and better distributing traffic.

The total capital costs of a vehicle reservation system are estimated to be $16.4 million ($ ’08). The Legislature requires WSF to conduct the following before implementation:

- Develop a pre-design report and submit to the JTC before implementation of a pilot project and eventual broad implementation, and
- Conduct evaluations to ensure that the reservation system is working together with the current Wave2Go Electronic Fare System (EFS) and ORCA.
- The pre-design report will also ensure that the reservation system is consistent with an eventual move to a statewide WSDOT tolling back-office system.

Major Terminal Projects

- Mukilteo Relocation. The Mukilteo terminal is proposed for relocation to the tank farm site just east of the current terminal. This proposal would address a number of issues that cannot be adequately addressed at the current site and removal of traffic conflicts at the existing site, but it does not include overhead loading. The total cost of the entire project is $106 million ($ ’08). This will be partially offset by $70 million of avoided preservation needs at the current facility (with no realignment), making the net cost of the new facility $46 million.

  Legislative direction was to continue environmental and archeological studies in the 2009-2011 biennuem to determine the feasibility of moving the terminal. Currently total funding for the project is about $55.0 million ($ ’08); $63.3 million (YOE$). The Legislature has directed WSF to seek federal funding to support the higher cost of moving the terminal.
- Seattle. The majority of the major Seattle terminal costs relate to preservation ($220.6M), where significant elements of the current facility will need to be replaced during the next 20 years including, the north trestle and the terminal building. In addition to the major rebuild elements, improvements would include funding for terminal building electrical upgrades of about $7.1 million ($ ’08).

- Anacortes. This project includes the construction of a replacement building and associated terminal reconfiguration to improve circulation. The building replacement was found to be desirable as a preservation matter. This new building would be larger and better suited to the longer wait-times that are typical at this facility, especially in the summer. The cost of this project was estimated to be $26.4 million ($ '08). The project has been approved by the Legislature but only if WSF can secure federal funds for this project.
- Edmonds. The Plan assumes that the Edmonds terminal will remain in its current location. An allowance of $26 million is included to enhance multimodal connections.

Other Projects

Projects in this category include relatively minor terminal improvements (most are below $1.0 million) such as seismic retrofits, EFS, and security improvements. Funds for relocating tollbooths to a side-by-side configuration at Port Townsend were included to improve fare collection.

16. ADDITIONAL LONG-TERM FERRY NEEDS

Projects Needs Beyond the 16-Year Legislative Budget

The Legislature limited the funding commitment to capital projects that were determined to be essential for continuing current service levels. This reflects a significant focus on vessel and terminal preservation needs and vessel replacement investment requirements, and to a much smaller degree on terminal improvements.

During Plan development, a number of terminal projects have been identified that would meet specific service enhancement needs or otherwise provide potential benefits to customers and communities. Some of these projects have preliminary legislative support, but a funding commitment is contingent on other factors, such as additional funding from other sources (federal, regional, or local) or operational considerations (ridership growth, increased walk-ons, etc.). Exhibit 29 below summarizes the deferred projects.

Possible Crew Endurance Needs

The US Coast Guard has required the Ferry System to eliminate touring watches due to concerns about the effect sof these types of shifts on crew endurance and fatigue levels.

While the impact of these changes are still being worked through, there is a possibility that a new tie-up slip at Southworth might be the most effective approach to both meeting the Coast Guard concerns and maximizing service efficiency and overall cost effectiveness on the Southworth-Vashon-Fauntleroy route.

If this is determed to be the preferred approach, approximately $5 million of the estimated $11.5 million project has been secured via a federal earmark appropriation.

Exhibit 29
Projects Beyond the Legislative Commitment ($ '08)

Terminal	Transit-Related	Improve Dwell Time	Other Improvements	Total
Point Defiance	$0.0	$2.3	$0.3	**$2.6**
Tahlequah	$0.0	$2.4	$0.4	**$2.8**
Fauntleroy	$0.0	$17.2	$0.6	**$17.9**
Southworth	$0.0	$0.0	$1.2	**$1.2**
Vashon	$0.0	$0.0	$0.8	**$0.8**
Seattle	$0.0	$0.0	$3.8	**$3.8**
Bremerton	$0.0	$0.0	$9.8	**$9.8**
Bainbridge	$30.2	$0.0	$4.1	**$34.3**
Edmonds	$0.0	$0.0	$0.8	**$0.8**
Kingston	$1.4	$0.0	$1.6	**$3.0**
Clinton	$9.9	$21.9	$2.6	**$34.4**
Mukilteo	$0.0	$0.0	$0.5	**$0.5**
Keystone	$0.0	$1.0	$0.5	**$1.5**
Port Townsend	$0.0	$7.0	$1.2	**$8.2**
Anacortes	$0.0	$0.0	$7.4	**$7.4**
Friday Harbor	$0.0	$0.2	$0.9	**$1.1**
Orcas	$0.0	$0.0	$0.7	**$0.7**
Lopez	$0.0	$0.0	$1.2	**$1.2**
Shaw	$0.0	$0.0	$0.7	**$0.7**
Eagle Harbor	$0.0	$0.0	$3.1	**$3.1**
Total	**$41.5**	**$52.0**	**$42.3**	**$135.7**

16.1 Terminal Improvements

Transit-Related Improvements

Transit-related improvements include projects such as improved terminal access for pedestrians and transit vehicles, which are necessary to accommodate increasing volumes of walk-on customers. These improvements are expected to cost $41.5 million ($ '08), with a large portion of that cost incurred at the Bainbridge Island Terminal. The Legislature has deferred funding for these projects until increased walk-on ridership is realized, additional transit service is available, and pre-design studies are received.

To the extent that these improvements can encourage mode shift, it reduces demand on the vehicle deck and forestalls the need to invest in additional vessels. New vessels, in addition to the significant capital expense, are also the largest source of fixed operating expense (maintenance and engine room labor).

Targeted transit enhancements that enable and encourage customers to shift modes away from single occupancy vehicles

(SOV) are another key component of operating strategies. From existing resources, WSF intends to implement targeted improvements like designated Zipcar spaces at select terminals that don't require major capital investments.

Exhibit 30 includes a list of the specific proposed transit enhancements by terminal. In addition to these investments, further enhancements requiring coordination with other divisions of WSDOT and local transit agencies are necessary for full mode shift benefits. These could include better coordinated schedules, the provision of real time information on transit departures and new/expanded transit services to better connect ferry customers with their destinations on both sides of the water.

Exhibit 30
Proposed Transit Enhancements

Terminal	Transit Enhancement	Expected Capital Cost ($ '08)
Bainbridge	Passenger Pick-up/Drop-off Improvements	$1,349,000
	Transit Facility Improvements	$5,896,000
	Transit-related Improvements to Terminal Building & OHL	$18,489,000
	Improved intersection at Winslow Way for Bikes & Peds	$4,464,000
Kingston	Relocate tollbooth for improved transit access	$1,377,000
Clinton	Walkway for park n' ride	$9,877,000
Total		**$41,452,000**

Improvements Targeting Dwell Time

These improvements would allow the ferry system to minimize terminal time and maximize capacity during peak periods in order to maintain schedule reliability on routes. The type of improvements include projects such as overhead loading for passengers, and other modifications that improve traffic flow and move customers through the terminals more quickly.

The most significant dwell time improvements are the overhead loading projects proposed for Clinton and Fauntleroy, which continue to load passengers above the auto transfer span on two of the busiest routes in the system. These improvements will also provide passenger comfort and safety benefits that also support the transit enhancement and mode shift goals. A list of proposed dwell time improvements is below in Exhibit 31.

Exhibit 31
Proposed Dwell Time Improvements

Terminal	Dwell Time Improvement	Expected Capital Cost ($ '08)
Clinton	Overhead Loading	$21,896,000
Fauntleroy	Overhead Loading	$17,239,000
Friday Harbor	Pedestrian Gates and Barriers	$227,000
Keystone	Add Signal at Exit Lane Intersection	$959,000
Point Defiance	Tollbooth Improvements	$578,000
	Increased Holding Capacity	$1,673,000
Port Townsend	Straighten Exit Lanes (Relocate Park)	$7,005,000
Tahlequah	Add Exit Lane to Allow Double Lane Offload	$2,431,000
Total		**$52,008,000**

Small Terminal Projects

A few minor terminal projects were excluded from the 16-year Legislative Plan. These projects include storm drainage improvements for all terminals at a total cost of $28.4 million ($ '08), $379,00 ($ '08) in ADA compliance projects, and $1.0 million ($ '08) for generators at Port Townsend and Shaw.

Preservation Needs due to Deferred Improvement Projects

The deferral of one major terminal building improvement project at Anacortes until additional funding could be acquired and one transit-related project at Bainbridge Island until increased ridership is realized would increase preservation capital costs in the 16-year planning period beyond the current assumed preservation commitments discussed earlier.

- Anacortes. This deferred project, as discussed above, was to implement a design for a replacement building and associated terminal reconfiguration to improve circulation. The cost of this project was estimated to be $26.4 million ($ '08) and the preservation impacts of deferring the project are estimated to be $11.6 million ($ '08). Preservation needs include terminal and secondary buildings and paved areas on the trestle, traffic lanes, holding areas, and parking.
- Bainbridge. This deferred project included transit-related building improvements and overhead loading. The cost of this project was estimated to be $18.5 million ($ '08) and the preservation impacts of deferring the project are estimated to be $17.6 million ($ '08). Preservation needs include terminal and secondary buildings and overhead loading on the trestle, traffic lanes, holding areas, and parking.