WSDOT RESPONSE & ACTION PLAN

PVA Expert Panel Report

NOVEMBER 16, 2010

REPORT TO THE GOVERNOR

Washington State Department of Transportation/Ferries Division

Washington State
Department of Transportation

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EXECUTIVE SUMMARY

In March 2010, Governor Gregoire asked the Passenger Vessel Association (PVA) to "conduct a management review of the Washington State Department of Transportation, Ferries Division." This review was also required by legislation passed in 2010, ESHB 3209. PVA is the membership association for passenger vessel operators in the United States representing the majority of the public and private ferry operators in the U.S.

The PVA responded to the request by convening an industry expert panel to provide an independent assessment of the Washington State Department of Transportation Ferries Division (WSF). The Panel consisted of five senior-level managers of similarly complex ferry systems with deep knowledge of capital finance, organizational structure, and operational efficiency. As a starting point of their review, the Panel reviewed recent studies by the Joint Legislative Audit and Review Committee, the Office of the State Auditor, and the Joint Transportation Committee examining the current operations and practices of WSF.

In September, the Panel delivered three dozen recommendations to the Governor for improving WSF. While stating clearly that WSF is a well run industry leader, the Panel called out areas for improvement. Governor Gregoire instructed WSF to review the recommendations and develop an action plan outlining which recommendations would be implemented and what legislation would be required.

WSDOT RESPONSE

WSF wishes to thank the PVA Expert Review Panel for their efforts and the thoughtful management, vessel and terminal maintenance, finance, scheduling, labor, and customer service recommendations contained in their report. WSF is committed to providing world-class ferry service and the PVA's broad perspective on these issues has provided a valuable contribution to this objective.

After careful review of the PVA report, WSF offers this formal response addressing each of the issues raised in the recommendations. WSF has determined that the vast majority of the 36 recommendations put forward by the PVA would further enhance the organization's ability to provide effective and cost-efficient services to riders and taxpayers. There are a few recommendations that WSF is proposing not to implement. In these cases, WSF has determined that the recommendations, if implemented, would not bring about improvements to operations or may result in higher costs. In most cases, these recommended practices were based on the PVA panel's experiences and what was understood to be industry practice. However, WSF has determined that in these instances, the current WSF practices better address the complexity of WSF's operations.

Recommendations with which WSF concurs. As mentioned previously, WSF concurs with the vast majority of the PVA recommendations. Among these recommendations there are several that offer significant opportunities to reshape how WSF operates and, in some cases, substantively change the culture of the

organization for the better. WSF is looking forward to working to implement these recommendations, the most significant of which include:

- Designating the Captain as the management representative on the vessel.
- Further strengthening the WSF loss-prevention program for passenger and crew accidents.
- Providing a robust performance management report with key metrics to track WSF improvements in levels-of-service, cost efficiency, and safety.
- Gaining additional management flexibility to ensure that staffing on the vessels is appropriate based on both level of demand and the Coast Guard's Certificate of Inspection (COI).
- Reviewing strategies to ensure that WSF is able to minimize terminal time by efficiently loading and unloading the vessel which will support on-time performance goals.
- Affirming WSF's commitment to customer service by reviewing the organization's mission statement, policies, and training and developing standards to ensure that all staff meets expectations in all customer interactions.

Recommendations which require more WSF analysis. Of the remaining recommendations, WSF determined that some recommendations may offer promising improvements to current WSF practice, but the organization must better understand the full impact of these changes to operations and customers before proceeding. For these, an action plan is proposed to clearly identify how this additional study will be conducted and when a full response would be presented to the Governor and the Legislature. The most significant areas where more work needs to be done are:

- WSF is supportive of the intent in the PVA's recommendation on Governance and is looking forward to reviewing the PVA's follow-up report and working with the Governor's Office and the legislature to develop action plans that would better align decision making authority and performance accountability for ferry services.
- Reducing overall vessel out of service time by consolidating Eagle Harbor work with other shipyard work, exploring options to pay more for expediting shipyard work during out-of-service times and reviewing maintenance cycles for topside painting.
- Evaluating strategies to better match service hours with demand for service, such as variable pricing or consolidation of services for routes serving the same travel shed.

Recommendations with which WSF does not concur. Finally in a few cases, WSF has determined that the recommendations, if implemented, would not bring about improvements to operations or may result in higher costs. In most cases, these recommended practices were based on the PVA panel's experiences and what was understood to be industry practice. However, WSF has determined that in these instances, the current WSF practices better address the complexity of WSF's operations.

The recommendations where WSF has concluded that it would not be in the State's interest to fully implement include the following:

- There are several recommendations designed to change how WSF accomplishes its vessel and terminal in house maintenance functions, which are better suited to the type of operations that are represented by the PVA panel.
- The PVA recommends that only the Chief Engineer position be staffed 24-hours per day and that the schedule for the rest of the engine match the schedule of the deck crew. In almost all cases, this

recommendation would not be feasible given the nature of WSF's operation as it would either add cost or reduce service reliability. WSF is reviewing the costs and benefits of implementing this recommendation in the only situation where this might currently be feasible – on the second boat in the summer on the Port Townsend-Coupeville route.

KEY ELEMENTS OF PROPOSED ACTION PLANS

WSF has identified specific action plans for each of the PVA recommendations where WSF is either in agreement or where additional evaluations are necessary. WSF is committed to working with the Governor's Office and the legislature as well as its employee representatives, customers and community stakeholders to effectively implement these action plans. Many of the most important action items can be organized according to the following:

- Items requiring statutory action
- Performance and accountability
- Critical funding needs
- Changes in WSF operating practices

Statutory Changes to Enact Proposed Reforms

Washington State Ferries (WSF) believes the PVA Panel's recommendation that the vessel Master (Captain) act in the capacity of management's representative is the most important recommendation given to the Governor. Making the Captain the management representative on the vessel would allow WSF to develop a set of management and performance objectives associated with the operation of the vessel that the Captain would be responsible for and held accountable for meeting. One of the reasons that this recommendation is so important is that it directly supports many of the other PVA recommendations and provides an opportunity to more effectively manage costs within vessel operations.

WSDOT will need to work with OFM Labor Relations Office and affected employee representatives to implement this recommendation.

In addition there are several other recommendations which will require legislative action as part of the action plans, including:

- Since the voters approved Initiative 1053, which requires a vote of the Legislature to raise taxes or fees, implementing annual predictable fare increases and a fuel surcharge mechanism may require legislative action (the Attorney General's Office is currently reviewing I-1053 to determine how the new law will apply to fare-setting).
- Moving WSF vessel employees from Jones Act coverage to state workers' compensation coverage would require legislative action.
- To ensure that WSF is getting the best pricing for its vessel maintenance and construction programs, the legislature should consider the following changes to state law designed to improve competition by making more shipyards eligible to bid for state work:
    - Raise the $2 million limit for shipyard contracts requiring bidders to meet apprenticeship utilization requirements to $5 million so more shipyards would be eligible to bid.

- Modify the apprentice utilization standard to provide for additional flexibility in qualifying shipyards that meet the intent of the program but don't currently meet the technical requirements of the law.

Accountabilities and Performance Standards

Implementing several of the PVA recommendations will result in greater emphasis on performance standards and better accountabilities for meeting these standards. These include but are not limited to:

- WSF will complete the development of a Ferry Operations Performance report and continue to develop its "more detailed budget" in consultation with the legislature. A key to effective performance management is a process to report on both how WSF is spending its appropriation and how effective these dollars are in terms of meeting performance goals. Starting with the 2011-13 budget process, WSF will present its budget request as a package that combines more detailed budget information and performance metrics showing the cost efficiency and cost effectiveness of its various activities.
- Making the Captain the management representative on the vessel will provide an opportunity to develop performance management goals and accountabilities for vessel operations that will address the following critical safety, efficiency and customer experience issues:
  - Safety of the crew and passengers
  - On-time performance standards
  - Fuel efficiency goals
  - Vessel condition and cleanliness
  - Crew performance
  - Customer satisfaction
- WSF is in the process of developing a new customer service vision that will extend its current service-oriented conception of customer service to one that more directly places the customer experience at the center of the vision. Based on the new vision, WSF will review its training programs to align with the vision, develop specific performance expectations for all staff that engage with customers, and new accountabilities, including specific tracking of customer satisfaction.

Critical Funding Needs

Implementation of several key recommendations is dependent on an adequate level of ongoing funding to support both the capital and operating programs. Both WSF's capital and operating programs are not fully funded through dedicated funding sources. In addition, the capital program is only funded through the next biennium and starting in the 2013-15 biennium, the legislative 16-Year Financial Plan shows substantial unfunded needs for all future budget cycles. The WSF Long-Range Plan identified more than $3 Billion of unfunded capital needs over the next 20 years, with a significant share coming from unfunded vessel replacement needs.

WSF is aware of the difficulty in addressing the continuing funding shortfalls in ferry operations and capital programs and the stress that this is placing on other parts of the state highway program. The following are the key action items addressing critical funding needs:

- To effectively plan for and execute its capital program, including the need to replace vessels at the end of their 60-year lives, WSF needs new dedicated capital funding. As part of a new dedicated source of funding, the PVA identified the possibility of implementing a vessel replacement fund. WSF will continue to work with the legislature to ensure that the capital funding needs are clearly identified and support discussions about possible funding solutions.

- Given the limited availability of capital funding, it is critical that WSF ensure that the funding needs are based on thorough assessment of options and that the best and most cost effective solutions are presented for consideration. Toward this end, WSF will be presenting to OFM and the legislature both a new Vessel Maintenance, Preservation and Improvement Plan and a Terminal Asset Management Plan which will guide future investment decisions.
- To effectively manage its operations, the PVA recommends that WSF enact regular consistent fare increases and that a fuel surcharge mechanism be put in place to help mitigate the impacts of fuel price volatility. Toward this end, WSF will be presenting to OFM and the legislature an updated Fuel Cost Mitigation Plan, which includes more specific approach to mitigating price risk and an assessment of the potential impacts of a fuel surcharge on customers.

Changes in WSF Operating Practices

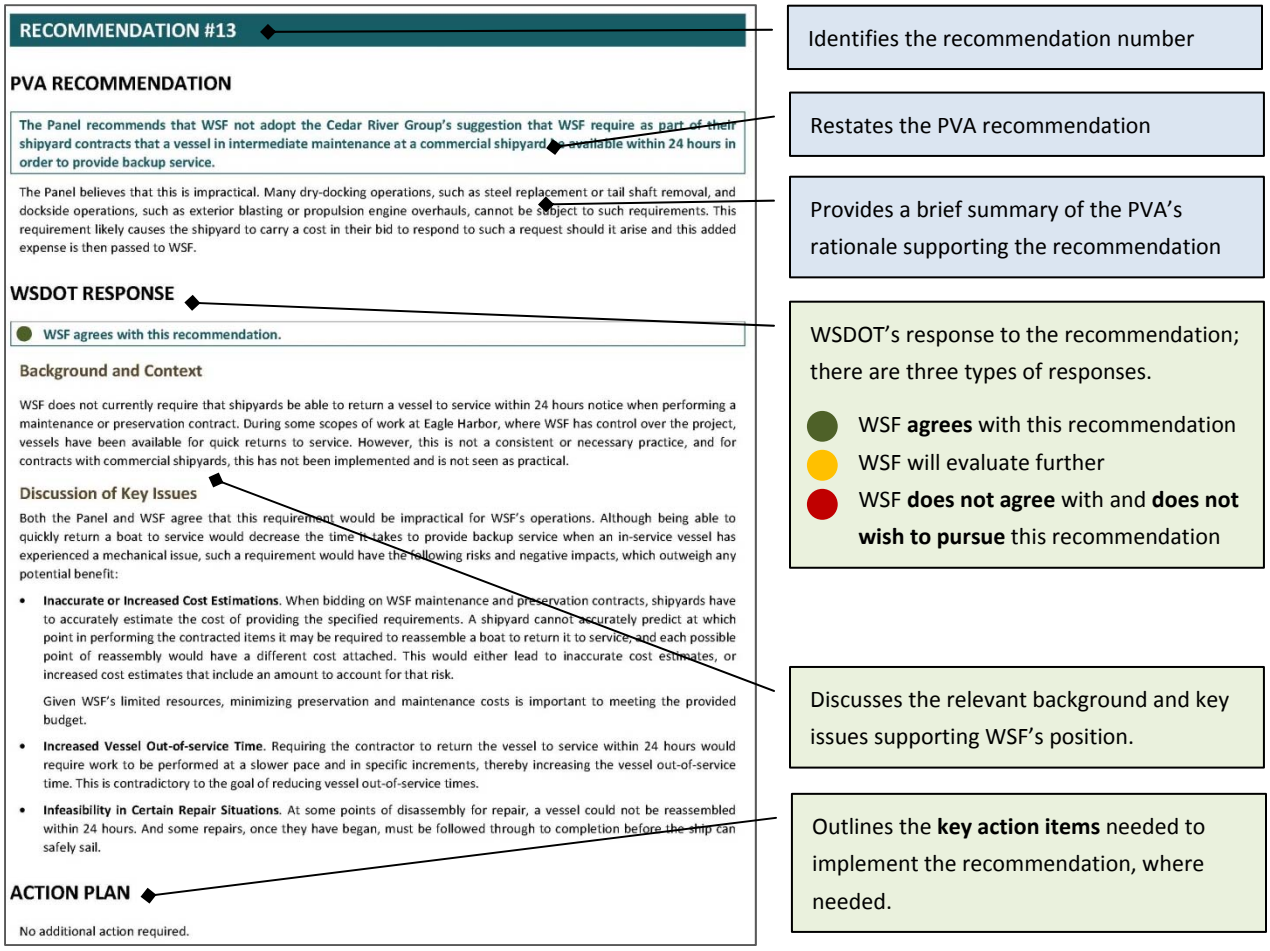
Many of the PVA recommendations will require that WSF make changes to its operating practices. Some of these changes have already been discussed and will need specific legislative action to enable. However, there are many more that are within WSF's ability to enact, including:

- Review and restructure WSF's design and engineering functions to more appropriately match the needs of the capital program. WSF is completing an assessment of the design and engineering functions as part of a broader WSDOT effort to streamline the delivery of its capital and maintenance programs. The result of this effort will be available by January 1, 2011 and submitted to the legislature for its consideration.
- WSF will continue to integrate many of the strategies to more effectively manage its vessel maintenance and functions and to minimize out-of-service time. The specific changes in operating practices will be integrated into the Vessel Maintenance Preservation and Improvement Plan that will be submitted to the legislature later this year.
- WSF is continuing to evaluate its on-time performance including developing new tools to more effectively track and report its performance. The PVA recommendations regarding alternative methods of loading and unloading the vessel are being integrated into the broader on-time performance review process and will be specifically evaluated on a route-by-route basis to determine whether these methods might offer reduced terminal times.

DETAILED WSDOT RESPONSES AND ACTION PLANS

ORGANIZATION OF DETAILED RESPONSES

This report contains WSF's recommendation-by-recommendation examination and response of the PVA Panel management review. As such, the review and response to each recommendation is approached in a consistent fashion as described in the graphic below:



In some cases, recommendations which address similar or related topics are grouped to provide a more complete response.

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RECOMMENDATION #1

PVA RECOMMENDATION

The Panel recommends that the State consider studying its ferry governance model to determine if opportunities exist for positive change.

The Panel feels that the current governance model for WSF is outside of the norm for public ferry operators and that WSF suffers from excessive oversight which limits its ability to effectively manage the system.

WSDOT RESPONSE

WSF will evaluate this further when the PVA Governance report is available

The Governor has requested that the Passenger Vessel Association (PVA) study this recommendation in more detail. Specifically, the Governor has requested that PVA consider all governance models operating in North America, consider their application for the ferry system, and provide the advantages and disadvantages for the Washington State ferry system.

Background and Context

Washington State Department of Transportation Ferries Division (WSF) is a division within the Washington State Department of Transportation (WSDOT). The head of the agency is the Assistant Secretary of the Department of Transportation, Ferries Division and reports to the Secretary of Transportation. WSDOT reports to the Governor. The policies and budget of the Ferry Division are also established by the Washington State legislature and fare policies are established by the Washington State Transportation Commission. The concern expressed by the Expert Review Panel is that there are, in effect, “multiple bosses” of the ferry system as evidenced by the numerous budget provisos, studies, audits and reviews imposed on the ferry system in recent years. These impose a significant cost to the system in terms of consultant fees and staff time which can be a detraction relative to management’s primary responsibility to deliver a high quality and cost effective public transportation service.

Discussion of Key Issues

This will be provided by the PVA study due to the Governor in December 2010.

ACTION PLAN

This would be developed pending the outcome of the PVA study

RECOMMENDATION #2

PVA RECOMMENDATION

The Panel recommends that the vessel Master (Captain) should act as the management's representative for the vessel and all of its crew.

In order to effectively carry out the goals, mission, and core values of WSF aboard its fleet, the Captain should be designated as part of the management structure. However, conflicts of interest and a lack of financial incentives currently prevent this from occurring.

WSDOT RESPONSE

- **WSF agrees with the Panel's recommendation that the vessel Master should act as the management's representative for the vessel and all of its crew.**

Background and Context

The Captain has historically been designated the master or commander of the vessel. The current United States Coast Guard Marine Safety Manual states that the vessel Master is "responsible for ensuring the safety of the ship, its crew, its cargo, its passengers, and operational requirements." Further, federal law states that:

> *"The establishment of adequate watches is the responsibility of the vessel's master" and that "the term watch to be the direct performance of vessel operations, whether deck or engine, where such operations would routinely be controlled and performed in a scheduled and fixed rotation. The performance of maintenance or work necessary to the vessel's safe operation on a daily basis does not in itself constitute the establishment of a watch. The minimum safe manning levels specified in a vessel's certificate of inspection take into consideration routine maintenance requirements and ability of the crew to perform all operational evolutions, including emergencies, as well as those functions which may be assigned to persons in watches."*

Throughout maritime history the Captain has been the undisputed authority on board any vessel. Whether the vessel is contracted or under government authority, such as the military, the Captain has acted as a chief executive officer for the ship's owner. The Captain has been delegated the authority and responsibility to ensure safe passage, product delivery, crew discipline, and cleanliness of all quarters and galleys, etc.

By virtue of their license and delegated position, the US Coast Guard recognizes the Captain as the ultimate authority on board the vessel, even more so than the ship's owner with regard to crew/passenger safety and maritime disciplines. While considering the options presented in this document to require the Captain to act as management's representative, one must keep in mind that historically the labor agreements were negotiated with the understanding that Captains retained the integrity attached to historical oversight and responsibilities.

There is a need for WSF management to have a representative present on each vessel that embraces its vision, mission, and core values and is accountable for on-time performance, customer service, vessel condition, fuel conservation, personnel direction and the safety of the vessel's passengers and crew. Currently, Captains maintain a primary focus on safety of operations and Coast Guard requirements. While

safety is paramount, currently Captains often place less emphasis on other key management goals such as on-time performance, customer service, vessel cleanliness, and personnel management. In some cases, these other critical management goals are simply not considered to be part of the Captain's areas of responsibility.

Discussion of Key Issues

WSF believes the PVA Panel's recommendation that the vessel Master (Captain) act in the capacity of management's representative is one of the most important recommendations given to the Governor. Making the Captain the management representative on the vessel would allow WSF to develop a set of management and performance objectives associated with the operation of the vessel that the Captain would be responsible for and held accountable for meeting. These would include but not be limited to:

- Safety of the crew and passengers
- On-time performance standards
- Fuel efficiency goals
- Vessel condition and cleanliness
- Crew performance
- Customer satisfaction

To effectively transition to a working model where the Captain is accountable for meeting performance goals, there are three key issues that must be addressed as part of any proposed action plan:

1. **Selection.** Currently, WSF does not have any discretion to select candidates for promotion to the deck officer positions, as contract provisions require promotions to occur as a function of seniority. As a result, WSF is not able to promote from within the ranks of the deck crews based on individual performance and a demonstration of the types of leadership and management characteristics consistent with a model where senior deck officers are an extension of management on the vessel.
2. **Financial incentives.** Currently, Captain's compensation and financial incentives are not designed to reward based on performance goals. As a result, WSF has few tools available to hold individual Captains accountable for operational goals such as on-time performance, vessel cleanliness, customer satisfaction or personnel management. Implementing this recommendation will likely require revisiting the compensation framework for Captains to ensure that their incentives are aligned with performance goals.
3. **Union affiliation issues.** While there are examples of intra-union supervisory relationships that seem to work effectively, WSF has historically had some difficulties with members of affiliated unions performing supervisory functions over other union members. In this case, Captains are currently represented by the International Organization of Masters, Mates & Pilots (MM&P). While this union is separate and distinct from the IBU and MEBA, the other principal unions representing shipboard labor, they all share the same union affiliation and are bound by union constitutional provisions which may impair a Captain's ability to effectively supervise personnel in these affiliated unions.

There are three potential approaches to establishing vessel Captains as management representatives:

- Transfer Captain's union affiliation to a supervisory union and negotiate a separate bargaining agreement outlining supervisory responsibilities and reworking compensation to align with management objectives;
- Captain continues union affiliation and a separate bargaining agreement is negotiated outlining supervisory responsibilities; or

- Add the position of WSF Captain to Washington Management Service (WMS), effectively removing these positions from the collective bargaining unit in future agreements.

Each of these options offers the possibility to achieve the broader objectives of this recommendation and needs to be reviewed with regard to operational benefit, feasibility, cost, sustainability and stability of the system.

ACTION PLAN

WSF will work with WSDOT and OFM Labor Relations Office and affected employee representatives to further evaluate the three potential approaches to implement this recommendation. At a minimum, the action plan will include the following steps:

- Work with MM&P to reach agreement on working conditions and compensation arrangements in future collective bargaining agreements that are consistent with the adopted legislative intent
- Review and address as necessary any union affiliation issues that arise as a result of integrating the new supervisory responsibilities into the MM&P working conditions.

If the Legislature wished to take action on this recommendation, intent language could be added to state law that would address the following items:

- Clearly articulate that it is in the state's interest that the Captain be the management representative on the vessel and be responsible and accountable to meeting performance goals of the system
- Give WSF the ability to select personnel for promotion to all licensed deck officer positions.
- Require that WSF review the compensation framework for Captains to ensure that financial incentives are appropriately aligned with the performance goals

RECOMMENDATIONS #3 & #4

PVA RECOMMENDATION

The Panel recommends WSF modify its capital projects design and management structure to be more in line with industry norm. The Panel also recommends that WSF study their 5 to 10-year roster of capital projects and adjust the staff sizing over time to reduce the numbers of engineers and designers.

The Panel feels that WSF relies too heavily on maintaining a large staff of in-house engineers and designers. WSF would stand to benefit from assessing their 5 to 10-year roster of capital projects to determine the extent and feasibility of using outside contracts more and "right-size" their in-house engineering and design staffing levels as appropriate.

WSDOT RESPONSE

- **WSF agrees with the Panel's recommendation regarding modifying capital projects design and management structure to be more in line with industry norm. WSF also agrees with the Panel's recommendation that there needs to be an internal study of the WSF 5 to 10-year roster of capital projects and adjust staffing over time to right-size the numbers of engineers and designers.**

Background and Context

There have numerous external and internal studies conducted over the past 20 years concerning capital projects, staff sizing, and management structure.

- The 1991 Legislative Transportation Committee Report recommended WSF continue in-house design engineering capacity.
- In response to the 1998 Department of Transportation Ferry System Performance Audit conducted by the Joint Legislative Audit and Review Committee (JLARC), WSF modified its organizational structure to have seven reports to the Assistant Secretary instead of five, adding a vessel engineering direct report, and the creation of a new position, the Director of Communications.
- In 2008, on recommendations from the Cedar River Group work, Vessel and Terminal Engineering staff levels were given a critical review. The goal at that time was to reduce the number of consultants that were working on capital projects in order to bring more work in-house and to cut consultant costs. This effort was acted on and the result was a reduction in on-site consultants in favor of converting that work to WSF FTEs. In addition, the Vessel Engineering organization was incorporated into the Vessel Maintenance and Preservation organization for centralized control and management efficiencies.
- In January 2010, WSF submitted a capital staffing report in response to legislative direction. In preparing that report a number of guidelines were used:
    - The use of permanent staff to meet Ferries' long term, core needs,
    - Use consultants where sufficient expertise is not available, and the long term need for the expertise is not anticipated,

  - Provide staff for other WSDOT regions where Ferries' specialized expertise is needed, and
  - Realign staff to better reflect the project management and expertise necessary for delivering the program.
- Current WSF design and engineering staffing is based on the legislative response to the January 2010 capital staffing report.
- The net effect of these capital staffing reviews has been an overall reduction in terminal engineering staff of 20 positions (74 to 54) while vessel engineering staff has seen modest fluctuations related to the vessel construction program and is currently at 40 positions total supporting the capital program.

Discussion of Key Issues

Separately from the Panel's recommendation, WSDOT is in the process of transforming its business model to more effectively deliver its capital and maintenance programs with a smaller work force by making greater use of contracting opportunities. The new business model that is being developed has two key elements:

1. **Make maximum practical use of design/build, general contractor/construction management (GCCM) and other contracting approaches.** Wherever possible, WSDOT will work to leverage the private sector to deliver projects in a cost effective manner while maintaining a smaller, more nimble state capability. This will include looking for opportunities to package projects into larger contracts suitable for a design/build or GCCM bidding process.
2. **Maintain expertise in critical core competencies.** Within the remaining WSDOT engineering and design capacity, focus on retaining critical core competencies, build the right skills to effectively manage large contracted projects, and have the ability to respond to emergency and short-term project needs.

Rethinking WSF Engineering and Design

There is a need for WSF to continue to evaluate its approach to engineering and design. This need is consistent with the broader WSDOT effort toward a new business model, but also as a direct response to the PVA's recommendations. The exact balance of how much work to contract out versus how much functional core capabilities need to be retained in-house is not known at this time and will be explored further as part of the WSDOT effort.

ACTION PLAN

Since WSF is a part of the larger WSDOT business redesign effort, the action plan for these PVA recommendations includes completing the WSDOT process and implementing the outcome. The following is the process that WSDOT and WSF are currently engaged in:

Step 1: Review Capital Program for Contracting Opportunities

- Review the 16-year capital program for vessels and terminals
- Identify projects that are well suited to a design/build or GCCM approach
- Identify projects that might be packaged into larger contracts that could then be suitable for a design/build or GCCM approach
- Identify the projects that might be best accomplished by in-house design and engineering (smaller works, projects which support core competencies, emergency projects, etc.)

Step 2: Identify Critical Core Competencies

- Identify and describe the critical core competencies that WSF needs to have to effectively deliver its capital program for both the vessel and terminal groups. In other words, identify the skills or competencies that must be in-house versus those that could efficiently be purchased on an as-needed basis.
- With an emphasis on contracting projects out using a design/build model, there may be new core competencies that must be developed that are currently unavailable.

Step 3: Develop a Conceptual Staffing/Organizational Plan

- Starting with a "clean sheet of paper" describe how WSF would build an organization to support the work program described in step 1 and meet the critical core competency needs described in step 2.

A report on the WSDOT business model realignment and the implications for WSF staffing, budget, and management structure will be completed for 2011 budget deliberations.

RECOMMENDATIONS #5 & #14

PVA RECOMMENDATION

(#5) The Panel recommends that WSF continue its policy of operating vessels for sixty years.

(#14) The Panel recommends that adequate funding and sufficient schedule be guaranteed to support a sixty year life for vessels.

These recommendations are predicated on adequate funding for a mid-life renovation of the main machinery and periodic maintenance for coatings and interiors which are essential to supporting the recommended 60-year operational life of WSF vessels.

WSDOT RESPONSE

WSF agrees with these recommendations.

Background and Context

WSF currently assumes a 60-year lifespan of a vessel in its business model. This lifespan is the basis for planning replacement of vessels, and also for planning the replacement of individual vessel systems as they wear out during the life of the vessel. Each vessel is part of a Life Cycle Cost Model, which is a database that breaks down each vessel into its component systems, approximately sixty per vessel. Each system is categorized as either Vital (required by USCG for safe navigation/operation) or Non-Vital, then assigned a Cost Factor and a Life Cycle Interval to plan for the timing and funding to replace these individual systems during the life of the vessel. The intent of this approach is to maintain and preserve each vessel in the safest, most reliable, and most efficient material condition for the least overall Life Cycle cost.

Each biennial budget cycle, WSF's Vessel Preservation Program prepares a Vessel Capital Preservation budget request which is based on the LCCM, the individual Vessel Drydock Schedules, Condition Inspection Reports, and the Service requirements which dictate what vessels can be removed from service and for how long. This request is reviewed, revised and approved first by WSDOT HQ, incorporated into the Comprehensive WSDOT Transportation budget request, forwarded to the governor via OFM, again reviewed, revised and approved, and then presented to the Legislature. The Legislature reviews, revises, and finally appropriates funds to accomplish the work. When budget constraints prevent appropriation of all the funding requested, the work is prioritized, with the Vital items given highest priority.

Previously, WSF received a portion of the Motor Vehicle Excise Tax to fund its capital program, but this was eliminated in 2000 after the passage of Initiative 695. Since that time, the majority of WSF's capital funds have been transfers from general state transportation funds, mostly gas tax. More explanation of this funding source issue can be found in the response to recommendation #6.

Discussion of Key Issues

The first part of this discussion focuses on recommendation #5 – that the assumed vessel lifespan should be 60 years. WSF currently uses a 60-year assumption, which was determined to be the optimal lifespan in terms of cost-effectiveness (taking into account preservation, maintenance, depreciation, and new vessel

costs), changes in technology and service needs, and reduction in hull integrity over time. The JTC's 2007 *Auto-Passenger Vessel Preservation and Replacement* study supported this finding, for the following reasons:

- **System replacement costs**. At 60 years of age, a significant number of vessel systems need to be replaced, leading to the highest preservation costs during the vessel's life.
- **Impact of technological change**. Due to changes in technology since the original systems were installed, replacing some systems at 60 years of age may result in the need to replace other systems for compatibility.
- **Reduced hull integrity**. Salt-water corrosion of the vessel hull after 60 years becomes too expensive to maintain to keep the vessel seaworthy.
- **Changes in service needs**. Service needs change over the long-term, and the basic characteristics of a vessel may not be flexible enough to meet these needs.
- **No resale value**. WSF's vessels are not suitable for use by most other ferry routes in the world.

The report concluded that after approximately 60 years, preserving a vessel becomes economically impractical. The JTC also reviewed the industry standard for vessel lifespan, and found that 60 years is also used by the Alaska Marine Highway System, and the Wood's Hole, Martha's Vineyard, and the Nantucket Steamship Authority.

WSF's analysis did determine some negative factors associated with keeping a vessel operating for such a long lifespan. These costs included:

- **Higher Preservation Costs**. The cost of preserving and maintaining a ship in the second 30 years of life approaches double the cost of preserving the ship during the first 30 years of its lifecycle. Also, each ferry requires an intensive, mid-life rebuild at 30 years of age.
- **Delayed Pick-up of Industry Changes**. Regulatory requirements or new technologies may emerge during the sixty year life that could make the vessel obsolete or expensive to keep in operation.
- **Higher Operating & Repair Costs**. Vessel age drives up operating costs as more maintenance is required. Operating cost reduction opportunities are lost in the areas of fuel consumption, manning and maintenance reducing designs that new vessels would offer.

However, given the high price of a new vessel, these increases in preservation and operating costs do not outweigh the benefit of assuming a 60-year lifespan.

Given the 60-year assumption, recommendation #14 asks WSF to ensure adequate funding and scheduling to support the 60-year lifespan. Keeping up to date on maintenance and preservation is essential to operating an older vessel safely, efficiently, and reliably. Currently, WSF works through the state biennial budget process to request the preservation funds based on the life-cycle needs of the fleet, which are competing for limited gas tax dollars with other transportation priorities. As a result of limited funding, WSF has been unable to fully fund its life-cycle preservation needs.

An appropriately sized dedicated funding source would allow WSF to more accurately project its capital program budget, and plan its preservation and maintenance schedule accordingly. It would ensure that replacement vessel construction could be reliably scheduled so that vessels can be retired on-time, reducing the need for unplanned preservation and maintenance to keep a vessel seaworthy beyond its planned life.

The challenge of meeting this goal is a lack of an adequate source of dedicated capital funding, and multiple demands for general state transportation funds. Given that WSF plans to undergo a significant capital

reinvestment between now and 2030 to replace retiring vessels, competition for dollars will be strong. WSF would benefit most from a dedicated capital funding source. Potential sources and methods to procure this revenue are addressed in the **response to recommendation #6**.

WSF is working to complete and get Legislative approval for its Vessel Maintenance, Preservation and Improvement Plan. This Plan will become the key document supporting future funding requests. Without a high degree of confidence in the systems and programs in place, it will be more difficult to secure the necessary maintenance and preservation funding that will be necessary to support a 60-year vessel life. This Plan will answer specific legislative questions that were raised in the JTC's Vessel Timing and Sizing Study and should provide an opportunity to gain consensus on several important issues.

ACTION PLAN

Recommendation #5 supports the status quo, as WSF is already assuming a 60-year lifespan for its vessels. No action plan is needed.

The action plan to address recommendation #14 will include methods for better managing and funding the impacts of the sixty-year assumption. To sustain a vessel for sixty years in a safe, reliable, and efficient condition, adequate funding and out-of-service availability to perform preservation and maintenance must be provided. This should be supported through a comprehensive and methodical investment program that (1) critically assesses the condition of each vessel's systems on a regular basis, and (2) plans for funding to replace these systems when they reach the end of their useful life.

Some of these actions, such as managing and scheduling preservation and maintenance, can be undertaken and led by WSF. Other pieces, such as acquiring a regular funding source, will need to be approved by the Governor and the Legislature.

WSF-led elements of this plan include:

- Completing the Vessel Maintenance, Preservation, and Improvement Plan
- Accurately assessing replacement schedules for each vessel's systems
- Engaging in a dialogue with the Governor and the Legislature about options for adequate funding preservation and maintenance needs

Please refer to the **response to recommendation #6** for details on potential funding sources.

RECOMMENDATION #6

PVA RECOMMENDATION

The Panel strongly recommends that a dedicated capital funding source for new vessel construction be identified and implemented.

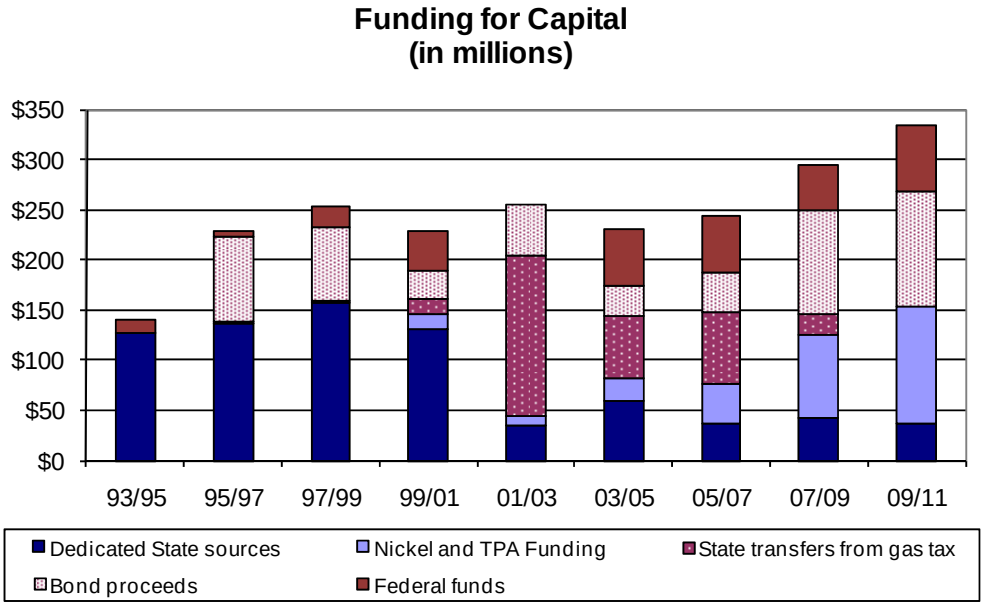
The construction of new ferries requires a large sum of capital. It also takes a significant period of time from the start of a new construction program to delivery of the vessels. A dedicated capital funding source would allow WSF's management team to plan with the confidence of knowing the funds will be available when needed.

WSDOT RESPONSE

WSF agrees with this recommendation

Background and Context

WSF analyzed its capital funding program in the 2009 WSF Long-Range Plan, which highlighted the critical need for a stable source of capital funding. Previously, WSF received a portion of the Motor Vehicle Excise Tax, which was eliminated in 2000 after the passage of Initiative 695. Since that time, WSF's funding shortfalls in both the operating and capital programs have been addressed by reallocating gas tax revenues (and other state transportation funds) as part of the biennial budget process. The exhibit below shows how the composition of WSF capital funding has shifted away from dedicated sources over the years. Since 2000, approximately $330 million has been transferred from general transportation sources to WSF and an additional $360 million in WSDOT bonds have been allocated to ferries for capital funding purposes.



The 2009 Long-Range Plan identified the following capital situation:

- $4.9 Billion of capital needs through 2030, with the majority of the funding need coming from vessel preservation and new vessel construction
  - New vessel construction -- $1.9 Billion
  - Vessel preservation -- $1.3 Billion
  - Terminal preservation--$1.0 Billion
  - Other investments (terminal & vessel improvements, debt service, miscellaneous) -- $0.7 Billion
- Only $1.8 Billion was identified in likely available capital funding, leaving a funding gap of $3.1 Billion
- The Plan calls for 10 new vessels in 22 years, an unprecedented level of new vessel construction (before accepting delivery of the Chetzemoka, WSF has acquired a total 3 new auto-passenger vessels over the past 20 years). Through 2030, WSF will need to retire and replace 7 vessels in addition to replacing 2 of the Steel Electrics already pulled from service and adding another vessel to restore standby/reserve capacity
- Beyond the end of the planning period (2030), there will be additional vessels that must be replaced in the ensuing 10 year period
- Starting with the 2013-15 Biennium, the current 16-year financial plan shows that most of the ferry capital needs are currently unfunded.

Discussion of Key Issues

Timely replacement of each vessel at the end of its 60-year lifespan is integral to providing safe, reliable, and efficient service to WSF customers. Successful vessel retirements require strategic, long-term planning by WSF, as the vessel design, bidding, and construction process can cross multiple biennia and is a significant cost to the organization. Detailed and thorough planning reduces errors and delays.

Currently, the estimated costs for new vessel construction are included in the 16-year capital transportation budget, but funds are not committed until the actual biennium of expenditure. This “lumpy” and uncertain funding method hinders WSF’s ability to plan effectively, and raises the risk of delaying vessel retirements if a specific biennium is underfunded. A dedicated source of revenue would smooth the revenue picture, and allow WSF and the Legislature to plan its vessel expenditures relative to a known and committed funding source. Another benefit of a dedicated funding source is that it would allow the shipbuilding community to more effectively plan for its own recapitalization and manpower needs.

As mentioned in the Background section above, WSF lost its previous dedicated capital funding source in 2000. Since that time, revenue from the state gas tax has been reallocated to WSF to help cover its operating and capital costs. However, looking forward at expected revenues compared to necessary costs, WSF is facing a deficit of approximately $3.1 billion over the next 20 years.

Three recent studies have analyzed either WSF’s need for a dedicated funding source, or potential methods to increase ferry and transportation funding in Washington:

- **WSTC Long-Term Ferry Funding Study (Feb 2009)**. This study was requested by the legislature to evaluate state, regional, and local funding options that would meet WSF’s long-term funding needs. The study identified Long-Term Capital Funding as the most critical need for WSF.

Local and regional funding options were determined to be infeasible, since ferry-dependent populations are very small relative to system capital funding needs. Ferry-specific taxes or fees on these communities would need to be extraordinarily high to have an impact, or the district would need to be substantially larger than just the ferry-dependent communities.

A statewide source of revenue was determined to be the most feasible means of meeting long-term capital needs. This study analyzed a number of potential sources with regard to yield, reliability, administrative efficiency, and other criteria, and settled on a list of potential sources. The most promising sources were (1) sales tax, (2) fuel tax, (3) vehicle registration and weight fees, and (4) a vehicle excise tax. Relatively small increments over existing tax rates on these items could fund a substantial portion of WSF's capital needs.

The study's recommendation was to fund long-term capital needs using the vehicle excise tax, or a similar tax. A relatively low rate (below the level of the MVET when it was discontinued in 2000) would be sufficient, and an MVET is more reliable and stable over time than a gas tax. This would not be a WSF-specific tax, but rather a piece of a multimodal funding package with a percentage of the tax revenues dedicated to many different sources, including a portion dedicated to ferry capital needs.

- **JTC Ferry Financing Study II (May 2009)**. This report recommended that the Legislature consider the establishment of a vessel replacement fund that would set aside funds for the periodic replacement of vessels. The report stated that this would help stabilize WSF's finances. (The PVA report also recommends this option, **see Recommendation #19**)
- **JTC Implementing Alternative Transportation Funding Methods (Jan 2010)**. This report supports the notion that the State needs to move away from relying on the gas tax as a significant revenue source. It recommends that the State look into other methods to fund transportation, as future gas tax revenues are not predictable. Many factors, such as alternative fuel vehicles, increasing vehicle fuel efficiency, climate change policies, and reductions in vehicle miles traveled will contribute to erosion of fuel tax revenues.

  This study also analyzed the MVET, and noted that the issues that led to the repeal of the previous MVET were addressed by the Legislature in 2006, and any new MVET would be constitutionally aligned.

The studies confirm WSF's need for a dedicated funding source, and that it will likely be in the form of a new tax or fee. They also support the claim that gas tax revenues will decline in reliability and stability as vehicle technology and driver behavior change over time.

The WSTC study concept that a new WSF capital revenue source should be part of a larger statewide funding package is similar to the previous structure, where WSF received a portion of MVET revenues for its capital, while other portions of the tax supported many kinds of transportation. This would help the State support other transportation infrastructure, which is currently reliant on the gas tax for the majority of its funding.

ACTION PLAN

Given the findings and recommendations in the above studies, there is a clear consensus that WSF needs a new dedicated revenue stream to support its capital needs, particularly those associated with vessel investment requirements. The Legislature has approved WSF's 2009-2030 Long-Range Plan, which detailed the capital needs listed above.

Action on this recommendation will require legislative consideration of a dedicated capital funding source. WSF's contributions to this process will involve updating the overall financial outlook of its capital program to clearly identify the timing and magnitude of WSF capital needs, and new vessels in particular (by start of next legislative session), and clearly communicating capital program needs to the Legislature in the context of a statewide transportation funding package.

RECOMMENDATION #7

PVA RECOMMENDATION

The Panel recommends that WSF plan around a fleet of 22 vessels.

The geographic spread of the routes, the diversity of vessel sizes, and the high service expectations all point to a need for a minimum of two reserve vessels to fill in for vessels in maintenance. With a 22-vessel fleet, one vessel in the fleet will likely be out of service for a major overhaul and one vessel may be temporarily out of service for inspections or routine maintenance, leaving one vessel on stand-by. The minimal service demands on the stand-by vessel suggest that this should be a vessel nearing the end of life. The size of new vessels should be based on the level of service metric discussed below such that even though the number of vessels remains fixed, total vehicle capacity will change in response to the demand for service.

WSDOT RESPONSE

WSF agrees with this recommendation

Background and Context

The size of WSF's fleet has been carefully analyzed and reviewed over the last four years, as part of the long range planning process, as part of the Cedar River Group's review of fleet size and makeup, and the recent real life experience of operating a fleet with very limited stand-by capacity and its impacts on service reliability and the ability to accommodate future traffic needs. The PVA Panel recognized the need for WSF to have a stand-by vessel in the fleet, and concurred with WSF's and Cedar River Group's recommendation for 22 vessels. One stand-by vessel would result in a ratio of in-service to reserve vessels of 21 to 1, still far leaner than the public systems represented by panel members, where in-service to reserve vessel ratios ranged from 4 to 1 at the high end to 8 to 1 at the low end. Compared to industry standards, WSF is running a very lean operation.

The Panel recommended that the vessel chosen to be the stand-by should be the one closest to the end of its service life. The Panel also believes that future construction needs to be larger vessels that give WSF the greatest flexibility.

Discussion of Key Issues

This discussion covers the two important pieces of the PVA's recommendation. First, it addresses the need for a 22-vessel fleet. Second, it discusses the implications of underestimating new vessel capacity requirements.

22-Vessel Fleet

The need for a 22-vessel fleet has been analyzed by WSF in its Long-Range Plan, by the JTC in its Long-Range Finances Report, and recommended again by the PVA expert review panel. These three sources concur that a 22-vessel fleet is necessary for WSF to maintain its existing service levels and have a stand-by vessel for emergency response.

Analysis has shown that 22 vessels is the minimum number that WSF needs to support its operations, given the number of boats in service at any given time, planned maintenance and preservation out-of-service time, and emergency standby.

This fleet size is determined based on several key factors. The first is the number of vessel-weeks of out-of-service time that WSF will experience each year. This number is derived from the planned maintenance and preservation schedules, and the average out-of-service time for each maintenance or preservation event. WSF creates its maintenance and preservation schedules so more vessels are serviced during the winter months, but still has a minimum of two boats out-of-service during its peak summer schedule. During this schedule, it also needs 19 boats deployed to service its customers. Nineteen boats deployed, plus two boats in maintenance, plus one standby vessel is a minimum fleet size of 22 vessels. Any fewer, and WSF would not have an emergency standby vessel.

Having a dedicated emergency standby vessel is a necessity, as WSF would otherwise need to use one of its out-of-service vessels to replace a vessel experiencing mechanical failure. Vessels that are out of service are typically undergoing maintenance and preservation activities making it costly and disruptive to bring them back on line quickly. Vessels that are in various states of disassembly for repair and inspections add to the required time to accomplish a return to service.

Given that WSF is relying on a single boat to back up all of its routes, it's important that this standby vessel have an adequate capacity to effectively substitute for as many other vessels in the system as practical. This issue is addressed in the following section.

The Right Fleet Mix

The second part of this recommendation is to choose appropriately-sized vessels in order to support basic operational needs, and to have a standby vessel that is versatile enough to fill in on all routes without creating system-wide capacity impacts. By choosing the smallest practical fleet size, it becomes even more important that the fleet have the right mix of vessels to meet the needs of the system.

WSF's Long-Range Plan identified the need for WSF to build 10 vessels over the next 20 years. WSF and the JTC, which has also studied WSF's vessel needs in the Vessel Sizing and Timing Report, are in agreement on the size of all but one of the planned vessels:

- WSF's preferred plan is to build three 64-car vessels, following by seven 144-car vessels. This would begin with three 64-car vessels and two 144-car vessels being contracted for and delivered by 2014. This is referred to as the 3+2 plan.
- The JTC put forward an alternate plan that would build a fourth 64-car vessels and only one 144-car vessel in the near-term. This would be followed by the same five 144-car vessels in the 2027-2029 timeframe as WSF's preferred plan. This is referred to as the 4+1 plan.

The WSF preferred option, the 3+2 Plan would provide the same or marginally better capacity (totaling 80 more vehicle spaces than the 4+1 plan) on all routes in the system. This would preserve existing service levels and offer some modest capacity improvements as a few smaller vessels are replaced with larger vessels upon retirement. Assuming that WSF will continue to have adequate operating support to provide the current service levels, the 3+2 Plan offers the best long-term fleet mix.

The JTC's rationale for the fourth 64-car vessel is that it would save WSF money in terms of procurement costs and operating efficiencies, and their study suggests that it would provide WSF with adequate system-wide vehicle capacity. However, there are two significant issues that the 4+1 plan would present: (1) it would require the construction of a single 144-car vessel in the short run, which is an inefficient method of vessel

acquisition resulting in higher overall costs; and (2) it would result in a fleet mix that presents a number of operational challenges for WSF.

Procurement Implications. The 4+1 Plan would result in a situation where WSF would be planning to acquire a single copy of a new 144-car vessel design. This is a very inefficient way to acquire new vessels, especially one that is based on a new design. The first vessel constructed is always the most costly to build, since there are many design and construction issues that are inevitably sorted out during the construction process. Also, there is a significant ramp up effort involved, where a work force is assembled and trained on the specific requirement of the vessel build. Ideally, the ramp up, training and shipyard learning costs involved in the construction of the first vessel should be amortized over the construction of subsequent copies of the same design, bringing the average cost per vessel down.

These shipyard efficiencies are a major consideration in optimal organization for a vessel acquisition program. The 4+1 Plan offers no ability to leverage the shipyard ramp up and learning costs to reduce the cost of subsequent vessels. As a result, the cost of this single copy will be very high and the learning costs will be incurred again when the 144 program is restarted some 10 years later. As a result, it is likely that there will be pressure to delay the initial 144-car vessel and add it to the next wave of 144-car vessel construction, which currently is scheduled to begin in 2025. In this scenario, the first 144-car vessel would likely be delivered in 2025 which would result in a situation where the 40-car vessel (M.V. Hiyu) would be the only standby backup for approximately 10 years.

Operational Implications. An analysis of how a fourth 64-car vessel would be utilized suggests that capacity and operational flexibility would be seriously compromised when compared with the alternative. This determination was made by analyzing what the total system fleet will be at the end of the Long-Range Plan (2030). There are two scenarios for how the fourth 64-car vessel would be used in the 2030 fleet, and both have serious negative implications for WSF operations and levels of service:

- **Scenario 1: Assign the 64-car vessel to the San Juan Islands interisland route**. The current vessel assigned to the San Juan Islands route has a vehicle capacity of 87 cars, and has adequate deck space for vehicles to turn around, and for commercial trucks. The 2009 Long-Range Plan estimates that WSF's vehicle traffic on the interisland route will increase by approximately 57% between 2006 and 2030. ***Replacing the current 87-car vessel with a 64-car vessel will reduce current capacity on this route by at least 26% during peak summer months.*** This reduction will not meet today's demand needs, serve the increases expected by 2030, or meet ridership growth over the next 60 years before it is replaced. The actual capacity reduction may be higher, since the 64-car vessel does not provide for adequate turn-around space on the vehicle deck when full, and oversized vehicles may take up more than one lane.

  Given the vessel acquisition plan, this reduced level of capacity in the San Juan Islands would, for all practical purposes, be permanent. Once a vessel is acquired it is expected to be a functional part of the fleet for 60 years. Future vessel acquisitions will be targeted to replacing retiring vessels on other routes, resulting in no foreseeable opportunities to increase capacity further in the San Juan Islands for the next 60 years.

  As a result, excess demand for vehicle capacity may go unserved, or may overflow onto the Anacortes-Islands vessels, causing capacity constraints during busy Friday/Sunday trips between Anacortes and the Islands. The system standby position would be filled by the 90-car Sealth. This would be an inadequate backup for Edmonds-Kingston, Seattle-Bainbridge, and Seattle-Bremerton. If a vessel on these routes had a mechanical failure, capacity reductions would ripple through the system as boats are moved to meet demand.

- **Scenario 2: Assign the 64-car vessel as the system standby**. In this scenario, the 90-car Sealth would serve the interisland routes and the 64-car vessel would serve as the system standby. This vessel would be responsible for backing up mechanical failures on all routes in the system; only two of these routes (Port Townsend-Keystone and Point Defiance-Tahlequah) are served by 64-car vessels or smaller. If any other route in the system lost a boat, the 64-car vessel would be an inadequate replacement.

  If WSF replaces the vessel directly with the standby, it will lead to huge capacity drops on that route. If instead WSF shuffles vessels around to reduce direct capacity drops, it will have time and fuel costs as boats are repositioned. Given that the Long-Range Plan does not include any near-term vessel replacements for the Sealth or the 64-car vessel, these capacity reductions will impact the ferry system for decades into the future.

  Additionally, the PVA recommendation notes that the standby vessel should be a vessel nearing the end of its service life, as the demands on this vessel are minimal. This fourth 64-car vessel will be one of the newest in WSF's fleet, and would be underutilized as the system standby, while older vessels are used for daily service.

In both of these 4+1 scenarios, WSF will either experience long-term (up to sixty-year) capacity and level of service issues, or it will eventually face pressure to address this situation by procuring another vessel to meet the demand and its LOS standards, resulting in a 23-vessel fleet.

The main argument in favor of the 4+1 plan is that it would save on vessel procurement costs, and then would save on operating costs due to the higher fuel efficiency of a small boat. However, WSF believes the risk of being under-capacity in such a popular travel shed (the San Juan Islands) may lead to the need to eventually acquire a 23rd vessel. Building the 144-car vessel instead would ensure that WSF has capacity to service its vehicle traffic, which is currently the biggest constraint in the system. The eventual purchase of this 23rd boat would increase the total backup capacity in the system, but would also negate any cost savings from replacing one of the planned 144-car vessels with the "cheaper" 64-car boat.

The 3+2 scenario would instead adequately support WSF's long-term capacity and LOS standards. The interisland route would be served by the 90-car Sealth, and the standby vessel would be one of WSF's current, older 144-car vessels. This would allow flexibility during service interruptions, as this boat could be assigned to any route with minimal capacity reductions. This supports the PVA recommendation that future construction needs to be larger vessels that give WSF the greatest flexibility.

ACTION PLAN

WSF will continue to work with OFM, the legislature, and stakeholders to ensure that the core vessel needs are properly identified that balance the needs of an adequately sized stand-by vessel, the need to accommodate modest vehicle traffic growth, and the need to keep the fleet size at an optimized 22 vessels can be achieved. The steps to achieving the optimal fleet in 2030 are included in the Long-Range Plan, and summarized below:

- Acquire three Island Home Class (64-car) vessels (delivery completed by 2012)
- Invest in the Hyak to extend its life 20 years
- Acquire two 144-car vessels (delivery by 2014)
- Acquire five more 144-car vessels (delivery by 2029)

One of the primary obstacles to this plan is the lack of funding to construct enough boats, or adequately sized vessels. However, WSF believes that strategic planning for the future now will result in overall cost savings and better levels of service. Procuring the dedicated funding source addressed in the **response to recommendation #6** will help WSF achieve the Long-Range Plan.

RECOMMENDATION #8

PVA RECOMMENDATION

The Panel recommends that WSF bid the construction of vessels nationwide.

No other ferry operator in the U.S. has a requirement for (in-state) construction locally. The Panel believes that Washington State would benefit from greater competition and from the access to federal funds that national bidding would allow.

The Panel has no specific recommendation on the preferred bid process since each process has its pros and cons. However, the type of process selected may impact the size of in-house staff required to supervise the procurement. WSF needs to consider its procurement approach and the types of resources required.

WSDOT RESPONSE

WSF will evaluate this further in advance of the next vessel procurement contracting opportunity, which is currently expected to be in about 10 years.

While WSF appreciates the logic behind this recommendation, it believes a change in policy at this time is unnecessary. Since the contracts for the current new construction cycle have already been issued, a change in this policy could not be implemented until the next construction cycle, which is 15 years away. Therefore, since new vessel construction circumstances could be very different in 2025, the ferry system recommends tabling this recommendation until the next cycle of new construction activity.

Background and Context

The state law (RCW 47.60.814) providing authorization for construction of new vessels, subject to legislative approval, requires the vessels “be constructed within the boundaries of the State of Washington”. The basis for this policy was to bring shipbuilding jobs to Washington State, improve the local economy, ensure the policy directions on major construction jobs are fulfilled, and to maintain the level of shipbuilding skills to ensure local shipyards have the skilled workforce to perform necessary repair and maintenance on ferry system vessels.

It is the opinion of the PVA review panel that the State is paying more for vessels, because of this policy decision, than would be the case if national competition were allowed. Also, this in-state requirement precludes WSF from applying for or receiving any federal funding to assist with vessel construction.

The current six year budget calls for five new vessels. The configuration of these vessels will be either four 64-car ferries and one 144-car ferry, or three 64-car ferries and two 144-car ferries depending on funding availability. The in-state shipyard that will construct all five vessels has already been determined. The ferry system Long-Range Plan does not contemplate construction of more new vessels until 2025.

Discussion of Key Issues

The current new construction projects (64- and 144-car vessels) are under contract with Todd Shipyards. The 64-car vessels are already under construction, and cannot be changed. Construction of the 144-car vessels has not begun, but the contract for the 144-car vessels would require a termination of the contract, new

legislation, and a subsequent national rebid. Given the costs, time delays, and possible legal implications of terminating this contract and rebidding the vessels, WSF is not considering bidding these vessels nationwide. If WSF does decide to move forward with nationwide bidding, it would begin with the vessels that will be bid in 2025.

New vessel construction is by far the largest part of WSF's capital program between now and 2030. Given the lack of dedicated capital funding and the strong competition for dollars from the State, any cost savings and outside revenue that WSF can find would be beneficial to the agency and to the State. Although there are potential benefits to bidding contracts nationwide, the next round of vessel construction is approximately 15 years in the future. WSF cannot be sure of the political, economic, or business climate this far in advance, and would like to re-examine the benefits and costs at that time.

ACTION PLAN

WSF will conduct a cost-benefit analysis of bidding construction nationwide before the next round of vessel construction in 2025. WSF will need to provide adequate lead time to complete the study, and adjust WAC and contract language and requirements before the contracts need to go to bid. If at the end of this analysis, WSF determines that it will be beneficial to bid construction contracts nationwide, WSF will take the steps necessary to change the WAC and contract requirements.

RECOMMENDATION #9

PVA RECOMMENDATION

The Panel recommends that current marine insurance policies for vessels, terminals and other ferry facilities be examined further to determine whether they have the proper types and levels of coverage.

In reviewing the variation of coverage levels among public ferry operators, the Panel was struck by some differences. For example, WSF has hull coverage of $874M for the entire fleet. The Panel questions whether there could be a catastrophic event, perhaps short of a major earthquake, that could imperil many vessels. The WSF insured vessel values, compared to other ferry operators, appears high. Market value has decreased over the past few years and if the vessels have not been surveyed recently, the Panel recommends that surveys be done. If insured values are determined to be high, reducing them to current market levels would result in immediate premium reduction.

WSDOT RESPONSE

WSF agrees with this recommendation

The Ferry Division supports the panel's recommendation to further examine the current marine insurance policy to determine whether the proper types and levels of insurance are in place, which is currently embedded in the annual renewal process. The process is an ongoing effort to strike a balance between risk assumption and risk transfer in a cost effective manner given budget constraints.

Background and Context

The Office of Financial Management (OFM) is the agency with the exclusive statutory authority to purchase insurance coverage for Washington State Ferries. While OFM consults extensively with WSF in the annual renewal process, OFM makes the decision as to the type and level of coverage.

Each year between March and June, the Ferry Division and OFM work with the state's insurance broker to establish marine insurance requirements for the next fiscal year. The state's broker markets the state's policy in international and domestic markets in a competitive process to procure a new policy that satisfies those requirements. The marine policy is reviewed in its entirety as part of each renewal process. For example, in recent renewals, OFM and WSF have explored various coverage options including: increasing the deductible; purchasing only catastrophic coverage; eliminating terminal property coverage; moving WSF from the marine insurance policy to the state's Self Insurance Liability Program; participating in mutual Protection & Indemnity associations (often referred to as P&I Clubs); and reducing the insured values of vessels. While OFM did not opt to make these changes, other changes have been implemented. In the 2009-10 renewal, pollution coverage was added for the first time. In the 2010-11 renewal, war/terrorism risk coverage was extended to all vessels on all routes. Previously, the war risk coverage had applied to only commuter routes.

The current master marine commercial insurance policy covers: hull and machinery (loss or damage to vessels); protection and indemnity (covers third party liability); pollution (emanating from or caused by vessel); war/terrorism risk; piers, docks, and wharves; and terminal operators liability. WSF retains the first

$1 million of loss. The insurance policy reimburses WSF for claim amounts exceeding $1 million up to the policy limit of $250 million.

Discussion of Key Issues

By most measures, WSF operates the largest ferry system in the country, which makes a comparison of its risk profile with other systems difficult to weigh. WSF believes that based on its annual review of marine coverage requirements, WSF is currently in line with comparable government operated ferry systems. The panel report states that the coverage carried by WSF is much higher than the coverage of the panel members' fleets. However, of the four systems compared, one has a substantially higher limit and another is self insured. B.C. Ferries and the Alaska Highway System also procure higher liability limits than WSF.

The panel report also recommends reducing vessel valuations to current market value and thereby effect immediate premium reductions. OFM has made the conscious decision to set the insured values at fifty percent of replacement value; this reflects the risk of there being a total loss of a vessel. The market value method of valuation values a vessel based on the sale price of between a willing seller and a willing buyer. The Ferry Division does not use the market value for valuation because it is a very subjective benchmark when applied to the specific type of vessel operated by WSF, and because the actual market value of the WSF ferries is low, since the ferries are unusable by most other ferry systems.

ACTION PLAN

OFM and WSF will continue their annual review of the appropriateness of the types and levels of insurance coverage. As part of this renewal process the agencies will review the recommendations and considerations noted by the Panel.

RECOMMENDATION #10

PVA RECOMMENDATION

The Panel recommends that WSF continue to develop a strong loss-prevention program for passenger and crew accidents.

The Injury Reduction Plan and the hiring of a dedicated, independent investigator are good initiatives. Clipper Navigation has an excellent process for documenting all injury claims that might be a model for WSF to build upon.

WSDOT RESPONSE

WSF agrees with this recommendation and is also looking at opportunities to reduce costs by switching employee coverage from the Jones Act to the state workers' compensation system.

Preserving the safety amongst crew and passengers is essential for the long-term success of WSF. As cited in the Panel's report, WSF possesses a passenger safety record that is "excellent and is in the first rank of ferry operators around the world. By implementing an injury reduction plan, WSF has demonstrated its commitment to providing safe a environment on vessels and at terminals.

In 2009, WSF developed an injury reduction plan in response to a legislative proviso. The plan has four elements: safety awareness; prevention and training; investigations; and a safety award program. An important part of the plan is a focus on injury investigations. WSF has increased the focus on investigations; believing it is important to dedicate sufficient resources to investigate each incident promptly, and have refocusing existing resources to accomplish this. WSF is also planning to dedicate more time and resources to retraining "risk identified" employees, meaning those who have filed a higher than average number of injury claims. WSF will continue to prioritize resources for investigations and thorough documentation of employee and passenger incidents.

Background and Context

WSF currently spends $3.4 million per year on employee injury claims, including medical expenses, maintenance and cure payments, judgments and settlements, and attorney fees. Prior to WSF's increased emphasis on injury investigations, there was an "OSHA recordable" injury about every two and a half days, or an average of 144 per year, and an average of 300 total injuries including non-OSHA recordables. Since placing higher priority on accident investigations and follow-up, there has been a drop in OSHA recordable incidents from a rate of 144 per year to 126 per year in FY2010, or a 12.5 percent reduction.

An immediate investigation of each employee injury is essential to a good injury reduction program. Immediate investigations place visible emphasis on employee safety, provide management with accurate information on causes of injuries to help develop strategies to avoid future injuries, and provide information to the State that supports its position for the purpose of claims disputes.

Discussion of Key Issues

Ferries employees that work on vessels are exempt from coverage under the Washington Industrial Insurance Act (chapter 51.12 RCW) and other state workers' compensation laws because they are maritime workers. Instead, these workers are covered under the federal Jones Act where costs associated with worker's compensation claims have historically been higher than the likely premiums that WSF would have to pay to participate in The Washington State Department of Labor and Industry's (L&I's) workers' compensation insurance program.

The Jones Act was enacted in 1920 when traditionally, a sailor could be on a voyage away from home for months or years at a time. When a sailor was injured on the job, he could be put ashore at the first opportunity and stranded, without any guarantee of being picked up again to work his passage home. Because of this situation, traditional maritime law evolved with the understanding that the employer had certain responsibilities toward their maritime employees. Courts eventually declared sailors "wards of the court" and found that employers had a duty to provide for the medical costs and subsistence upkeep of their employees who are injured on the job.

Coverage under the Jones Act instead of workers' compensation means that WSF's 1,040 vessel employees have the right to three traditional federal maritime legal remedies:

a. **Maintenance and Cure** – Maintenance is a daily living expense stipend set by a collective bargaining agreement. Cure is payment for the costs of medical treatment. The remedies of maintenance and cure are not fault-based. Rather, if the employee is injured or becomes ill while in the service of the vessel, he or she is entitled to be paid maintenance and cure until recovery or "maximum cure" (the injury has gotten as good as it will get and any further treatment would be merely treating pain or discomfort). There are various definitions of what constitutes "maximum cure," and the issue is often heavily contested. Qualification for this benefit is not limited to the product of injury accidents. For example, if a seaman sustains a hearing injury, becomes ill, or develops some other medical problem while in the service of the vessel; he or she would qualify for maintenance and cure benefits.

b. **Jones Act Negligence**. This is a fault-based claim based on a showing that there was some employer negligence that had some causal connection to the injury. The level of proof required is minimal. Jones Act causation is established if the employer's negligence played a part, however slight, in causing injury. This standard, often referred to by courts as a "feather weight" standard, is applied far more liberally than it usually is in personal injury cases and is easily met. A new Washington State appellate case excluded evidence of prior injuries if the claimant did not show symptoms of injury immediately before the accident.

c. **Unseaworthiness**. This is another fault-based claim. It is based on a "breach warranty" theory rather than on negligence. WSF seaman can recover for injuries resulting from vessel equipment that was not reasonably safe for the intended purposes. A vessel's unseaworthiness can be broadly defined to include a slippery deck or insufficient crew available to perform the task at hand. It applies even in the absence of negligence by the ship owner.

The Jones Act continues to apply to Ferries vessel employees, despite other laws and regulations that provide protection. The table below outlines some of the differences between coverage under the Jones Act and coverage under workers' compensation, which result in inconsistencies in the way employees are treated across the Department.

	Jones Act	Workers' Compensation
Medical bills ("Cure")	Paid entirely by employer.	Paid entirely by Labor and Industries; WSDOT is assessed a premium annually based on cost history.
Time loss compensation/ unearned wages	Payment of current wages from the date of injury through the end of the voyage or return to work ("unearned wages"). Interpreted by WSDOT as payment of wages until the end of the pay period.	3-day waiting period, then compensation at 60 to 75 percent of wages, depending on number of dependents.
Maintenance payments	Daily subsistence payment currently set at $30 for members of the Inland Boatmen's Union (IBU) and $60 for members of the Masters Mates and Pilots.	See above.
Standing to bring lawsuit	The injured maritime employee has standing to sue his or her employer if the injury is the result of negligence or unseaworthiness on the part of the employer.	No standing.
Burden of proof	"Feather weight," meaning evidence necessary to find that an employer's negligence or unseaworthiness caused the injury is less than that required in common law negligence.	Not applicable.
Tort payments and defense costs	$8 million in the past 3 fiscal years.	Not applicable.
Average annual cost	$3.45 million average annual cost under current system.	$2.61 million estimated average annual cost based on 2010 L&I rates.

It is possible for some maritime employees, in the short term, to be paid more money while they are injured and off work than they would receive if they continued to work, which reduces the incentive to return to work quickly. Because maritime employees can sue WSF for damages related to their injuries under the Jones Act, there is the possibility for some employees to recover much larger dollar amounts for their injury than would be allowed under workers' compensation.

The ability to sue WSF by its maritime employees leads to increased costs related to defending claims, trial verdicts, and settlements of claims and cases. The current system also increases tension between management and employees by forcing WSF to determine whether a particular claim will be accepted. The unpredictability of trial decisions also reduces WSF's ability to accurately plan future budgets.

ACTION PLAN

Due to very tight budget constraints, WSF is not proposing to add funds for injury investigations. The refocusing of existing resources has allowed WSF to conduct investigations on all serious injuries and almost all of the less serious injuries. WSDOT is still evaluating the merits of moving workers from Jones Act coverage to workers' compensation, particularly in light of the recent increases in L&I insurance premiums. If a decision is made to pursue this change it will require legislative action.

RECOMMENDATION #11

PVA RECOMMENDATION

The Panel recommends that WSF establish additional key metrics in the following areas: level of service, cost efficiency, and safety.

Level of Service would include on-time departures, vehicle deck utilization, trip reliability and customer satisfaction. Cost Efficiency would include farebox recovery, operating cost per passenger mile by route, ratio of direct operating costs to indirect operating costs and overtime and paid time off. Safety metrics would include passenger and crew injuries. WSF is currently tracking on-time performance, customer satisfaction and trip reliability. WSF should also assure that they use these metrics as part of a systematic quality improvement process. Proper metrics can be invaluable in determining whether changes to a system are having the desired effect.

WSDOT RESPONSE

WSF agrees with this recommendation

The Ferry Division is supportive of the Panel's recommendations regarding performance-based reporting and accountabilities.

Background and Context

Currently WSF reports its performance primarily through the WSDOT Gray Notebook, a reporting mechanism that emerged from a review of WSDOT performance conducted by the legislatively-created Transportation Performance Audit Board (TPAB). The review recommended changing the existing RCW 47.01.012 to establish an overall set of transportation system performance goals and measures that would address Washington's desired outcomes for the performance of the system. This was accomplished in 2007 when the legislature amended RCW 47.04.280 to establish the following transportation system policy goals to be used as the basis for establishing measureable objectives and related performance measures:

- **Economic Vitality**: To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy.
- **Preservation**: To maintain, preserve, and extend the life and the utility of prior investments in transportation systems and services.
- **Safety**: To provide for and improve the safety and security of transportation customers and the transportation system.
- **Mobility**: To improve the predictable movement of goods and people throughout Washington State.
- **Environment**: To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment.
- **Stewardship**: To continuously improve the quality, effectiveness, and efficiency of the transportation system.

WSF also reports through WSDOT's Strategic Plan, the Priorities of Government, and GMAP (a management tool for the Governor's Office to evaluate current performance and improve results). In addition, as part of its 2009-11 budget, the legislature directed WSF to develop a set of metrics that would measure the "quality, timeliness, and unit cost of services delivered to customers." Also, during the 2010 legislative session, WSF was directed to implement a mechanism to report on-time performance on a route-by-route basis and provide a report to the transportation committees of the legislature regarding its on-time performance by December 1, 2010.

Discussion of Key Issues

While WSF has been consistently reporting its performance under the various performance management systems for several years, there continue to be questions about the cost effectiveness of ferry services. The PVA recommendation offers an opportunity to revisit the performance management framework that is currently in use and determine how best to structure WSF's performance reporting to meet the needs of management, customers, and the legislature.

An effective performance reporting system, when combined with improved budget documentation, would allow for a clear presentation of both how WSF is spending money and what the taxpayer and customers are getting for their investments in the system. With this understanding in place, it may be possible for the legislature to establish clear benchmarks and performance goals in place of detailed reviews, audits, and budget provisos.

ACTION PLAN

Work to integrate the "modified zero-based budget (**recommendation #18**)" with a performance management system that identifies how WSF budget is being expended and what the state taxpayer and customers are getting for their investments.

- Complete the legislatively-requested performance measurement and management report for the 2011 legislative session, which will identify the specific performance metrics proposed for level of service, cost efficiency, and safety.
- Develop a performance report that builds on the legislative study, the Gray Notebook, annual Route Statements, and other current performance management efforts.
- Integrate the performance report with the new budget format to improve overall budget and performance transparency.
- Submit a performance management report as part of the 2013-15 WSF budget.

RECOMMENDATION #12

PVA RECOMMENDATION

The Panel recommends that WSF run a test project to contract drydocking for one vessel class such as the Issaquah Class.

WSF should develop a contract for dry-docking all of the vessels of a class over a five year period. The contract would define standard work items applying to all of the vessels in the class and alternate bid items, such as removal and inspection of tail shafts, which might apply to only some of the vessels in the class. This contract would be of sufficient size to generate serious competition among Puget Sound shipyards and might entice some of the British Columbia shipyards to participate in the bidding. WSF has good data on recent dry-docking costs for these vessels and should set up an evaluation system to compare the costs and quality of bundling dry-docking projects.

WSDOT RESPONSE

WSF will continue to assess the potential to improve the competitiveness of drydocking contract opportunities.

WSF agrees with the intent of the recommendation, which is to generate more competition among Puget Sound and potentially British Columbia shipyards on contracts for drydocking. However, the recommended strategy (multi-vessel contracts) needs to be analyzed further for feasibility, and a thorough study may surface other ways to increase competition.

Background and Context

WSF must meet US Coast Guard (USCG) requirements to drydock each of its vessels twice every five years, which leads to an average of one drydocking every 1.4 months. WSF uses drydock time to perform regulatory required work and some types of preservation and maintenance. These vessel repair contracts are currently bid by individual vessel.

The drydock bid packages are coordinated by the Senior Preservation Port Engineer and Preservation Project Engineers with technical assistance provided by the Vessel Engineering Department, and contract administration by WSF's Legal Services & Contracts Department. These groups develop specifications, plans, and drawings that comprise a bid package that is then advertised for competitive bid. The exception to the competitive bid process would be for projects that are single source or emergency in nature. A competitive bid process requires four to six months of planning and execution. Although many pieces of each scope are similar, each bid process requires significant staff time and effort.

Discussion of Key Issues

WSF agrees with the PVA report that there are administrative efficiencies to be found in terms of preparing bids for vessel maintenance contracts, and that increased competition could help reduce the costs of drydocking the vessels. However, WSF believes that a more thorough analysis of how multiple-vessel contracts, and other methods to be used alternatively or in addition, could increase competition is necessary before moving forward with a pilot program.

There are currently statutory provisions and geographical and logistical barriers that have kept WSF from testing multi-vessel contracts in the past, even though WSF is statutorily authorized for single source drydocking contracts involving multiple vessels for periods up to two years. The barriers that should be analyzed to see if multi-vessel contracts could increase competition and administrative efficiencies include:

- **Statutory Issues**
  - **Bonding**. The competitive bid statutes (RCW 39.08.100 and WAC 468-320 et seq.) require contract security for 100% of the contract price unless WSF develops a risk analysis that supports reduced contract security for a particular project, as authorized by statute. Generally, WSF has used such process for new vessel construction and (formerly) major vessel renovation due to the high cost of these projects. Also, due to market conditions, surety companies have advised WSF that they will not bond multiple vessel construction contracts due to perceived financial risk. The surety market may be more willing to consider multiple vessel bonding for vessel repair and preservation contracts, which are smaller than vessel construction and major renovation contracts.
  - **Pre-qualification**. WAC Chapter 468-310 et seq. requires that any shipyard bidding on a multi-vessel contract be prequalified financially for at least the total contract value as of the commencement of the contract, which would eliminate smaller shipyards from bidding.
  - **Apprentice Utilization Requirement**. RCW 39.04.320 requires companies bidding on state public works contracts in excess of $2 million to meet specific apprentice utilization requirements. In order to qualify for these contracts, the shipyard must have a state-approved apprenticeship utilization program and agree to meet a 15% apprentice utilization goal (labor hours) on all projects estimated at $2 million or more, or demonstrate good faith effort to achieve such goal. This is a statutory requirement for WSDOT public works contracts.

    Currently, only two shipyards in the Puget Sound Region have drydocks large enough to accommodate Issaquah Class vessels or larger. Similarly, only one shipyard is qualified that has a drydock large enough to accommodate WSF's five largest vessels, the three Jumbo Mark II's and the two Jumbo Mark I's. Only one shipyard currently meets the State's apprentice utilization requirement for contracts over $2 million. As a result, contracts for vessels that are Issaquah Class or larger would likely attract only one bidder.
- **Geographical Barriers**
  - **Geographic Proximity of Potential Competition**. Such a large contract may in theory attract competition from throughout Puget Sound and other nearby areas (Portland, San Francisco, or British Columbia), but WSF's ferries are non-ocean-going vessels. They are certified by the US Coast Guard for service on Lakes, Bays, and Sounds, and constructed accordingly, thus not designed for open ocean transits. The vessels cannot be delivered by WSF Masters and Mates unless they possess correct pilotage on their licenses, nor are the vessels prepared to operate off shore in open ocean conditions in order to deliver the vessel to other potential bidders in Portland or San Francisco. Towing the vessels would add risk to the contracts, and insurance to cover that risk adds cost. This limitation likely limits the competition pool to Puget Sound and British Columbia shipyards.
  - **Geographic Restriction Policy**. WSF also has a Geographic Restriction Policy and Risk Analysis process which restrict vessel repairs and preservation to Puget Sound work sites, on a per-vessel or vessel class basis. The policy and analyses address technical, operational, and legal issues related to the risk of transporting WSF vessels outside Puget Sound. Federal funding agencies have endorsed WSF's

geographic restriction policy, requiring that out-of-state shipyards transport a vessel to/from Puget Sound via a heavy lift cargo ship, or lease facilities within Washington State to perform the work if the project is federally funded. While this does not limit competition among Puget Sound shipyards, it would effectively preclude performing such vessel work outside of Puget Sound due to transport costs and risk factors.

- **Logistical Barriers**
  - **Scheduling Risk for Shipyards**. Puget Sound shipyards desire to retain their commercial clients and thus are reluctant to sign a WSF multi-vessel contract that may preclude future business with commercial clients. This becomes an issue when WSF changes a scheduled drydocking out of necessity, due to fleet operational issues. When such an event occurs, WSF and the shipyard would then need to renegotiate the affected multi-vessel contract, and the shipyard may not have a commercial client to fill the void in the drydock schedule. This risk of unused capacity is a disincentive to bidding on a multi-vessel contract.
  - **Scheduling Risk for WSF**. For a multiple ship drydock contract, dock space would have to be booked far in advance to lock down the shipyard's drydock. This will allow the shipyard to book their dock to other customers for periods before and after the WSF scheduled drydock. WSF service requirements can often trump maintenance and preservation activities, especially during this time of inadequate spare vessels. When this happens, drydock schedules have to shift. WSF requires this flexibility but it will likely be in conflict with the shipyard's drydock schedule and the shipyard may not always be able to accommodate the change in WSF's schedule. This would force WSF to seek alternate arrangements with other shipyards in order to meet its regulatory obligations with the US Coast Guard.

The statutes referenced above apply to all WSDOT public works contracts, and are an effective standard for most WSDOT departments. However, the specificity of work required by WSF's drydocking contracts, when coupled with the requirements, reduces eligible bidders to a number below that of other departments. Many shipyards in Puget Sound are either unable or do not have sufficient incentive to meet the apprentice utilization requirements, due to the burdensome certification process. In order to increase competition, WSF could make more shipyards eligible for these contracts. This could be done in two ways:

- **Raising the $2 million limit**. The RCW could be modified with WSF-specific language so that only contracts in excess of $5 million would require bidders to meet the apprentice utilization requirement. In this way, more shipyards could bid on packaged contracts. A contract featuring drydocking for all six Issaquah Class vessels would still be prohibitive, but grouping them in groups of three or four would likely be under a $5 million threshold.
- **Modifying the apprentice utilization standard**. The original intent of the apprentice utilization program was to enable state government to create opportunities for training and experience that will help assure that a trained workforce will be available, in sufficient numbers in the future for the construction of public works. There are some shipyards in Puget Sound that have extensive apprenticeship and training programs, but don't meet the technical requirements of the law. This precludes them from bidding on large WSF contracts, even if they are fulfilling the intent of the apprenticeship requirement. Potentially, modifications that would offer greater flexibility in how a shipyard could meet the intent of the program would increase competition.

ACTION PLAN

WSF will continue to assess the feasibility of using multi-vessel contracts to further improve its contracting opportunities and the competitiveness of bids.

State law changes to create WSF-specific standards around apprentice utilization requirements would be:

- Raising the $2 million limit to $5 million
- Qualifying more shipyards to meet the apprentice utilization standard

RECOMMENDATION #13

PVA RECOMMENDATION

The Panel recommends that WSF not adopt the Cedar River Group's suggestion that WSF require as part of their shipyard contracts that a vessel in intermediate maintenance at a commercial shipyard be available within 24 hours in order to provide backup service.

The Panel believes that this is impractical. Many dry-docking operations, such as steel replacement or tail shaft removal, and dockside operations, such as exterior blasting or propulsion engine overhauls, cannot be subject to such requirements. This requirement likely causes the shipyard to carry a cost in their bid to respond to such a request should it arise and this added expense is then passed to WSF.

WSDOT RESPONSE

WSF agrees with this recommendation.

Background and Context

WSF does not currently require that shipyards be able to return a vessel to service within 24 hours notice when performing a maintenance or preservation contract. During some scopes of work at Eagle Harbor, where WSF has control over the project, vessels have been available for quick returns to service. However, this is not a consistent or necessary practice, and for contracts with commercial shipyards, this has not been implemented and is not seen as practical.

Discussion of Key Issues

Both the Panel and WSF agree that this requirement would be impractical for WSF's operations. Although being able to quickly return a boat to service would decrease the time it takes to provide backup service when an in-service vessel has experienced a mechanical issue, such a requirement would have the following risks and negative impacts, which outweigh any potential benefit:

- **Inaccurate or Increased Cost Estimations**. When bidding on WSF maintenance and preservation contracts, shipyards have to accurately estimate the cost of providing the specified requirements. A shipyard cannot accurately predict at which point in performing the contracted items it may be required to reassemble a boat to return it to service, and each possible point of reassembly would have a different cost attached. This would either lead to inaccurate cost estimates, or increased cost estimates that include an amount to account for that risk.

  Given WSF's limited resources, minimizing preservation and maintenance costs is important to meeting the provided budget.

- **Increased Vessel Out-of-service Time**. Requiring the contractor to return the vessel to service within 24 hours would require work to be performed at a slower pace and in specific increments, thereby increasing the vessel out-of-service time. This is contradictory to the goal of reducing vessel out-of-service times.

- **Infeasibility in Certain Repair Situations**. At some points of disassembly for repair, a vessel could not be reassembled within 24 hours. And some repairs, once they have began, must be followed through to completion before the ship can safely sail.

ACTION PLAN

No additional action required.

RECOMMENDATION #15

PVA RECOMMENDATION

The Panel recommends that WSF continue to emphasize vessel construction, not terminal construction as a priority. However, terminal maintenance and preservation must be supported appropriately to maximize the life of all current facilities.

Just as the Panel has recognized for the vessels, the terminal capital program needs to have sufficient funds to optimize the life expectancy of the facility. The Panel believes that it's good fiscal policy to improve cost-estimating procedures and suggests that WSF explore the benefits of having an independent third party provide a cost estimate to help calibrate WSF's own internal estimating. The success of this third party estimating that has recently reduced project costs by $106 M over the next 16 years. Given the location of WSF's terminals in a seismically active region, and the importance of WSF as a vital transportation link, the Panel recommends that WSF continue to provide funds for seismic improvements.

WSDOT RESPONSE

- **WSF agrees with this recommendation, though rather than using an independent cost estimator to help improve the quality of cost estimates, WSF will make greater use of WSDOT's CEVP/CRA process.**

The Ferry Division has already made a commitment to make vessel investments the highest priority, while working to ensure an appropriate level of investment is made in existing terminal facilities to effectively support ferry operations.

Background and Context

A key recommendation that emerged from the 2006 Ferry Financing Study conducted by Cedar River Group on behalf of the Joint Transportation Committee was that WSF should focus its capital funding on vessels as opposed to terminals. This came at a time when WSF had been engaged in several large-scale multi-modal terminal projects that would have recapitalized many of its facilities and in two cases moved terminals to different locations.

However, several significant factors served to shift the focus toward vessels including the forced retirement of the Steel Electric vessels and the fact that WSF was operating the oldest fleet of any large ferry operator in North America or Europe. Since that time, WSF has realigned its capital program priorities and adopted a long-range plan that targets demand management strategies as the most cost-effective means of addressing the growth needs of the system.

Discussion of Key Issues

While the priorities have shifted away from large scale terminal investments, there is a clear need to invest in preservation of the existing facilities while making strategic improvements that will serve the long-term interests of both WSF and its customers.

As with other recommendations made by the PVA panel, the key challenge for this recommendation is the broader funding environment. The combination of large unfunded capital needs and a focus on vessel investments may make it more difficult to secure adequate funding for terminal preservation. As a result, the strategy for managing terminal investments is to develop an asset management system that moves beyond the Life Cycle Cost Model approach to preservation and introduces a rigorous cost benefit framework for allocating scarce funding. This approach will ensure that terminal investments are made in projects that offer the best overall return to customers or where the service disruption risks are highest.

The asset management program will provide the necessary information to support difficult budget decisions, while maximizing the effectiveness of the terminal preservation and improvement programs.

On the issue of cost estimating, WSF believes that making greater use of WSDOT's Cost Estimate and Validation Process (CEVP) and Cost Risk Assessment (CRA) methodologies will improve the quality of capital project cost estimating. Starting in 2002, WSDOT began a process to develop better estimating methods for complex transportation projects. Over the years these methods have been refined and improved to the point where they are now in use at many other agencies in the U.S. Making greater use of this internal resource, will meet the intent of this recommendation without adding the necessary costs of contracting with third party cost estimators.

ACTION PLAN

The action plan for this recommendation includes:

For Terminal Investments:

- Complete the Asset Management Program by February 2011, which will allow a much more rigorous assessment and justification for terminal investments
- Manage terminal investments based on the asset management program

For Vessel Investments:

While vessel investments are getting prioritized within the overall capital funding program for WSF, there is still a need to ensure that vessel investments are being made wisely and in support of the overall goal of service reliability and maintaining a 60-year service life. To support these goals, WSF will:

- Complete an update of the Life Cycle Cost Model (LCCM) including a review of conditions of key vessel systems (December 2010).
- Complete a new Vessel Maintenance, Preservation and Improvement (VMPI) Plan which will document how WSF will ensure that the fleet is appropriately maintained, and that preservation and improvement investments are being made to ensure that service reliability is high and out-of-service time is minimized (December 2010).
- Manage vessel maintenance and investments according to the new VMPI Plan.

RECOMMENDATION #16

PVA RECOMMENDATION

The Panel recommends that WSF explore different approaches to in-house maintenance. The Panel suggested a few alternative approaches and stated that the implementation of the approaches may not be practical given WSF labor agreements and current staffing levels.

The Panel recognizes that WSF employs a workforce that is effective in supporting planned and unplanned maintenance of terminals and vessels, but believes that there are additional areas that WSF could explore for costs savings and efficiencies.

PVA RECOMMENDED APPROACHES #1 & #2

1. **WSF should study having regularly scheduled second and possibly third shifts (at Eagle Harbor).**
2. **There should be a core group of trades on each shift. Having additional shifts would better match the schedules of the vessels at times when work can be completed. The need for calling out staff and incurring overtime charges would be reduced. SSA has a night engineer and maintenance staff that work on the vessels during their overnight tie-up. GGF has three shifts working seven days per week.**

WSDOT RESPONSE (ALTERNATIVE APPROACHES #1 & #2)

- **WSF does not agree with either alternative approach. WSF has performed a careful analysis of this recommendation. The analysis shows that the implementation of a second and perhaps a third shift at the Eagle Harbor Maintenance Facility (EHMF) would not produce the desired cost savings due to the need to hire additional personnel (both supervisory and crafts) and the environmental restrictions associated with this proposal. Continuing to refine Eagle Harbor management practices is the most cost efficient method of reducing labor costs. It has been shown that by employing improved work planning and crew scheduling that overtime costs can be driven down. Employing strategies such as a second/third shift to accomplish this same goal adds to the overall costs to run the operation. The cost/benefit analysis performed for the Eagle Harbor Performance Audit (2007) suggests that the costs would outweigh any potential benefit.**

Background and Context

WSF is unique to PVA ferry operators in that WSF vessels tie-up overnight at each route's operating terminal rather than each vessel reporting to a central terminal facility for overnight tie-up. Because of this, much of the vessel ongoing preventative maintenance is done by the vessel's engineering crew and occurs when vessels are tied up and out of service in the late night/early morning hours. Heavier, intermediate maintenance needs are addressed in the Eagle Harbor Maintenance Facility when vessels are undergoing their annual lay-up and US Coast Guard inspections. A smaller portion of emerging vessel work occurs when Eagle Harbor craftspersons are dispatched to vessels after normal work hours to attend to work that could

keep the vessel from sailing the next day. At times, a 10-12 hour day shift (2-4 hours of overtime) is employed to ensure vital vessel work is accomplished in a compressed time frame. This need will decrease when the new 64-auto class vessels are in service. These additional vessels will allow an increase in layup time and therefore decrease the need to accelerate the maintenance schedule during the day.

The Eagle Harbor Maintenance Facility (EHMF) has three core functions:

- Perform vessel maintenance at the EHMF including US Coast Guard required annual inspections (day shift work);
- Perform terminal maintenance (predominately day shift (95%), evening and night work to accommodate operating service schedules (5%)); and
- Perform emerging vessel and terminal repairs at night after passenger service hours.

EHMF plans its staffing resources in advance of the work. An example of how staffing resources are adjusted seasonally follows.

The summer months are heavy terminal maintenance months as good weather lends itself to the outdoor maintenance activities such as painting, parking lot striping, under dock piping work, bridge inspections and maintenance, apron maintenance and terminal building work. Certain terminal work, especially work performed at single slip terminals, can only be accomplished after the end of the service day so as not to interrupt normal route operations. Eagle Harbor management will schedule a cross discipline of craftspersons to work alternative work schedules in order to accommodate these maintenance requirements. This can involve changing the employees' work schedules and working crews from late at night into the early morning hours when the terminal is shut down. This work schedule can last for several weeks depending on the scheduled work load. When emerging corrective repairs are required that could keep a terminal from being operational, craftspersons may be dispatched after normal work hours to accomplish the work.

In all cases of after-hours work, the necessity of dispatching personnel on overtime is analyzed by the Port Engineer who determines if that work can wait until normal day shift hours. This practice has resulted in three consecutive years of overtime hours trending downward.

Discussion of Key Issues

There are some advantages to employing multiple shifts, including that crafts may be available sooner to attend to after hour emergency repairs on vessels docking on the west side of Puget Sound. This implies that many of the materials required for repairs would be closer to the point of dispatch (Eagle Harbor). There would also be some costs savings associated with reducing the need to backfill staffing needs with overtime.

However, there are some significant regulatory, collective bargaining agreement, and financial challenges. Employing multiple shifts at Eagle Harbor will require additional craft persons. A staffing level for each shift would need to be established based on the type of work available and anticipated. Adding a second/third shift would increase costs and will potentially deplete first shift personnel as they are moved to other shifts, resulting in a lack of sufficient staffing to perform the core work such as performing support functions for vessels' annual US Coast Guard Certificates of Inspection (COI). Current span of control issues would also be exacerbated and would make effective management oversight more difficult. Some additional challenges include:

- Craft staffing would have to be increased. Work crews undertaking non-vital maintenance in the yard would need to be flexible in order to drop what they are doing to attend to a terminal/vessel emergency call out.

- Work crews would work out of Eagle Harbor to capitalize on the quicker response time for emergency call outs described above.
- Additional supervisory management and support staff (safety/training) would need to be hired to accommodate multiple shifts.
- Additional shifts would require sufficient staffing levels to cover all craft disciplines to eliminate the possibility that sick leave and vacation leave could render that shift unable to complete an emergency repair or impact planned maintenance work.
- The location of the Maintenance Facility necessitates that all work done on a second and third shift must be quiet due to local noise ordinances and that work must limit light pollution to nearby residential neighbors. Currently the Bainbridge Island Noise Ordinance prohibits construction activities during the prescribed quiet hours.
- The work shifts defined in the collective bargaining agreements for Metal Trades do not best match up with the out of service times for vessels and terminals. The work shifts are not necessarily effective at minimizing "out of service" time.
- Modifications to work schedules would require collective bargaining.
- Unless shifts overlapped, use of State-owned vehicles to transport tools, material, and personnel to work locations would not be effective. Personal vehicles would need to be used or more Transportation Equipment Fund (TEF) vehicles put in the pool. Personal mileage costs would increase as a result.
- The cost analysis performed for the creation/implementation of additional shifts is greater than the current cost of overtime expended for emergency call outs.
- Adding shifts would likely exacerbate the current span of control issues identified in **Recommendation #17**.

ACTION PLAN (ALTERNATIVE APPROACHES #1 & #2)

WSF will continue utilizing the practice of planning staff resources in advance of the work to be completed. WSF will work to identify other opportunities to gain efficiencies and refine Eagle Harbor management practices to implement the most cost efficient methods of reducing labor costs and minimizing overtime use.

PVA ALTERNATIVE APPROACH #3

A riding crew on the vessels at night in addition to the ship's crew could perform some work while the vessel is underway or out of service. This is common practice on ocean-going ships and might reduce the average annual time the vessels are laid up for maintenance.

WSDOT RESPONSE (ALTERNATIVE APPROACH #3)

- **WSF currently employs engine room crews to perform maintenance work while vessels are underway and tied up after normal service hours (see response to Recommendation #29).**

Background and Context

The use of riding crews is currently part of the WSF maintenance plan. Those vessel systems which can be safely and efficiently worked on while the vessel is underway can and have been worked on in the past.

Discussion of Key Issues

The execution of the WSF maintenance plan includes the dispatch of Eagle Harbor crafts to vessels which are in service as well of the use of extra engine room personnel for certain jobs. These are both examples of what might be termed "riding crews". Examples of the type of work performed include main engine work aboard vessels with multiple engines, auxiliary generator work, and work on ships systems which can safely be removed from service while the vessel is underway. It is common for Eagle Harbor personnel to be dispatched to perform follow-up work on a vessel which had recently been in Eagle Harbor for scheduled maintenance. While the vessel is underway it is more feasible to perform work in crew areas than it is to address similar work in the public spaces.

There are many potential examples of work which cannot reasonably be performed while the vessel is underway. Anything which directly interferes with the safe and reliable operation of the vessel falls into this category. Work in the passenger spaces is limited in what can be accomplished without inconveniencing or putting the passengers at risk. Work in the passenger spaces cannot interfere with the safety escape routes and stairwells. Work on the car deck cannot be accomplished near parked or moving vehicles. For safety reasons, WSF policies do not allow work to be performed from scaffolding or ladders while the vessel is underway, nor do they allow heavy objects to be rigged from chain falls or hoists while the vessel is underway, because of the danger of damage or injury from swinging objects. WSF policy does not allow hot work, such as metal cutting, welding or grinding, to be performed while carrying passengers due to the danger of fire.

Many WSF routes include relatively short crossing times and short layovers in the dock, which contribute to the challenge of conducting work aboard a vessel that is in service. This characteristic of WSF operations is fundamentally different from the ocean-going ships cited as an example.

Experience has shown that it is often less efficient to perform work aboard a WSF vessel that is in service. The passengers and deck crews may interfere with the work, and the noise in an operating engine room generally slows the progress of work being performed in those spaces. In addition, when work is conducted aboard an operating vessel, the logistics of supplies and materials is often more challenging than when the vessel is out of service.

ACTION PLAN (ALTERNATIVE APPROACH #3)

WSF will continue utilizing Eagle Harbor crafts and extra engine room personnel as "riding crews" to complete maintenance work that can be safely and efficiently performed aboard operating vessels. This practice achieves the goal of reducing the overall vessel out of service time. However, WSF will also continue to explore other scopes of work that can be accomplished while vessels are in service.

PVA ALTERNATIVE APPROACH #4

A second maintenance facility on the eastside of Puget Sound that can be operated with second or third shifts to better align with the 24/7/365 nature of the ferry operations. This might be able to be based out of the WSF warehouse so no new facility is required.

WSDOT RESPONSE (ALTERNATIVE APPROACH #4)

- **WSF agrees with the intent of this recommendation and currently employs a mobile shop operation that accomplishes the goals of having a 24/7/365 shop on the eastside of Puget Sound. However, building or repurposing a portion of the WSF warehouse would require additional funding, which would pose a significant challenge given the current economic climate.**

Background and Context

WSF currently employs a mobile shop operation out of Pier 52 (located in Seattle). The pipe shop, electric shop, and lock shop stage large box van vehicles at that facility that are essentially a "rolling shop." Each van contains the materials and tools necessary for the most common types of after-hour callouts both for vessels and terminals.

There is a planning process underway which would stage a van with an aerial lift at the Pier 52 facility in order to respond to eastside camera and security infrastructure repair needs. While this strategy does not reduce or eliminate the after hour callouts for repairs, it does make those calls more efficient and provides the infrastructure in place on the eastside.

Discussion of Key Issues

Given that WSF already operates a 24/7/365 mobile shop on the eastside of Puget Sound that serves the purposes cited in the PVA report, it appears that adding additional capabilities tied to the WSF warehouse would not be the best use of funds in an already constrained economic environment. Most WSF vessels tie up on the westside of Puget Sound so a remote eastside facility would not be cost effective for evening vessel tie up work. Additionally, it is not possible to set up a facility at the WSF leased warehouse space as suggested in the PVA report. This facility is already at its maximum capacity and due to the fact that it is leased, additions cannot be made. Securing adequate funding to establish a remote facility has consistently been an obstacle. A far better use of scarce resources would be to assess the current utilization of the mobile shop and possibly expand it thereby reducing the need for after-hour overtime call outs, reducing travel expense, and improving response times for East-Sound Vessel and Terminal emergent casualties.

There would likely be additional costs and changes to future CBAs associated with expanding the mobile shop concept including:

- Additional managers, supervisors, safety personnel, and work force would be necessary.
- Additional tooling would be required.
- Training would still be required at the EHMF.
- Puget Sound Metal Trades CBA language would also need to be addressed in future agreements (start times, reporting location, staffing).

ACTION PLAN (ALTERNATIVE APPROACH #4)

WSF will continue to operate a 24/7/365 mobile shop to address emergent needs that may arise on the eastside of Puget Sound.

PVA ALTERNATIVE APPROACH #5

Currently, employees are dispatched straight from home for non-emergency work, avoiding the need for the employee to report to any facility prior to traveling to the vessel or facility that needs repair. This practice should be continued, and expanded as necessary.

WSDOT RESPONSE (ALTERNATIVE APPROACH #5)

Recommendation is in use and additional opportunities to expand this practice will be considered for efficiency and cost savings when it is in the best interest of WSF.

Background and Context

WSF has a unique set of challenges related to non-emergency work. With terminals and vessels spread throughout a large and diverse system, it is essential to have the flexibility to respond to issues as they arise without needing to travel back and forth between a job site and a central maintenance facility.

Currently, when required to travel to a job site other than the maintenance facility, state trucks or personal vehicles are loaded with tools and equipment needed for the job the day before. The employee is then able to leave directly for the job site from their home with the equipped vehicle, thus eliminating the need to travel to EHMF. WSF employs this practice for some planned work – both straight time and overtime, and also for off-site training.

Discussion of Key Issues

The key issue is being able to adequately meet the demand of this practice as these jobs arise. The current practice includes a number of benefits including:

- Crews have the potential of arriving at a job site sooner and/or staying longer, resulting in more work being accomplished for a given shift length that would have otherwise been travel-related.
- Less travel time expended for a job.
- The ability to quickly respond to issues has the potential to reduce out of service time for vessels and terminals.

Cons include:

- Certain jobs may require equipment or material be picked up at the EHMF, thus increasing the travel time performed.
- Multiple shift start times could complicate employee assignments.

ACTION PLAN (ALTERNATIVE APPROACH #5)

Recognizing the benefits of being able to nimbly respond to emergent needs is important to the success of WSF. Ferries will continue to employ this practice and will further investigate ways to expand it where opportunities exist for efficiencies and cost savings.

RECOMMENDATION #17

PVA RECOMMENDATION

The Panel recommends additional Eagle Harbor Maintenance Facility supervisory staff that is part of management and not part of the labor force.

A comparable commercial shipyard would have five to seven, salaried managers for budgeting, work supervision, quality assurance and planning. Currently, EHMF projects are governed by the available schedule and not by any objective budgeting process. Decisions on whether to subcontract work or to perform the work in-house are made by shop foremen or craft lead men. These "make or buy" decisions should be made by the management team with both budget authority and objective performance standards guiding their decisions. By adding management staff, as recommended by the State Auditor's Office Performance Audit (Reference 9), WSF should be able to improve business practices at Eagle Harbor and better control indirect charges.

WSDOT RESPONSE

WSF agrees with this recommendation, however, due to funding constraints, does not intend to pursue additional staffing at this time.

WSF is supportive of this recommendation to have management salaried supervisors positioned between the Senior Port Engineer/Port Engineer and the Union-represented craft General Foremen to improve quality control and performance accountabilities.

Background and Context

The management structure at the Eagle Harbor Maintenance Facility currently consists of a Senior Port Engineer, Port Engineer, Planning Project Engineer and two Union-represented General Foremen, one for vessels and one for terminals. Budgeting, work supervision, quality assurance/quality control, planning and estimating are all accomplished with the existing personnel. The next level of supervision is a Foreman for each of the eight shops at repair facility. The three management-level positions are responsible for overseeing a workforce of approximately 100 craftspersons.

Discussion of Key Issues

An advantage to implementing this recommendation is that it would provide additional supervisory managers both in the repair facility and for offsite work performed at WSF terminals and on vessels where work is done in commercial shipyards. The added supervision, which includes three additional managers, would be able to assist in estimate preparation and budget preparation, improve business processes, provide support for the Project Planning Office and work with the Safety and Training organizations to ensure regulatory compliance issues as well as staff training needs. However, it is also recognized that this is a period of severe budgetary constraints.

It is envisioned that the focus of these three “mid-management” positions would be to enhance management’s ability to manage the repair facility and supervise the work force. They would monitor the day

to day functions of the General Foremen for vessels and terminals. They would interface with Terminal Engineers and Vessel Port Engineers to review all work requisitions/assignments. There would be a central point of contact for all work that the repair facility might engage in given the new legislatively approved $120k state force threshold. Additional assignments would be to monitor offsite work performed by the crafts to include terminal maintenance and vessel work that is conducted in commercial shipyards providing for a greater level of supervision. Additional managers would have input to the budget process, be included in decision making processes to improve business practices and provide dedicated resources to manage the Quality Assurance/Quality Control program.

Adding the recommended mid-management staff to the Eagle Harbor Maintenance Facility would first require legislative approval for increased Eagle Harbor costs associated with the additional labor, office space, and computers. It is recognized that this may not be the time to implement this recommendation.

ACTION PLAN

As beneficial as implementing this recommendation would be, given the larger State economic, budget, and funding situation, it is not practical for WSF to pursue this recommendation as part of the 2011-13 Biennial Budget. However, when additional funding becomes available, WSF will work with the Governor's Office and the Legislature to consider implementation of this recommendation at that time.

RECOMMENDATION #18

PVA RECOMMENDATION

The Panel recommends that WSF continue to transition to a zero-based budget.

The Panel acknowledges that marine expenditures are increasing at a faster pace than inflation. With limited funding and decreasing revenue sources, WSF could benefit from revising its budget systems.

WSDOT RESPONSE

While WSF believes that this recommendation offers considerable potential benefits, the current budget systems and resources are not adequate to fully implement "true" zero-based budgeting in time for the development of the 2011-13 Biennial Budget.

However, WSF will continue to provide its budgets using a "modified zero-based budget" coupled with a performance management system that identifies how the WSF budget is being expended and what state taxpayers and customers are getting for their investments.

Background and Context

In the past, WSF budgeting has followed the overall state budget protocol which generally uses an incremental budgeting process. In this approach:

- The base budget is carried over from one biennium to another;
- Adjustments are made to account for one-time costs, biennialize partially funded programs, and make technical adjustments to centrally determined costs such as employee benefits; and
- New programs or policies are considered in detail by presenting the legislature with decision packages. If a decision package is approved, funding is added to the budget to meet the requirements of the new program or policy.

In the 2009 legislative session, WSF was directed to provide a greater level of detail in its 2011-13 Biennial Budget request. While not requiring a zero-based budget, the idea was to provide an activity based budget to show legislators how current funds are expended and more clearly identify how much various elements of Ferries operations actually cost. This approach is essentially a "modified zero-based budget".

The effort to pull this new budget format together has been significant, since the current budgeting system does not allow for this type of activity-based tracking. To meet the requirements of the budget proviso, the current budget request was developed using the traditional state budgeting tools and supplemented with time-intensive custom made spreadsheets that break cost elements into the activity-based categories. In effect, the budget is developed twice using two methods that are at best imperfectly connected. For the "modified zero-based" budget, there is currently no budget system to tie all of the separate detail pieces together.

Discussion of Key Issues

The greatest potential advantage of this recommendation would be to improve the overall transparency of the budgeting process and allow for a greater understanding of how and where WSF funds are expended. When combined with a robust performance measurement and management system, it would become much easier to focus on broader policy and service objectives and to allow WSF management to focus on how best to meet these objectives.

ACTION PLAN

The action plan for this recommendation includes:

- Complete the 2011-13 Budget request using the “modified zero-based budget” format.
- Work with OFM and Legislative staff to refine the “modified zero-based budget” format and to identify the resources needed to fully integrate this approach into future budget cycles.

RECOMMENDATION #19

PVA RECOMMENDATION

The Panel recommends that the Washington State Legislature establish a vessel replacement fund.

Ferry boats are expensive assets. Like any asset they are subject to wear and tear and must eventually be replaced. There are cost savings if ferries are purchased in lots rather than singly. This means that a large sum of capital is required periodically. It is far easier to put aside funds annually into a reserve account rather than trying to compete for money every 10 to 15 years.

WSDOT RESPONSE

- **WSF is supportive of this idea, though it recognizes that this is only one potential funding mechanism that could improve the long-term funding sustainability of the organization, and that the vessel replacement fund would first need a source of funding.**

Background and Context

This recommendation echoes a similar recommendation in the Cedar River Group's Vessel Sizing and Timing study completed for the Joint Transportation Committee. A capital replacement fund is a very common approach, particularly among local governmental entities, to address the need for periodic capital replacement needs. Most local governments use this approach to fund their fleet (police, fire, public works, parks and general government vehicles) and information technology equipment replacements. In effect, a separate fund is created, whose proceeds are restricted to funding specific capital replacement items, and an annual contribution is made to build the fund so that replacement equipment can be purchased when the existing equipment becomes obsolete.

Discussion of Key Issues

First and foremost, this recommendation is an acknowledgment that WSF does not have sufficient funding to meet its long-term capital needs and, in particular, that the extensive vessel replacement program is essentially unfunded after 2013. While this tool is quite commonly used for fleet and equipment replacement programs at the local level, it is less commonly used at the state level. The following are some of the key issues that would need to be addressed if such a program were pursued for the vessel replacement program:

- WSF is currently facing significant annual funding shortfalls and so there are no "extra funds" available to set aside into a capital replacement fund
- The magnitude of the fleet replacement needs is such that an annual set aside will be a significant funding requirement. For example, to replace WSF's newest vessel, the Chetzemoka, in 60 years would require annual contributions of $2.5 million to $3.5 million for 60 years. Multiplying this by a 22-vessel fleet will require a significant annual outlay.
- Some would argue that a more economically efficient approach to spreading the costs of new vessels would be to use debt financing, which spreads the initial capital costs over a portion of the vessel life and, if funded in part by users, ensures a portion of the cost is covered by those using the vessel.

- There are concerns with the concept of putting current tax dollars into a savings account to fund a future improvement that current taxpayers may not benefit from.
- Another significant concern with a vessel replacement fund is the potential for such a fund to be used for purposes other than vessel replacement. Among cities and counties that use this method to fund fleet replacement needs, it is not uncommon to see inter-fund loans used to move fleet funding to other priorities.

ACTION PLAN

WSF will work with the Governor's Office and the Legislature on overall funding issues. If a capital replacement fund is determined to be a desirable element of a broader funding strategy, WSF will work with OFM to develop a specific vessel replacement fund proposal for policymaker consideration.

RECOMMENDATION #20

PVA RECOMMENDATION

The Panel recommends that WSF institute a policy of automatic fare increases tied to the start of the fiscal calendar and that WSF have authority to set fares.

If WSF's fares rise predictably, then the region can plan and adapt accordingly. A review of WSF fares indicate that they have often had to "catch up" with large fare increases that would be avoidable with this recommendation. If WSF is expected to meet specific financial goals, such as a farebox recovery rate, they must have the authority to adjust their fare structures. Fares can be an effective demand management tool, and need to respond dynamically to effectively serve WSF's customer base.

WSDOT RESPONSE

WSF agrees with this recommendation *(in part)*

WSF views this recommendation as two separate pieces:

- **Recommendation to implement automatic fare increases**. WSF agrees with the recommendation to institute automatic fare increases. WSF does not believe the start of the fiscal year is the right schedule.
- **Recommendation to change fare-setting authority**. WSF is neutral on whether fare-setting authority remains with the Washington State Transportation Commission or is transferred to WSF.

Background and Context

Ferry fare setting authority currently resides with the Washington State Transportation Commission (The Commission). The Commission is a seven-member body made up of citizens of Washington, appointed by the Governor to six-year terms. The Commission is responsible for reviewing and evaluating how the entire transportation system works across the state. The Commission is also the State Tolling Authority, and is responsible for setting tolls for state highways and bridges, and fares for WSF.

Each year, the Commission and WSF undertake a tariff review process. At the end of the process, WSF is responsible for providing the Commission with a fare proposal that will meet the Legislature's budget revenue target for WSF's fare revenues. To create this proposal, WSF conducts technical analysis and receives advice and input from the Ferry Advisory Committee-Tariff (FAC-T), an advisory committee consisting of FAC Executive Council members. The Commission considers the recommendation proposed by WSF, but has final authority to make adjustments to the ferry fare structure.

The PVA expert review panel believes it is unwise to put this element, critical to WSF's financial sustainability, under the authority of an outside entity.

Discussion of Key Issues

This discussion is divided between the discussion of fare-setting automation, and fare-setting authority.

Automation of Annual Fare Increases

WSF and its customers will both benefit from a fare-setting process that has predictable and incremental fare increases:

- **Customer Benefit**. Many WSF customers rely on the ferry system as a primary mode of transportation, either for near-daily commute trips, or for regular trips for recreation, shopping, or medical care. And, like any other part of their household budgets, customers are best able to plan and adjust when future expenses are known and grow slowly with the overall cost of living. When WSF had to raise fares dramatically in the early 2000s due to the repeal of the Motor Vehicle Excise Tax, ferry-dependent customers were negatively impacted by skyrocketing prices; many experienced total fare increases of over 50%. These fare increases had a significant impact on customers financially, and also damaged customer perception of WSF, leading to reduced loyalty and ridership.
- **WSF Benefit**. Fare revenues support a significant portion (approximately 70%) of WSF's operating budget. Improved stability and predictability in this revenue source, as well as being able to depend on regular increases to keep up with inflation, would allow WSF to better plan for and implement its long-term operating goals.

  Having regular, programmed fare increases in most years will also help WSF reduce costs, as the annual tariff review process has costs in terms of staff time and consultant fees. WSF could reduce the total time needed from the internal technical team and the consultant that conduct WSF's annual fare increase analysis if a portion of the fare changes were automated.

Given these benefits, WSF agrees with the PVA's recommendation for automatic fare increases. The exact mechanism to which increases would be indexed, and the periodicity of the indexing, will need to be further evaluated, and the FAC-T should be included to get ferry-served communities' perspective on these changes.

The PVA recommendation also suggests scheduling automatic fare increases to occur at the beginning of Washington's fiscal year (July 1st). WSF currently implements fare increases on October 1st of each year for three primary reasons:

- **Legislative Budget Revenue Target**. When the Legislature approves its budget each year (typically in March or April), it effectively sets a fare revenue target for WSF for the upcoming fiscal year. The recently changed statutory guidance for setting ferry fares directed WSF to update its fare policies as necessary to meet the budget needs as set by the Legislature. Given the time needed to complete the Washington Advisory Code (WAC) revision process, it is not possible to take into account legislative budget direction on revenue requirements and still change fares by July 1st.
- **Seasonal Fare Changes**. WSF changes its fare schedule from peak season to regular season fares on October 1st. Synchronizing the fare increases with this changeover means customers and WSF have only two fare changes each year: (1) when peak season starts in May, and (2) when peak season ends in October. This is better for customers, and saves staff time involved with creating fare information and programming internal systems.
- **Transit Agreements**. WSF has an agreement with its transit partners in the Puget Sound Region that it will only implement fare changes on the 1st of any month.

Given these considerations, WSF recommends that the annual fare change date remain on October 1st. This fits better with WSF's operations, and has the same effect as the recommendation by the review panel.

These fare-setting mechanism changes would be possible regardless of the decision of whether or not to change fare-setting authority from the Commission to WSF.

Fare-setting Authority

The responsibility of setting ferry fares currently lies with the Washington State Transportation Commission. It is difficult to compare the relationship between WSF and the Commission to other transit agencies, due to the way in which WSF is classified as part of the State Highway System. WSF believes there are both advantages and disadvantages to the current and recommended approach:

- **Current Approach: The Commission sets fares**. An advantage of the current approach is that there is an independent body that is responsible for all WSDOT toll setting. Since WSF is a part of the state highway system and fares can be thought of as highway tolls, to the extent that there are broad statewide policy goals associated with tolling that should be considered across WSDOT divisions, then the current model offers that benefit.

  The disadvantages lie mostly in the extra coordination that is necessary to enact a fare change and the potential that the Commission's goals do not align with those of the Ferry system. In these cases, most customers do not make a distinction between WSF and the Commission and generally hold WSF accountable for things that are outside their direct control.

- **Panel Recommended Approach: WSF sets fares**. An advantage of moving responsibility for fares to the Department would be to more clearly align WSF's responsibility for meeting ridership, revenue, and demand management goals with control over the pricing tools available to meet those goals. A disadvantage would be the lack of independent oversight over the fare setting process.

Given the advantages and disadvantages of each, WSF is neutral on the expert panel's recommendation to change fare-setting authority.

ACTION PLAN

WSF is neutral on whether or not to change fare-setting authority, and so has not designed an action plan to address that issue. The following action plan that WSF will use to implement automatic fare increases is possible regardless of which entity has final fare-setting authority.

- Research the laws and regulations surrounding multi-year fare increases to determine how many years WSF might be able to package in one proposal.
- For the 2011-13 budget, WSF will propose a multi-year increase package that would automatically make an annual 2.5% across-the-board fare increase on October 1st of each year. This proposal could last for 5-10 years (to be determined after review of legal guidelines), with an option to be renewed or modified upon expiration. This would result in an automatic, annual "cost of living" fare adjustment.
- Since the voters approved Initiative 1053, which requires a vote of the Legislature to raise taxes or fees, implementing annual predictable fare increases may require legislative action (the Attorney General's Office is currently reviewing I-1053 to determine how the new law will apply to fare-setting).
- WSF would continue the statutorily-required annual tariff review process, which would focus on fare structure and policy issues, such as demand management strategies, and whether or not WSF is meeting

its legislative fare revenue goals. In years where the revenue goal is not being met or there are structural changes to be made, WSF would go through the current fare revision process. In other years, no changes beyond the automatic increase would be necessary.

RECOMMENDATIONS #21, 22, & 23

PVA RECOMMENDATION

The Panel recommends that WSF:

#21. Continue to take steps to implement a fuel surcharge program;

#22. Investigate the pros and cons of a fuel price management program similar to that used by Clipper Navigation; and

#23. Continue to seek new technologies that are more energy efficient and to refine operating procedures.

WSF is a large consumer of diesel fuel. Fuel expenditures have become an increasingly large and volatile portion of WSF's budget. WSF should have a multiple-faceted strategy designed to help budget and manage fuel expenditures, and mitigate fuel price risk.

WSDOT RESPONSE

(#21) WSF agrees with this recommendation.

WSF believes that a fuel surcharge is a necessary tool to have in order to more effectively manage budget risk between legislative budget setting opportunities.

(#22) WSF agrees with this recommendation

WSF believes that a hedging program, packaged as part of a larger fuel cost mitigation strategy, can be advantageous for budget stability and predictability, though the specific method and policies will need to be selected in consultation with OFM and the House and Senate Transportation Committees.

(#23) WSF agrees with this recommendation.

WSF believes that it is advantageous to investigate ways to improve energy efficiency and reduce consumption costs.

Background and Context

Because of the volatility of diesel fuel prices and recent large price increases, WSF has been working on strategies to mitigate risk to the budget between opportunities for the Legislature to take corrective budget action.

This is not a new issue for WSF. The WSF Long-Range Plan, adopted in June 2009, included a number of initiatives designed to manage demand and financial risks for a system that is facing significant funding shortfalls over the next 20 years. A Fuel Cost Mitigation Plan was developed in response to two provisos contained in the FY 2009-11 adopted budget for WSF and the Washington State Transportation Commission (the Commission) regarding the initiation of a fuel surcharge. The key elements of the proposed fuel cost

mitigation strategy included two cost-related elements in addition to a revenue-focused fuel surcharge mechanism:

- **Manage market exposure risk (Fuel Price Management)**. A two-part strategy to manage fuel price risk: 1) Implement fuel price hedging strategies to manage WSF's exposure to price swings and 2) Improve the budgeting and forecasting practices to improve budget stability.
- **Conservation**. Continue to implement current fuel efficiency measures and explore new ways to conserve fuel, while maintaining the existing level of service. Fuel conservation strategies may include scenarios that have greater service impacts in periods of significant price increases.
- **Fuel surcharge**. Implement a fuel surcharge mechanism that is designed to recover a portion of fuel costs that exceed the budget expectations for the price of fuel.

WSF will be providing the Commission and Legislature with a report on the progress of implementing the three main components of the Plan by November 30, 2010.

Discussion of Key Issues

Fuel Surcharge

Two of the three companies represented on the PVA Expert Panel that buy their own fuel impose fuel surcharges. Many other public and private transportation agencies, including BC Ferries, also impose a fuel surcharge. WSF, working with the Commission, has proposed a methodology for calculating and implementing a fuel surcharge. The greatest potential advantage of the fuel surcharge recommendation would be to have a mechanism in place in times of rapidly increasing fuel prices designed to recover excess fuel costs above budgeted expectations. The fuel surcharge would allow WSF to more effectively manage budget risk between legislative budget setting opportunities. Additionally, as a benefit to WSF customers, the surcharge mechanism is designed to be both transparent and simple to calculate. The main components of the surcharge are:

- The intent of a fuel surcharge is to provide a nimble mechanism that is responsive to volatile fuel prices that exceed Legislative expectations as identified in the WSF budget. The surcharge would provide additional revenue to cover fuel costs in situations of extraordinary and unpredicted price increases.
- Imposition of a fuel surcharge and any adjustments, where warranted by fuel price changes, will be made automatically, as per a set formula established by the Washington State Transportation Commission and adopted in the Washington Administrative Code.
- WSF and the Commission presented a specific fuel surcharge methodology to the legislature during the 2010 session. Other methodologies will be considered during the public process to determine the best way to implement a surcharge.
- To integrate the surcharge with the hedging program, any gains from hedging activities will be accounted for in the calculation of actual fuel prices. In effect, if hedging has limited WSF's exposure to the full impact of market prices, then any gains from hedging would be used to discount the index of market prices to reflect WSF's actual fuel costs for a particular month.

The Legislature has directed that the fuel surcharge be implemented no sooner than July 1, 2011. The Commission did not formally consider the surcharge as part of its process to review and approve the tariff that will go into effect on January 1, 2011, but has an opportunity to consider implementation in another tariff process between now and July 1, 2011.

Prior to implementing a fuel surcharge, the Commission must adopt a fuel surcharge methodology and revise the Washington Administrative Code (WAC), through the regular rulemaking process. At that time, WSF would work with the Ferry Advisory Committee on Tariff (FAC-T) to review surcharge methodology and evaluate possible refinements to ensure that customer representatives have an opportunity to participate in the final stage of policy development. Also, as part of the code revision process, the public will have an opportunity to review the proposed surcharge methodology and offer comments prior to adoption.

Fuel Price Management

WSF also agrees that a fuel price management (hedging) program could benefit the state by reducing budget volatility and reducing the impacts of a fuel surcharge. WSDOT has been analyzing several alternative means of hedging fuel price risk, including the program used by Clipper Navigation as suggested by the Panel. Recognizing that all hedging programs have associated costs, implementation of a hedging program is a tradeoff between more budget certainty and the cost of getting that certainty. The hedging strategies that WSF is evaluating are:

- **Using NYMEX Heating Oil Futures Contracts**. WSF would act as a buyer and purchase monthly contracts for future delivery of heating oil with a forward pricing window of up to 36 months. Since WSF is not an end user of heating oil, it would liquidate all positions before the contracted date of delivery, seeking to exit hedges as the actual fuel is priced, purchased, and consumed. A margin account would need to be established and sufficient coverage would be maintained within the account to cover anticipated cash/capital requirements, consultant, broker, and line of credit fees.
- **Using NYMEX Options on Heating Oil Futures Contracts (Ceiling or Collar)**. WSF would act as buyer of calls and/or puts to reduce the exposure to price increases and also take part in the benefits of price decreases.
    - Unlike futures contracts, at the end of an option contract, if prices have not moved in a favorable direction, WSF can choose to let the option expire and is only required to forfeit the cost of the option's premium.
    - WSF has the flexibility to create a call-only (ceiling) strategy in which WSF would be protected from unexpected fuel price increases above the ceiling. The benefit of this strategy is that not only is WSF protected from price increases, it has unlimited ability to participate in price decreases below the ceiling and only forfeits the costs of the premium paid for the ceiling.
    - Another strategy would be to choose a costless collar strategy in which the premium paid for the ceiling would be offset by a similar premium received for a put (floor).
    - A brokerage account would need to be established. Sufficient funds would be required to cover premium (if only using calls) and transaction costs (brokerage fees and charges) associated with exercising options.
- **Distributor-Controlled Hedging**. This fuel price management program is similar to that used by Clipper Navigation in which, for an agreed upon time period, WSF would contract with a fuel distributor for a fixed price on a specified quantity of fuel or prices within a set range. Included in the fixed price of fuel would be a premium determined by the distributor. The contracted time period is flexible, and may be for 1 to 18 months in the future.
    - WSF would not engage in any financial hedge transactions. Fuel costs would be fixed for the agreed upon time period. There would be no risk of a disconnect between heating oil and diesel.

- WSF would most likely establish a time period that is congruent with the budgeting cycle to the extent possible.
- An important drawback of this particular fuel price management strategy is that once fuel prices are locked, this portion of WSF's fuel budget would not be able to benefit from fuel price decreases relative to the locked price. However, the benefit of locking in WSF's budget for fuel may prove to be greater than any lost opportunities due to price decreases.
- The key policy questions that would need to be addressed before implementing this recommendation are determining the optimal time period and portion of WSF fuel budget to lock. This can range of options could be from 0% to 95% of WSF's fuel budget and from a 1 month time period to an 18 month time period.

WSF is evaluating these options and will include a full discussion and possible recommended approach to hedging in the report due to the Legislature on November 30, 2010. If approved, a hedging program should improve budget stability by mitigating the risk associated with short-term fuel price fluctuations. Any hedging strategy must be limited to mitigating risk and the Department will avoid taking positions that would result in speculating on the direction of future price fluctuations and thus increase the state's financial exposure. Hedging positions should be taken into account at the time of budget development. Additionally, if a hedging program is implemented, any gains from hedging should be used to average the index of market prices to reflect WSF's actual fuel costs for a particular month and be incorporated into the proposed fuel surcharge mechanism.

A second piece of the fuel price management strategy solution for mitigating budget volatility is to do a better job of setting the WSF budget for diesel. To this end, WSDOT, with the assistance of OFM and Legislative staff, has developed a new methodology for fuel price forecasting, which involves using several fuel forecasts to gather more than one perspective on future prices. This consensus approach, which was used for the development of the 2011-13 Budget, bases the budget on an average of forecasted prices from several forecasting entities for the current forecasting period (current biennium), including:

- **IHS Global Insight**. Current source for budgeted and 16-year fuel forecasts.
- **U.S. Energy Information Administration (EIA) Short-Term Energy Outlook (STEO)**. The STEO uses a supply and demand forecasting method that brings together energy quantities and prices from various sources and combines these with other macroeconomic models to arrive at its monthly estimates for petroleum, natural gas, electricity, coal, and renewable energy sources.
- **New York Mercantile Exchange (NYMEX)**. The world's largest physical commodity futures exchange. The prices quoted for oil, gas, and other commodity transactions on the exchange are the basis for prices paid throughout the world.
- **Economy.com**. Moody's Economy.com is a leading independent provider of economic, financial, country, and industry research.
- **Consensus Economics**. The world's leading international economic survey organization polls more than 700 economists each month to obtain their forecasts and views. These surveys cover estimates for the principal macroeconomic indicators including GDP growth, inflation, interest rates and exchange rates in over 85 countries.

New Technologies, Fuel Conservation, and Efficiency

WSF has been operating under both state and internal policies to (1) improve energy efficiency and (2) reduce consumption costs. In that vein, WSF is open to new technologies and operating changes that will help the agency achieve these goals. A number of fuel conservation and efficiency measures were included in the 2009-11 adopted budget and some conservation measures have already been implemented, including:

- All diesel-powered ferries must use a minimum of 5% biodiesel blend as long as the per-gallon price of the biodiesel blend does not exceed the per-gallon price of diesel by more than 5%.
- Using nontoxic alternatives to fuel additives and other commercial products used to operate, maintain, and preserve vessels.
- For three Jumbo Mark II vessels, operating on two engines rather than four except during landings.
- For two Jumbo Mark I vessels, operating on three engines rather than four except during landings. This has not yet been implemented as the associated operating procedures, such as when is it safe to reduce engine power, are still being developed.
- Slowing vessels down by 0.5 to 1.0 knots in off-peak periods.

Currently, WSF takes a conservative approach to new technology, due in large part to the risks associated with unproven methods. WSF considers these improvements once they have been proven within the industry, and wants to be able to analyze a track record before investing. However, new vessel design and construction offer some distinct advantages over retrofitting existing vessels with new technologies. New vessel designs are able to incorporate new technology, usually at lower costs than trying to retrofit an older vessel.

As WSF begins to retire its aging fleet, it has an opportunity to make investments in new technologies. After the completion of the current 64-auto ferry construction program, WSF would be moving to the 144-car vessel construction program, assuming funding is available. Based on current retirement schedule, most of the existing fleet will be retired by 2042.

One new technology that should be investigated is to design new vessels to run on Liquefied Natural Gas (LNG) rather than diesel. While this has not been attempted in the U.S. there are vessels in Europe operating on LNG. Using LNG as a propulsion fuel has numerous advantages over diesel fuel. A primary benefit would be the reduction in greenhouse gas emissions associated with vessel operations. Studies have cited that running vessels with LNG would virtually eliminate sulfur oxides (SOX) and particulate emissions, and reduce nitrogen oxides (NOX) and carbon dioxides (CO2) by 80% and 70%, respectively. Another distinct advantage is reducing the ferry system's reliance on foreign procured oil. Many energy analysts believe that natural gas demand will far outpace demand for oil possibly making LNG much more financially and economically beneficial fuel option given the vast domestic reserves that are projected.

However, the costs and benefits related to storage and transportation of LNG are unknown and would need to be studied further.

Once built, the proposed Oregon LNG/Oregon Pipeline project would be the closest provider of LNG. However, given that WSF is such a big local consumer of fuel, the demand might be sufficient to create a market and explore creating a similar LNG project in Washington. The economic benefit to the local communities would be significant.

WSF is aware that there are public concerns over the safe storage and transport of LNG and that these concerns will be an important part of the evaluation of any alternative fuel proposal. Proper safeguard

measures would need to be investigated and implemented to ensure safe transportation and storage of LNG both to and from the refinery and once stored on the vessels.

ACTION PLAN

The proposed action plan for these recommendations includes:

- Seek legislative action permitting regular fare increases and authorization for implementation of a fuel surcharge mechanism to automatically adjust fares when price volatility would require it. Since the passage of Initiative 1053, these fee increases may require legislative approval (the Attorney General's Office is currently reviewing I-1053 to determine how the new law will apply to fare-setting).
- Continue to investigate and assess hedging opportunities and the affect on WSF fuel budgeting and fuel surcharge.
- Submit a report by November 30, 2010 to OFM, the Legislature, and the Commission detailing the progress of implementing improved budgeting and forecasting practices, fuel surcharge, hedging strategy assessment, and fuel conservation; the main components of the 2010 Fuel Cost Mitigation Plan.

As a follow up to this report, WSF will provide the Legislature with more detail concerning the following items:

- Incorporate new budgeting and forecasting policies and procedures into developing the 2011-13 WSF fuel budget.
- Work to refine the implementation plan for a fuel surcharge with a targeted date of implementation of July 1, 2011. In response to Initiative 1053, seek appropriate legislative authority for surcharge implementation.
- Implement the recommended hedging approach to be used in setting the FY 2011-13 WSF fuel budget.
- Continue to investigate new technologies such as LNG and other fuel saving measures that serve to increase WSF's fuel efficiency and conservation.

RECOMMENDATION #24

PVA RECOMMENDATION

The Panel recommends that WSF continue to evaluate the demand for extended hours of service and apply demand management tools as appropriate.

The PVA noted that matching schedules to cost is a challenge that WSF is continually evaluating. In every budget cycle, WSF examines reducing the hours of service as one way of reducing operating costs. PVA reviewed WSF's scheduling procedures and believe that they follow best practices in the ferry industry. However, it believes that WSF should consider using some demand management tools; including lowering prices to stimulate demand for such services or increased prices on the late night runs to improve the cost recovery.

WSDOT RESPONSE

- **WSF agrees with the intent of this recommendation and will evaluate the specific strategies identified as part of its ongoing demand management efforts.**

Discussion of Key Issues

WSF has simultaneously pursued goals of providing extended hours of service on its routes to accommodate the needs to ferry riders and communities while trying to deliver service in the most cost effective manner. The resulting issue is the abundance of passenger and vehicle capacity in these extended periods that are a drain on WSF's resources.

WSF provides late evening (after 10:00/10:30 pm until very early am) service on all routes except Anacortes/San Juan Islands/Sidney B.C., Port Townsend/Keystone and Point Defiance/Tahlequah. Late night coverage has been provided on all other routes as a matter of basic service since the 1950s. As a consequence, there has been an expectation developed for late night access for riders attending social events on the mainland and job access for swing/night shift workers. However, due to the high cost of building and operating vessels, extended hours of service is costly since cost recovery from fares is low due to lower amounts of ridership compared to other times of day.

The recommendation suggests that WSF monitor the demand for these late evening/night sailings and either lower fares to stimulate more demand (and more revenue) or raise fares to recover more of these operating costs. WSF ridership and fare history have shown that demand for ferry service is sensitive to fares, and this reason, specific fare increases are likely to have demand management effects. However, raising fares to generate revenue from late evening demand could result in even further reduced revenue on routes where there is a feasible drive-around option since the congestion on land based alternative routes is minimal or non-existent in those hours.

Likewise, lowering fares to stimulate late evening demand would be in synch with legislative studies on managing ferry system demand, although more from an angle of diverting travelers from the peak periods to other times of day as congestion relief. However there is a risk that not enough new ridership would be generated to avoid revenue losses.

To address these issues around demand management, WSF has planned for and is implementing a vehicle reservation system. WSF has been directed by the Legislature to take steps to manage its demand to both grow ridership and level peak period demand. In effect, the reservation system is a means to move discretionary trips in the peak times to other times of the day.

ACTION PLAN

The action plan for this recommendation includes:

- WSF is actively pursuing a Vehicle Reservation System (see PVA Recommendation #34 and WSDOT response) in an effort to shift demand from peak times into the extended hours of operation.
- WSF will be actively implementing a Marketing Plan (see PVA Recommendation #35-36 and WSDOT response) in an effort to increase ridership in off-peak times.
- WSF will evaluate the need for further demand management strategies after evaluating the impact of the reservation system and marketing initiatives.

RECOMMENDATION #25

PVA RECOMMENDATION

The Panel recommends that WSF continue to seek ways to reduce out-of-service time through increased maintenance while the vessel is underway and through the strategies identified in Reference 7. (Ferry Finance Study II, Cedar River Group 2009)

WSDOT RESPONSE

● **There are aspects of this recommendation that WSF agrees with and will pursue.**

● **There are aspects of this recommendation where WSF is continuing to evaluate specific strategies to determine the effectiveness of implementation.**

Background and Context

Reducing the average out-of-service time for vessels minimizes WSF's need for standby vessels, and increases vessel availability for emergency response. The reduction of scheduled out-of-service time is already an important factor in the planning of vessel maintenance. Recommendations for strategies to reduce out-of-service time come from the PVA report and from the 2009 Ferry Finance Study II. Some of these practices are already being followed by WSF, and include:

- **Consolidating Eagle Harbor work with other shipyard work**. WSF is already combining Eagle Harbor time with shipyard work to some extent. Current practice is to have Eagle Harbor conduct certain scopes of work during the commercial shipyard contract on a not-to-interfere basis.
- **Increased maintenance while the vessel is underway**. WSF currently performs the following maintenance while vessels are underway:
  - On Jumbo Mark II vessels, WSF rebuilds an engine while the vessel is in service, which it is able to do because of the built-in redundancy of systems.
  - On all vessels, monthly preventative maintenance activities are conducted and reported to the Port Engineers. Much of this preventative maintenance is done while the vessel is underway.
- **Underwater Inspection in Lieu of Drydocking (UWILD)**. A UWILD program is only applicable to vessels that are 15 years of age or younger which are fitted with a corrosion protection system, and a vessel may participate past 15 years of age if a consistent inspection regime has been maintained and the hull has not deteriorated. WSF has successfully kept two its older vessels, the Evergreen State and Chelan, in the UWILD program. These are also the vessels that serve the international route and, as such, they are under the SOLAS regulations which require vessels to drydock every year (as opposed to twice every five years). As a result, it is cost effective to maintain these older vessels in this program. New vessels coming online in the near future (Chetzemoka, Salish, and Kennewick) will also be entered into the program.

Other suggested strategies not currently in use by WSF include:

- **Reduced topside painting intervals**. The previous LCCM assumes that topside painting will be done every five years. However, in practice it is done approximately every seven to ten years, and this will be reflected in the revised LCCM.
- **Paying more to expedite shipyard work**. WSF has paid for overtime and/or extended shifts on certain shipyard work when it was deemed to be advantageous to the schedule. WSF could look into using this strategy more often, although not all commercial shipyards are able to staff up and efficiently work such extended shifts.

WSF's fleet includes vessels that are on average older, larger, and more complicated than those of many other ferry systems in the country. Each of these factors means that WSF vessels and vessel systems typically require more maintenance and preservation work than other systems' vessels, and comparing out-of-service time to an industry standard may not be applicable.

The need to remove vessels from service is driven by the maintenance needs of vital equipment that must be operational to maintain service. These needs, such as main engine and generator overhauls, cannot be performed on the run or at night time tie up. Putting additional personnel on the ship while it is in service to perform maintenance would have no constructive effect on the out-of-service needs of a vessel. The one exception to this rule is when vessels are equipped with redundant equipment, such as described above for Jumbo Mark II main engines where WSF takes advantage of this and is able to rebuild an engine while the vessel is on the run.

Discussion of Key Issues

This discussion is split into two sections:

- **Recommendations that WSF agrees with (1) and plans to address**. This discussion focuses on how WSF is already using those strategies, and how WSF's methods accomplish the intent of the recommendation
- **Recommendations that WSF wants to evaluate further (2) before deciding whether or not to implement**. This discussion focuses on what WSF needs to learn about the recommended strategy before making a decision.

A discussion of performing increased maintenance while a vessel is underway is addressed in conjunction with **Recommendation 16** of this report.

Section 1: Strategies WSF is currently utilizing or plans to use to reduce out-of-service time.

- **Consolidating Eagle Harbor work with other shipyard work**. WSF is currently implementing this strategy, and plans to continue this work since it helps minimize vessel out-of-service time.
- **Maintenance while the vessel is underway**. WSF currently performs a significant amount of its preventative maintenance on all its vessels while they are underway. On vessels where more underway maintenance can be performed, such as engine work on the Jumbo Mark IIs, it does that as well. See the response to recommendation 16 for further analysis on the feasibility of this strategy.
- **Underwater Inspection in Lieu of Drydocking (UWILD)**. WSF is currently using the UWILD program in the following ways: (1) UWILD program is in place for Evergreen State and Chelan, both serving the Sidney international route; (2) the new vessel Chetzemoka was designed with the required hull markings for UWILD program, and WSF will be applying to the US Coast Guard for entry into the program; (3) the new

vessels Salish and Kennewick are also designed with the required hull markings for UWILD program, and WSF will be applying for their entry into the program as well once the vessels are delivered.

Additionally, WSF is to assess cost effectiveness of qualifying the Jumbo Mark II Vessels for the UWILD program. A careful evaluation is appropriate as there are costs to put the vessels into the program. For example special hull markings have to be installed, under body videos have to be taken, special sea valves have to be installed and any keel cooler opening protections have to have hinged gratings to allow for an underwater inspection. These costs plus the costs of performing the annual dive surveys are compared to the potential savings of reducing one drydocking per 5 year period.

Section 2: Strategies WSF would like to study further before deciding whether or not to implement.

- **Paying more to expedite shipyard work**. WSF would like to study whether more extensive use of this strategy could lead to reduced out-of-service times. Part of this study would include determining which shipyards in the region have the staffing or ability to work such extended shifts.
- **Topside Painting Intervals**. Possible topside painting interval extensions were also studied in relation to the aluminum superstructure, under the assumption it might extend the interval between coating cycles. It was determined this may not be practical for a vessel with a 60-year lifespan, as aluminum does eventually corrode if not adequately coated. The resultant pitting can exacerbate the thermal and fatigue cracking discussed in the report.

  WSF also recently assessed its topside painting interval schedule as part of the Long-Range Plan, and suggested that the interval be changed as followed: continue to paint the ends of the vessel every five years, but lengthen the interval between full-vessel painting to every ten years. The front and back of the vessel accrue damage more quickly over time, and focusing short-interval maintenance periods on those areas while lengthening the time between full-body paintings will reduce life cycle costs and out-of-service times.
- **Designing vessels with aluminum superstructure**. WSF has built aluminum superstructures into its new 64-car vessels, but the 144-car vessels that are under contract for delivery in the next few years were not designed with aluminum superstructures. The 2009-11 Budget provided additional funding to complete the design of the 144-car vessel, but required the design to be modified to reflect an aluminum superstructure.

  Before proceeding with a redesign, WSF requested an independent study to assess the impacts of changing the design to aluminum. The independent third party study concluded that the costs and uncertainties of changing to an aluminum deckhouse construction outweighed the potential benefits. The increased design and construction costs were estimated to be over $6.5 million per vessel, while the potential life cycle savings, if realized, would be just over $3 million.

  In addition to quantified costs, there were other potential risks identified related to changing the design to aluminum at this late juncture which cannot be quantified. These include:

  - Regulatory risks, such as how the Coast Guard will treat certain fire protection requirements and vehicle deck ventilation requirements.
  - Construction phase risks such as unforeseen design implications and dimensional controls during fabrication.
  - Service life risks such as thermal and fatigue cracking.

ACTION PLAN

Section 1: Strategies WSF is already utilizing or plans to use to reduce out-of-service time.

For the strategies that fall into Section 1, WSF is already implementing most of them and does not need an action plan. The UWILD program, however, does have some next steps:

- Apply for UWILD program entry for Chetzemoka
- Once delivered, apply for UWILD program entry for Salish and Kennewick
- Complete cost-benefit analysis for entering Jumbo Mark II Vessels into UWILD program

Section 2: Strategies that WSF is continuing to evaluate.

WSF would like to further study the potential of the following two strategies, and will use the following action plans to do so:

- Paying more to expedite shipyard work.
  - Research and create an inventory of shipyards that would be able to expedite work through extended shifts
  - Conduct a cost-benefit analysis of how shorter out-of-service times compare to the additional costs of expediting work
  - Given the results of the study, draft a WSF policy that will guide decision makers in determining whether or not to expedite certain types of work, and under what circumstances
- Topside Painting Intervals.
  - Modify the LCCM to define the topside painting intervals as:
    - Ends of vessel every five years
    - Full vessel every ten years
- Redesign the 144-car vessel for an aluminum superstructure.
  - WSF will work with OFM, the Governor's Office and the Legislature to review the costs and benefits of changing the current design of the 144-car vessel to work with an aluminum superstructure.

RECOMMENDATION #26 AND #27

PVA RECOMMENDATION

(#26) The Panel recommends that WSF study ways to right-size crew levels when there are fewer passengers onboard.

(#27) The Panel recommends that WSF evaluate current staffing on the vessels versus the safe manning required by the US Coast Guard Certificate of Inspection (COI).

During its deliberations, the Panel discussed crew size and the variation of crew numbers on WSF vessels against the required USCG Certificate of Inspection (COI) issued to each vessel. The Panel suggested that there may be opportunities to reduce labor costs through right-sizing the amount of crew needed to operate the vessel when there are fewer passengers on board, while not compromising safety. The Panel suggested examining a shift to different crewing schedules, depending upon whether the vessel is operating with a full passenger load during the summer months or a reduced passenger load during the off-peak seasons or sailings that have low passenger loads (mid day or late night).

The Panel recommended that this study be conducted with the full participation by the local USCG Officer in Charge of Marine Inspection (OCMI) and employee representative bargaining units.

WSDOT RESPONSE

WSF agrees with this recommendation.

Discussion of Key Issues

WSF continually evaluates ways to manage its labor costs. Labor accounted for over 62% of WSF's FY2010 operating expenses. WSF would benefit from more flexibility in determining how vessels are staffed, and that those staffing levels reflect the considerable daily and seasonal variation in ridership. Currently, the Collective Bargaining Agreements (CBA) and United States Coast Guard (USCG) Certificates of Inspection (COI) constrain WSF's ability to right-size crews on its vessels by providing a rigid "one-size-fits-all" standard to staffing.

However, it is important to distinguish between the COI and CBAs. While the COI sets minimum levels of staffing for operating the vessel, actual staffing is set under agreements in the CBA. WSF has 11 bargaining units that represent all but approximately 140 of WSF's nearly 1,800 employees. The CBAs set forth the working conditions (including staffing levels) and compensation for employment. Changes to how many crew members (and type) are assigned to each class of vessel must be negotiated as part of the CBA.

The USCG COI process specifies minimum levels of staffing on passenger vessels and certifies that the vessel is in compliance with all the rules and regulations which allow them to carry passengers. Passenger safety is a major driver of minimum staffing levels in the COI. Vessel staffing dictated in the COIs are set for when a vessel is operating at full capacity. The PVA panel cited the need for WSF to work with the USCG to define

variable staffing levels as part of the COI process. They reference the USCG Marine Safety Manual (Reference 19):

> "For vessels that carry varying numbers of passengers the Officer in Charge of Marine Inspection (OCMI) should provide a sliding scale of the total number of deckhands required indicating the number of passengers carried."

This sliding scale of staffing would allow WSF more flexibility when determining level of crew needed to operate a vessel for any period of day or season when ridership on a vessel is less than at capacity. WSF should obtain the flexibility to operate vessels to meet a range of organizational objectives that include on-time performance, effective and efficient vessel operation and maintenance, passenger safety, and customer service.

However, regardless of minimum levels of staffing in the COI, WSF will need to reach new CBAs with its employee representatives that identify the appropriate level of staffing. Currently, WSF operates two vessels in accordance with minimum crewing as specified by the COI. Seventeen vessels have additional crew members, or crew members of a higher classification, than specified in the COI. WSF estimates a potential cost savings of $10.5 million biennially for vessel employees if crewing at the COI level was adopted.

Recently WSF has pursued contract negotiations in order to change elements of the CBA that pertain to minimum crew schedules. WSF and Inland Boatmen's Union (IBU) of the Pacific began negotiations in February 2010 on a successor CBA (the IBU is the exclusive representative of the bargaining unit representing the approximately 950 employees in the Deck, Terminal and Information departments of WSF). WSF and the IBU were unable to reach agreement on minimum crew levels which lead to binding arbitration as specified in state statute.

The State proposed that the minimum crewing schedules currently established within the CBA be eliminated and replaced with a requirement that the State follow COI. The arbitrator ruled against WSF in favor of maintaining the current contract language. Given this ruling (and previous rulings) WSF is unlikely to prevail in changing the CBA to reflect a staffing model that responds to the particulars of route, time-of-day, and seasonal variations in ridership as it seeks to manage its labor costs absent legislative intervention.

ACTION PLAN

WSF will work with OFM Labor Relations Office and affected employee representatives to further evaluate vessel staffing needs in order to meet both safety and service goals. WSF has been unable to move forward on this issue due to recent arbitration rulings.

If the Legislature wishes to take action on this recommendation, state law could be changed to give WSF the ability to institute appropriate and responsive staffing through its collective bargaining process. This law change would affect future contract bargaining.

Holding aside issues related to the CBA, WSF will explore working with USCG on the feasibility of developing different minimum crewing levels (as part of the COI process) that are dependent on ridership levels. Once the CBA issues are addressed, WSF could then move forward with a staffing plan that entails a sliding scale of staff relative to the expected level of demand.

RECOMMENDATION #28

PVA RECOMMENDATION

The Panel recommends that short of the Master being assigned to a specific vessel, not to the route, WSF should identify alternate methods of building a sense of ownership by the crew.

As the Master, the Captain's role is to take ownership of the vessel and WSF should encourage this. In doing so, the Panel believes that this would provide a level of consistency that could improve coordination between the deck crew and the engine room crew, as well as help maintain a focus on the overall needs of the vessel in regard to maintenance, operation and preservation.

WSDOT RESPONSE

- **WSF agrees with the Panel's recommendation that alternative methods of building a sense of ownership amongst vessel crew should be identified.**

Background and Context

The current operating structure for the vessel Master (Captain) is limited. In order to instill a sense of ownership amongst the crew, the Captain must be able to: (1) manage effectively and (2) manage a consistent crew. The current collective bargaining agreement does not specifically prohibit Captains from taking corrective action against subordinate crewmembers, but the normal staff career progression is from IBU to MM&P, and as a result Captains as well as Licensed Deck Officers are reluctant to take any disciplinary action or hold crew members to performance standards due to their common affiliation and familiarity with each other.

Discussion of Key Issues

A successful implementation plan for instilling a sense of ownership to vessel crewmembers begins with carrying out PVA recommendation #2. This recommends that the Captain should act as WSF's management representative. Changing the Captain to a management representative would require legislative and administrative action.

The transient nature of crewing assignments makes building a sense of vessel ownership more difficult. A first step in addressing this issue would be to assign staff to specific vessels, beginning with the staff Captains. This ensures that there are crewmembers present on a given shift that have a vested interest in the successful performance of their assigned vessel. Establishing some watch assignment stability will go a long way to building a sense of vessel ownership, even if subordinate crewmembers are still somewhat transient.

ACTION PLAN

The action plan for this recommendation would be packaged with PVA Recommendation #2, vessel Master (Captain) should act as the management's representative for the vessel and all of its crew. WSF will work with the Governor's Office and the Legislature to design an appropriate implementation schedule and framework

that both moves WSF towards establishing vessel Captains as management representatives and assigns staff Captains to specific vessels.

Separately, WSF will work with its employee representatives to develop strategies and actions that will serve to increase the level of ownership among all crew members.

RECOMMENDATION #29

PVA RECOMMENDATION

The Panel recommends a pilot program where only the Chief Engineer's position is staffed 24 hours per day.

WSF's practice of having the engine room staffed around the clock is not the industry standard. The Panel members are aware of the maintenance challenges and safety concerns due to watch changes. Other engine room personnel can be assigned work schedules that mirror the deck crew schedules. We understand this would require a change to the collective bargaining agreement.

WSDOT RESPONSE

● **WSF does not agree with this recommendation on a systemwide basis. However, there may be specific operating conditions on vessels with short service days where a full engine room crew is only needed for 12 hours per day.**

Background and Context

Currently WSF provides full engine room staffing 24 hours per day as part of its operations and maintenance program. WSF's engine crews perform preventative maintenance and also some repairs during night-time tie-ups to ensure uninterrupted service for the next service day.

Unlike the experience of the Panel members, where vessels generally return to tie-up at a central maintenance facility, WSF operations include a far greater geographic distribution which includes the need to tie-up vessels at nine different terminals spread throughout Puget Sound. Some of the WSF tie-up terminals are not readily accessible at night after the cessation of ferry service for the day. Where the companies represented on the panel are able to perform nighttime maintenance with a dedicated crew, they do so at a single terminal for their various vessels. The need for WSF to perform maintenance aboard vessels tied up at nine different terminals represents a significant logistical challenge.

WSF's maintenance philosophy has been developed over decades of hands on experience and modifying practices to what works best for its system. The approach is similar to the practices of other comparable ferry fleets, such as BC Ferries and Alaska Marine Highways. Each of these systems uses a combination of onboard engineers to perform the preventative maintenance and the voyage repairs supplemented by a shore side staff for those jobs that require specialized expertise, or special tools / equipment. It could be said that this approach to maintenance is the 'industry norm' for organizations that have a large, diverse fleet that is geographically spread out.

Discussion of Key Issues

The Panel's recommendation hinges on the assumption that the decrease in regular labor costs (from only paying engine room staff for 16 to 20 hours per day, instead of 24) will save WSF money overall (about $7.2 million annually). However, in WSF's experience, staffing vessels with a 24-hour crew in the engine room is the most cost-effective way to perform all the necessary repairs and preventative maintenance that keep vessels in uninterrupted service. WSF finds that with its large, complicated vessels and extended service

hours, this is the system that works best for WSF, both operationally and financially. It is one key element in reducing out-of-service time.

This discussion section first gives a brief explanation of how WSF currently operates, and why that method of operation works best for WSF. It then moves into a discussion of the barriers to and negative implications of implementing the Panel's recommendation.

Explanation of Current Operations

WSF currently staffs all of its engine rooms 24 hours per day. The engine room crews have many responsibilities during night tie-up, which varies in length depending on each vessel's operational schedule. These regular maintenance tasks are carefully managed by the Vessel Preservation group and include:

- Perform preventative maintenance on the vessel machinery and systems according to a computerized maintenance management system (CMMS).
- Perform repairs to vessel machinery and equipment that have failed since the vessel was last shut down.
- Perform inspections on machinery that cannot be accomplished during the operating day.
- Refuel the vessel. This is typically a 2 to 3 hour operation that occurs on average once per week.
- Receive lube oil on the vessel. This is typically a 2 hour operation that occurs on average once per month.
- Hull inspections in accordance with the approved hull inspection program.
- Perform periodic condition ratings for engine room equipment for updates to the Life Cycle Cost Model (LCCM).
- Write work orders, stores requests, and perform other electronic data functions while the vessel is at the terminal and wireless communications are reliable.
- Perform inventory counts and update electronic data base.
- Write and submit monthly vessel condition work sheets.
- Perform monthly lube oil sampling and analyze lube oil sample reports.
- Attend to other administrative functions.

Geographic and Logistical Barriers to Change

WSF designed its current staffing and maintenance strategy to provide the highest service reliability to its customers, while taking into account the unique characteristics of WSF's operations. Changing vessel staffing to the Panel's recommendation would not work efficiently or provide the same level of service, given the following characteristics of the Department:

- **Minimal Spare Vessels**. At any given time, WSF only has one spare vessel available to replace vessels experiencing mechanical trouble, whereas some of the PVA Expert Panel operators operate with multiple backup vessels. This approach saves WSF money by being able to operate a smaller overall fleet, but results in a smaller spare vessel to in-service vessel ratio than the industry standard. WSF has been able to maintain excellent service reliability, even with its single spare vessel, by thoroughly and regularly maintaining its fleet overnight, so each vessel is ready to sail at the beginning of the next operational day. Reducing the amount of overnight maintenance may decrease vessel reliability, which WSF cannot afford given its spare vessel situation. Increasing the number of spare vessels is not a viable option, given the significant capital costs of acquiring additional vessels.

- **Geographically distributed tie-up locations**. Most of the PVA panel members tie-up their vessels at a single location overnight, where one crew can serve many vessels. WSF, however, parks its vessels overnight at the last terminal they served, meaning vessels are tied-up at nine locations spread throughout Puget Sound. This spread requires that each vessel have its own crew to perform maintenance, as it would not be efficient or sometimes feasible to have a single, traveling crew provide maintenance instead.
- **Quick return-to-service times**. Having a full engine room crew aboard each vessel allows the vessel to be pressed into service on short notice if needed. Medical emergencies and vessel breakdowns are two examples that occur in the WSF system where a vessel might be called upon to enter service earlier than scheduled. If the nighttime maintenance work was not done by properly licensed and experienced crew, the vessel would not be available for service until the regularly scheduled crew arrived, resulting in service delays and/or cancelations.
- **Staffing Schedules**. WSF operates extended service hours compared to many other ferry systems, and nightly vessel tie-up and out-of-service times vary by route and vessel. The expert panel recommended that engine room crews, excluding a 24-hour Chief Engineer position, be staffed only during the same hours as the deck crew. The primary reason that this does not work for WSF is due to the shut-down and start-up periods (up to two hours each) at the beginning and end of each operational day where the engine crew needs to be staffed while the deck crew does not. This additional two to four hours of staffing is necessary to vessel operation.

  The hours remaining in the day, after the deck crew hours and the up to four additional engine room hours, can be used for necessary maintenance and potentially for un-staffed periods. The following table summarizes the different schedules that WSF uses for its operations, with the deck crew hours being the driving factor in each schedule:

Deck Crew Schedules (Hours)	Additional Engine Crew Time Needed for Shutdown/Startup (Hours)	Remaining Time (Hours)
24	0*	0
20	2-4	0-2
16	2-4	4-6
10	2-4	10-12
8	2-4	12-14

** The vessel is not fully shut-down on the 24-hour schedule*

  - On vessels where the deck crew is staffed 16, 20, or 24 hours per day, there is not enough time remaining in the day to de-crew the engine room and bring on another crew to perform necessary maintenance.
  - For vessels where the deck crew is staffed 8 or 10 hours per day, it may be feasible to perform necessary maintenance and then have a de-crewed engine room period before the next crew would report to start-up the vessel for the next operating day. WSF currently does not operate any vessels

with a daily 10-hour deck crews. WSF operates one vessel on the 8-hour daily deck crew schedule on the Port Townsend-Coupeville route in the summer.

On this 8-hour vessel, and on any future 8-hour or 10-hour vessels, WSF will evaluate the feasibility of reducing the engine room staffing for part of the day.

Implications of Panel Recommendation

Implementing the PVA's recommendation on vessels where off-time is inadequate (16-, 20-, and 24-hour boats) would have the following negative impacts, relative to WSF's current staffing policy:

- **Vessel Reliability Impacts**. WSF engine crews perform vital preventative maintenance during the short night tie-ups, while also completing necessary ongoing repairs. A chief engineer working alone at night would not be able to perform all of the required maintenance because some jobs require two people, and because there would not be enough staff-hours available. Not having this maintenance and repair activity occur every night would result in more breakdowns and out-of-service time for delayed repairs.

  Especially given WSF's goals and the PVA's recommendation surrounding 60-year vessel life, preventative maintenance is a necessary component to keeping older vessels in regular service and functional until they are retired.

- **Increased out-of-service time**. Delayed service work that must then be completed through shipyard contracts or through the Eagle Harbor Maintenance Facility will increase vessel out-of-service time, which is contradictory to PVA recommendation #25. Also, increased vessel breakdowns due to missed preventative maintenance also increase out-of-service time. Maintenance that is reactive as opposed to proactive has negative impacts on reliability.

- **Increased maintenance costs**. Labor rates for maintenance performed at commercial shipyards are more expensive than comparable rates for WSF engine crews. This increase will be passed on directly to WSF's operating budget, or decisions may be made to forgo some maintenance items that will then decrease vessel reliability. Crews that are most familiar with the vessel are able to more efficiently and effectively perform maintenance and repairs, reducing the total number of maintenance hours needed. Also, each maintenance period requires shuffling boats and sometimes bidding for the work, both of which require man-hours from many WSF staff.

  The Panel has also recommended that WSF increase the use of riding crews to perform more maintenance during operation and at night. Any cost savings associated with reduced hours worked by the engine crew would be more than made up for by using riding crews sufficient to perform all of the preventative maintenance and repair work needed aboard all WSF vessels.

- **Reduced Vessel Ownership and Familiarity**. This Recommendation is contrary to the reasoning found in Recommendation #28 which seeks to build a sense of ownership by the crew. Taking the engine room crews of the daily vessel operation off at night, and having the maintenance performed by others, would greatly reduce the sense of ownership currently seen among the engine room crews.

  Reduced familiarity with the current issues and repairs being done on the vessel will also reduce crew's effectiveness in recognizing and correcting machinery problems when the ship is in service.

ACTION PLAN

- Continue the practice of staffing the engine room crews on a 24 hour basis for reasons stated above.
- Study the feasibility of reducing engine room staffing on any vessels that operate on an 8-hour or 10-hour daily deck crew schedule. Currently this applies only to the Port Townsend-Coupeville route during the summer.

RECOMMENDATION #30

PVA RECOMMENDATION

The Panel recommends that WSF study the types of work performed by vessel crews while the vessel is in a shipyard and then determine the cost/benefit of this practice.

The Panel agreed that it is the industry standard to send only one senior engineer to a shipyard to observe and monitor. No other ferry operator sends the full engine crew.

WSDOT RESPONSE

WSF agrees with this recommendation.

While WSF agrees with the intent of this recommendation, sending only one senior engineer to the shipyard as the default assumption will not necessarily result in the lowest cost for WSF's operations. Because of a number of crewing and collective bargaining issues, WSF must determine the breakeven point in terms of time in the shipyard where de-crewing or partial de-crewing will be the optimal strategy.

Background and Context

It is the current WSF practice to consider partial or full removal (with the exception of the Staff Chief Engineer) of the assigned engine crew from a vessel during a commercial yard period only when the planned duration in the shipyard exceeds four months in duration. For shorter shipyard periods it is not considered cost effective to reassign engine crews due to the collective bargaining agreement provisions. WSF has used an informal analysis coupled with past experience when evaluating the use of ship's crew during commercial shipyard periods.

Prior to the beginning of a commercial shipyard period it is the responsibility of the Staff Chief Engineer to submit to the Port Engineer a planned crew work list. This work list contains the scope of work for the vessel engine crew to perform during the commercial shipyard period. The vessel engine crew also provides some shipyard support, security and fire watch, and an additional set of eyes on the work being performed by the shipyard.

The type of work found on the work lists includes ongoing preventative maintenance, accomplishment of previously deferred maintenance, inspection and maintenance work which requires specific knowledge of the particular vessel systems, and projects which could not be accomplished during regular night tie-ups. The work focuses on maintenance of machinery that must be removed from service in order to perform the required maintenance. This includes rebuilding of main engines, ships service generator prime mover overhauls and alternator cleaning, cleaning of drive motors, clutch rebuilding, controllable pitch propeller system maintenance, pump rebuilds, valve overhauls, void inspections, tank inspections, bilge maintenance and painting.

The costs to be considered in this analysis include the crew labor rate for all classifications as compared to the costs of having the work subcontracted out to the shipyard, including the efficiency benefit of having the people who are most familiar with the equipment (the crew) performing the work; and the cost of decrewing

and recrewing vessels given the minimum pay provisions included in the collective bargaining agreements. This provision is explained in the Discussion of Key Issues section below.

Discussion of Key Issues

WSF agrees with the PVA that it is important to study the practice of keeping vessels crewed while in the shipyard from a cost-benefit perspective. WSF has already completed some informal analyses of this practice, and coupled with actual experience, considers the full or partial decrewing of a vessel if it is going to be in the shipyard for longer than four months. This is what WSF views as the approximate breakeven point, but will undertake a formal cost-benefit analysis to determine the most cost-effective duration.

The actual breakeven point will need to consider the minimum pay provisions found in both MEBA collective bargaining agreements and the consequences of crew members exercising their seniority rights for work assignments.

- Consistent with the MEBA Unlicensed collective bargaining agreement, "no one who is a year-round employee and available for work shall receive less than eighty (80) hours pay per two (2) week work schedule.
- When an employee is removed from a vessel, such as decrewing during a commercial yard period, that employee will continue to be paid per the minimum pay requirements stated in their respective CBA.
- The employee that was removed from their vessel has a right to exercise their seniority and bump a less-senior employee from a different vessel. This newly bumped employee has the right to bump a less-senior employee from another vessel, and so-on, leading to multiple reassignments.
- Any employee who is bumped to a different vessel may require a familiarization and break-in period (required by CBA, WSF policy, and USCG) to become trained on the new vessel. This break-in time requires the employee to work as an extra alongside the regular crew for two to seven days depending on classification. This break-in period has the cost of one additional employee over the time it takes to be broken-in.
- When a decrewed vessel is ready to return to service from the shipyard, it goes through a reverse bumping process as crew can bid by seniority to be placed on the returning vessel. This leads to more crew shuffling and the possibility of additional break-in costs.

Other costs that will be more difficult to quantify in the study will be the reduced sense of ownership that occurs when an engine room is reassigned to another vessel, and the loss of efficiency from a crew that has learned their vessel and to work together well.

The disruption caused by the "bumping" of engine crews to move to different vessels, coupled with the expense of the bumping process, followed by further disruption and expense when a vessel is crewed again had led to the existing WSF policy of avoiding bumping for short and medium length commercial yard periods. WSF concurs that a study will help determine what the breakeven point is when considering removing engine crew during shipyard availabilities.

ACTION PLAN

- Conduct a thorough cost benefit analysis to determine the costs involved in de-crewing/re-crewing a vessel during commercial shipyard periods.

- Develop a recommendation as to the length of commercial shipyard time necessary to realize crew cost savings.
- Consider a new policy for shipyard staffing.
- Inform employee representatives of any prospective staffing changes.
- Time to perform analysis, determine the threshold for cost savings opportunities, to develop policy and work with employee representatives is likely to be 8 – 10 months.

RECOMMENDATIONS #31, 32, & 33

PVA RECOMMENDATION

(#31) The Panel recommends that WSF should consider a set cut-off time for loading all vessels

The Panel believes that departure times should be strictly adhered to for vessel loading. If the vessel is to leave on time, embarking must cease with sufficient time for the crew to secure the deck and get underway. Allowing stragglers to delay the departure is harmful to the system for a number of reasons, including travel certainty, fuel consumption, and staffing costs. WSF should establish a cut off boarding at the published sailing time, and then adjust the schedule to account for the time (five minutes possibly) to assure that the crew operates the vessel as efficiently as possible. The countdown timer used by Staten Island Ferry should be considered.

(#32) The Panel recommends that vehicles be unloaded ahead of bikes.

Safety is of paramount importance with efficiency second. The Panel recommends that a trial project be undertaken to change the loading/unloading sequence with bicycles being loaded last and unloaded last. This allows better separation of vehicles and bicycles and gives the Mate more control over the space allocated to bikes. Bikes are also slower than cars and can slow the disembarkation of those they are in front of. By holding back bikes, it also avoids the need for bicyclists to move through the car deck with their bikes in order to get to the front of the vessel. By off loading after the vehicles, bikes will not be sharing the road at the same time as the disembarking vehicles, increasing the safety of bicyclists.

(#33) The Panel recommends that the "tunnel" be unloaded before the gallery decks and side decks are unloaded.

The vessel should be off loaded in the most efficient method possible to ensure that all vehicles are on their way quickly. Stopping and starting flows of vehicles can be confusing to drivers and thus dangerous for the deck crew. Data should be collected with the system "as is" and with the altered sequence to identify and change in time at the dock. Should there be complaints from customers, WSF should emphasize that reducing the time at dock allows the vessels to operate at slower speeds during the crossing, with the benefits of reduced fuel costs and lower impact on the environment.

WSDOT RESPONSE

(#31) WSF agrees with this recommendation.

WSF believes that set a cut-off time is an appropriate policy measure in support of minimizing terminal dwell time and improving on-time performance.

(#32, #33) WSF will continue to evaluate recommendations #32 and #33 and work with its customer groups and other stakeholders to assess the merits of changing loading and unloading procedures.

On-time performance is essential to WSF. It benefits all parties for the vessels to depart on time, and is essential to the future operation of a reservation system. Ferry customers have more travel certainty and

WSF can provide service in a more efficient manner by reducing fuel and staffing costs. WSF is committed to reviewing all its loading and scheduling options for all routes in an effort to improve on-time performance, with particular attention to the PVA-identified procedures relating to bicycle and tunnel loading and unloading.

Background and Context

The Panel cited the importance of maintaining on-time performance. Deviations from the scheduled departure/arrival times can cause a negative perception for the customer that did arrive on time and that expects an on-time departure. It also creates a need to make up the delay by the crew, increasing fuel consumption of the vessel and/or extensions of crew shifts which generate overtime costs. The Panel recommended three common and effective practices that would support a commitment to on-time performance. The Panel also noted that WSF has a mix of terminal and egress challenges that vary route to route.

Discussion of Key Issues

Currently, WSF is running schedules that are very tight during peak periods of the day (an emphasis on trying to provide as many runs within a crews' scheduled day as possible), and terminal facilities fall short of vessel capacity, which leads to ferry dwell time delays and deviation from the published schedule. In order for WSF to deliver an on-time schedule, it will need to comprehensively study and adjust running schedules and loading/unloading procedures, and other operational challenges. As part of this study, WSF will make changes to loading cut-off times, and review the practices of unloading of bicycles, and the unloading of the "tunnel" as necessary to meet an on-time performance standard.

Tunnel space loading and unloading. WSF currently has a policy of off loading in the same sequence as loading. The tunnel on nearly all of WSF vessels are considered to be premium spaces because of height clearance. Because of this, WSF vessel crews hold filling the tunnel spaces until last to accommodate high clearance vehicles. High clearance vehicles are normally commercial or combination rigs that slow the traffic on arterial roads exiting ferry terminals. The problem of "dumping" the tunnel first is slower, oversized vehicles create congestion at the exit points in front of faster moving vehicles. However, it should also be noted that loading/unloading priority has little impact on dwell time at certain terminals (i.e. Seattle, Bainbridge) since the slow down to offloading is caused by stops at traffic lights that cause the off-load to stop.

Bicycle loading and unloading. WSF currently loads and unloads bicycles before all other vehicles. This practice started many years ago in response to growing bicyclist ridership and patronage and was developed in consultation with bicycle customers and local community input. The impact of current bicycle priority loading/un-loading is felt primarily in two parts of the system: Bainbridge Island and San Juan Islands routes, primarily Lopez and Friday Harbor. During the off-peak seasons the San Juan routes' impacts are not significant; however, Bainbridge Island does experience significant bicycle ridership year round. Bainbridge is unique in that there are three loading periods for bicycles: first, mid-load, and end-load.

According to the PVA assessment, loading bicycles at the end could speed up the loading process and would keep all the bicycles grouped together. This loading sequence sets up for bicycle off-loading last which could speed up unloading, since cars do not have to wait for bicycles to clear the egress lanes before beginning the debarking process. The degree to which these potential savings can be realized will depend on the specific situation at WSF's various terminals and the level of bicycle ridership. For example, a situation where auto

traffic is metered by a traffic light as it leaves a ferry terminal may effectively reduce or eliminate much of the potential time savings associated with changing the pattern of bicycle loading and unloading.

ACTION PLAN

The action plan for this recommendation includes:

- WSF will study the schedule of each individual route, terminal configuration, and operating procedures to explore what changes to the schedule and loading/unloading procedures would be necessary in order to maintain on-time departure/arrival schedule.
- WSF will create a Draft Schedule incorporating a universal cut-off time for loading.
- WSF will review its bicycle loading and unloading policy in light of the other terminal and route-specific issues to determine if a change in policy might be beneficial. This review will be conducted in consultation with affected stakeholders, including bicycle users and local community representatives.
- WSF will create a route and terminal specific loading/unloading protocol that addresses the unique challenges at each terminal that would be necessary to meet an on-time performance standard. WSF will implement a training plan to encourage its crews to pre-plan the off-load and to position themselves strategically to have a seamless off load.
- WSF will meet with and provide information for route users, inclusive of the elected officials for the district the service is in. Outreach with these groups will be focused on meeting on-time departures.
- WSF may need to provide additional outreach to bicycle riders who may view changes in their loading priority as decrease in level of service without considering more indirect benefits of on-time performance.

RECOMMENDATION #34

PVA RECOMMENDATION

The Panel recommends that WSF continues to implement a reservation system for appropriate routes.

The Panel believes WSF will need to find ways to manage demand with a reservation system to provide a number of benefits to the system, such as enabling the ferry system to shift some demand to the shoulder periods. The Panel acknowledges that WSF has completed a predesign study for the reservation system and endorses this moving forward. WSF has started Phase 1 of 3 in implementing the reservation system.

WSDOT RESPONSE

WSF agrees with this recommendation.

Background and Context

The 2009 WSF Long-Range Plan proposed a vehicle reservation system as a strategy to manage demand, spread peak vehicle traffic, improve asset utilization, reduce wait times, and minimize the need for costly terminal and vessel expansion projects. The Legislature requested a predesign study to review the feasibility of such a system. That study was completed in 2010 and Phase I implementation was approved by the Legislature. WSF will continue to work on implementation of Phase I and will request that funding be approved for Phase II in the 2011 Legislative session.

As shown in the table below, all routes in the system will experience some form of improvement related to reservations, though general vehicle reservations will not be available on Mukilteo-Clinton or the routes serving Vashon Island due to terminal constraints. On these routes, only commercial program customers will likely have access to reservations.

Summary of Reservation Implementation by Terminal

Terminal	Reservation Availability	Communication Improvements			Terminal-Related Improvements			
		Regional VMS Signs	Highway Advisory Radio	Queue Detection	Local VMS	Traffic Management Signs	Ferry Advisory Radio	Other
Anacortes	All Customers		X			X	X	
Bainbridge	All Customers	X	X	X	Existing	X	X	
Bremerton	All Customers	X	X		Existing	X	X	
Clinton	Commercial Only		X	X		X	X	
Edmonds	All Customers	X	X	X	Existing	X	X	Additional tollbooth, traffic gate
Fauntleroy	Commercial Only	X	X					
Friday Harbor	All Customers *		X			X		3 Web cameras
Keystone	All Customers		X			X	X	
Kingston	All Customers	X				X	X	
Lopez Island	All Customers *		X			X	X	
Mukilteo	Commercial Only	X	X	X		X	X	
Orcas Island	All Customers *		X				X	
Point Defiance	Commercial Only		X			X	X	2 Web cameras
Port Townsend	All Customers		X			X	X	
Seattle	All Customers	X	X				X	
Shaw	All Customers *						X	
Sidney	All Customers							
Southworth	Commercial Only	X	X		Existing	X	X	
Tahlequah	Commercial Only		X				X	
Vashon Island	Commercial Only		X					2 Web cameras

* *Excludes inter-island sailings*

Discussion of Key Issues

The proposed vehicle reservation system would offer reservations on select commuter-oriented routes making WSF one of the few ferry systems in the world to offer commuter reservations. Implementing reservations on high volume commuter routes will be challenging. Therefore, the system has been designed to be an adaptive system, complete with data gathering and analysis functions that will provide WSF with information to ensure that the system is continually monitored and adjusted as necessary to meet the needs of customers, communities and WSF.

Without additional capacity expected (at least over the 22-year long range planning horizon), WSF has been directed by the Legislature to take steps to manage its demand. WSF needs to enact strategies that will move discretionary trips currently happening during peak times to other times during the day where there is capacity. A reservation system is a major demand management strategy to address this capacity issue.

WSF will gradually roll out and implement the reservation system, with purposeful phasing that allows for testing, education, and outreach as reservations become available on each route. WSF may also choose to implement reservations gradually on individual routes, by offering reservations first to a certain customer group (like commercial customers), for a limited number of sailings (like weekends only), or by making a small percentage of vessel capacity available. During the rollout process, the Legislature will have two major decision points at which time it can evaluate the benefits and success of the reservation system in its funding decisions.

ACTION PLAN

The action plan for this recommendation includes:

The proposed vehicle reservation implementation program was developed based on balancing several goals: (1) a desire to minimize implementation risk; (2) to create opportunities for early successes to build customer confidence in the new system; and (3) to offer enhancements where the need is greatest. Toward these ends, the following three-phase approach is being pursued:

- **Phase 1**: Initial acquisition and testing of the “industry-standard” reservation system (May 2010 through fall 2011). In this phase WSF is in the process of procuring an industry-standard reservation system and integrating this system with the Wave2Go ticketing system and the rest of the core IT infrastructure. The system will then be deployed on the routes that currently have reservations (likely in fall 2011) and fully tested. These include the International Routes to Sidney, the Port Townsend-Keystone route and commercial reservations in the San Juan Islands.
- **Phase 2**: Full implementation on the northern routes. Once the initial system deployment has been fully tested (likely Spring 2012), then the next step for reservations would be to extend the availability of reservations to all of the Anacortes-San Juan Islands routes. This phase would also include extending reservations for commercial account customers throughout the WSF route network and implementation of the remaining portions of the regional ferry Intelligent Transportation System (ITS).
- **Phase 3**: Expansion to the Central Sound commuter-oriented routes. By this time, the reservation system, including the priority access programs, should have a track record of success and the regional ITS program would be fully operational. These factors will be significant elements of a risk mitigation strategy for fully deploying reservations on the high volume and commuter-oriented routes at Seattle-Bainbridge, Seattle-Bremerton, and Edmonds-Kingston. It will likely take a year to develop the IT system

enhancements necessary to support these routes. A pilot would then be tested on one of the Central Sound routes for 3-6 months, prior to extending reservations to all these routes.

One of the benefits of this phased implementation schedule is it allows for a break between Phase 2 and Phase 3. Before committing funding to the final phase where the implementation risks are highest, WSF will have more than two years of operating experience with reservations in the North Sound, an understanding of the impact of the ITS investments on demand management in the Central Sound and an opportunity to revisit and refine the approach to reservations on the commuter routes based on these inputs.

RECOMMENDATIONS #35 AND 36

PVA RECOMMENDATION

(#35) The Panel recommends that WSF evaluate their policies, mission statement and training to assure that the commitment to customer service is communicated to personnel and customers.

(#36) The Panel recommends that WSF develop an improvement program to ensure that all staff members who interact with the public are performing at high standards, as well as a recognition program when that standard is met.

WSF needs to assure that the culture of the system emphasizes customer satisfaction. WSF has a committed group of employees that provide excellent service to the public and often receive accolades from the public. WSF should communicate to its staff that customer interaction and satisfaction are metrics that are important to the customer and, therefore, to WSF. WSF should then develop some metrics for customer service with respect to quality staff interactions such as: "time on hold" for telephone inquiries, number of passenger compliments and complaints. WSF might consider effective hospitality models developed by local companies, such as Clipper Navigation or Holland America Lines, for application to training and corporate culture. Such changes may require changes to future Collective Bargaining Agreements to ensure that all parties are clear on their role in providing a solid customer experience.

WSDOT RESPONSE

WSF agrees with these recommendations.

WSF has embarked on an extensive and comprehensive process to review and systematically improve its customer service functions. The PVA recommendations are wholly consistent with ongoing efforts to implement the improvements identified in the customer service assessment.

Background and Context

The Panel felt that WSF needs to assure that the culture of the system emphasizes customer satisfaction. WSF has a committed group of employees that provide excellent service to the public and often receive accolades from the public. However, the Panel felt that WSF should go further and make an agency-wide commitment to customer service that is reflected in its mission, policies, and protocols measured against meaningful performance metrics.

The Assistant Secretary has placed a priority on improving WSF's community relationships and customer service. Given this focus on customer perspectives and customer relationships, WSF has recently completed Costumer Service Review to assess current WSF customer service practices and identify steps to improve customer service in the future.

Discussion of Key Issues

There has been a general concern among senior management that WSF does not have a strong enough "culture of customer service" as an organization. The Customer Service Review found that the organizational

culture of customer service is much more nuanced. The most significant finding from the assessment is that WSF's current culture is more service-oriented than customer-oriented. This is reflected in the current WSF mission, which was developed several years ago under different leadership:

> To provide the highest standard in marine transportation that is safe, secure, efficient, reliable, and environmentally sound reflecting the innovation and pride of our employees.

The mission statement above is centered on quality transportation service and WSF employees, but does not explicitly acknowledge the importance of the customer. In order to improve customer service throughout the ferry system, steps must be taken to broaden the definition of customer service beyond simply providing safe and reliable service.

Employees in all parts of the organization need to understand that customer service encompasses the entire customer experience and is the responsibility of everyone. The current service-oriented culture is a strong foundation to build upon because safe, reliable, and efficient service are core elements of a positive customer experience. However, this service-oriented culture must be re-oriented towards the customer so that other priorities that are affecting customer satisfaction (e.g. travel information, cleanliness, staff interactions, and amenities) can be addressed as well.

ACTION PLAN

To move forward and achieve the objectives of building a customer focused organization, it is imperative that WSF shift its customer service emphasis from a service-oriented vision to a customer-oriented vision. WSF is addressing this effort in a comprehensive fashion as described in the following plan.

- WSF is developing an updated customer service vision that is consistent with the overall goals of the organization and puts the customer at the center of what WSF is trying to achieve. Further, a comprehensive communications strategy is being developed to spread the new vision internally and externally.
- WSF is in the planning phase of a comprehensive initiative to improve customer service functions through:
    - The revision and improvement of staff training to align with the new vision
    - Pursuing customer service performance standards that align staff incentives to support the new vision
    - Developing tools to enhance employees' capacity to resolve customer issues on the spot
    - Improving external communications through enhanced customer information and the use of emerging social media tools such as Twitter, Facebook, and a dedicated WSF-centric blog
    - Improving the website and other customer resources to make it easier to use WSF services and provide better information to customers
    - Improving signage at terminals and on vessels to make it easier for customers to navigate travel on WSF ferries and terminals, and to improve the overall travel experience
    - Improving facility and vessel cleanliness
    - Taking steps to instilling a "pride of ownership" among WSF staff regarding service quality and vessel and terminal condition.

- WSF is reviewing and revising its operational protocols to make sure that there is a consistent focus on improving the customer experience
- WSF is improving the process for the tracking, monitoring and reporting of customer feedback and customer satisfaction
- WSF is beginning a process to improve its communication effectiveness by reviewing internal and external communication protocols and exploring new communication technology options to better manage information flows