



STATE OF WASHINGTON

December 27, 2012

The Honorable Brian Sonntag
Washington State Auditor
3200 Capital Boulevard
P.O. Box 40021
Olympia, WA 98504-0021

Dear Auditor Sonntag:

Thank you for the opportunity to respond to the State Auditor's (SAO) Performance Audit on *Washington State Ferries: Opportunities to Reduce Vessel Construction Costs*. We reviewed the report and have provided our formal response below.

The Washington State Department of Transportation (WSDOT) appreciates the State Auditor's work. WSDOT continually seeks to improve its effectiveness in delivering projects and programs of the highest quality in a timely and fiscally responsible manner, thus we attached importance to a review to help ensure we provide the taxpayers the highest possible return of value.

We appreciate the report's acknowledgement that WSDOT's Ferries Division has made much progress in its vessel construction program since the Jumbo Mark II class ferries were built in the late 1990's. The State Auditor included the Jumbo Mark IIs and other vessels built as long ago as 1993 to increase the sample size in their analysis. However, it is important for the reader to know that including vessels built in the 1990s in the audit impacts the Auditor's analysis, given the number of changes in regulations over vessel design and construction, as well as changes in the economic environment that impact cost in ways that were not sufficiently addressed in the Auditor's analysis.

We also appreciate that the report reflects that Ferries employs 13 of the 15 leading practices for vessel construction, developed during the audit. This is significant, since the industry has not seen suggested "leading practices" compiled like this in one document before. As WSDOT moves ahead in building the new Olympic class ferries, it is employing lessons learned from building the Kwa-di Tabil class ferries, which is also recognized in the report.

WSDOT continuously reviews its processes to ensure that each tax dollar is wisely spent, so we appreciate recommendations to further enhance its ferry construction program. However, it is



important to understand that given all the factors that influence vessel construction costs, and that significant cost drivers were not consistently addressed in the Auditor's analysis, the audit cannot conclude, or reasonably estimate, how much could be saved by implementing the recommendations. Some additional context on vessel costs follows.

Total Cost of Vessels

The Auditor's report compared the total costs of 39 vessels purchased in the U.S. over the past 20 years, which includes six vessels purchased by Washington State Ferries. The Auditor used 2011 dollars for its total cost comparison; however, this is only a starting point for the analysis. Any comparison of the construction costs of different vessels must consider regional wage differences, regulatory factors, and the cost of a state-certified apprentice program, as well as differences in vessel design and size. All of these factors can have a significant impact on costs. The Auditor's total cost comparisons don't attempt to account for the impact on competition for bids by shipyards and resulting cost from the state's requirements to build state ferries in Washington and for the shipyard to have a state-approved apprenticeship program. These cost comparisons also do not take into account changes in vessel design standards over the years or different design standards based on size of vessels in their audit. Further, total cost comparisons do not address the differences in wage rates nationally, where shipyard labor in Washington is markedly higher than the southern part of the United States where some of the non-WSDOT vessels were built. We explain further the impact of some of the regulatory, design, and economic factors below.

In addition, the total cost comparisons did not take into account that some of the 33 vessels in the comparison could literally be placed on one of WSDOT's ferries and transported across the Puget Sound, given that they are small passenger-only ferries built of aluminum. The Department wants to ensure the comparisons are viewed with these factors in mind and the extremely wide range of vessel sizes included in the Auditor's sample. A small passenger-only ferry weighing 200,000 pounds vs. a 10 million pound Jumbo Mark II ferry does not yield a meaningful comparison.

Vessel Cost Adjusted for Cost Drivers

The Audit Report is misleading when it states that Washington State Ferries paid more even when accounting for ferry design characteristics. As stated above, there are many more factors affecting the cost of a vessel than design characteristics. We were not provided a complete set of the data used by SAO in their cost analyses, including a list of all the vessels and vessel characteristics to which the Department's vessels costs were compared. While the Department's response to the statistical analysis is limited, we do appreciate the information on cost analyses the Auditor shared with us and the discussions as we reviewed the draft report. Factors that impacted the Auditor's cost comparisons are addressed below regarding points on the cost to build the Kwa-di Tabil class ferries.

The Honorable Brian Sonntag, State Auditor

Official WSDOT Response to the SAO Report on: *Washington State Ferries: Opportunities to Reduce Vessel Construction Costs*

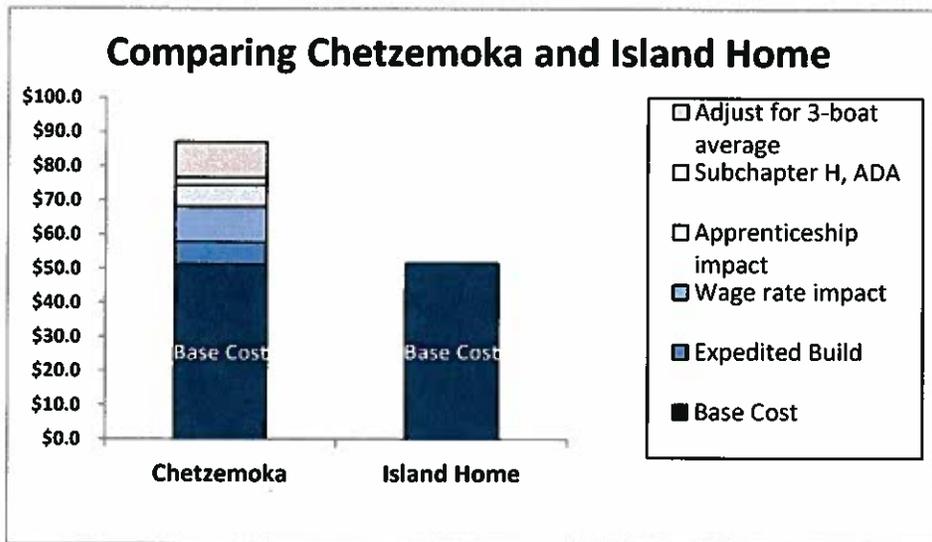
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As acknowledged in the audit, laws passed to stimulate the state economy, provide jobs, maintain the supply of skilled workers, and ensure shipbuilder trade training through the required state certified apprentice program contributed to increased WSDOT ferry construction costs. Further, when WSDOT builds a ferry, it is built to provide a sixty-year service life. Building for this life expectancy does increase initial costs; however, when costs are spread over the vessel's service life they are lower than vessels built to an industry standard for most commercial or naval vessels of twenty to thirty years.

As the Auditor began this performance audit, WSDOT informed the audit staff of several crucial factors that influenced the costs of building the Kwa-di Tabil class ferries. A major cost driver was the accelerated construction schedule needed to restore service to several communities where service was disrupted by the sudden retirement of the four Steel Electric ferries. In order to meet the accelerated construction schedule, the contractor joined forces with two other shipyards, creating a shipyard consortium, to ensure the vessel could be delivered in the very aggressive timeframe established by WSDOT and the Legislature. This called for extra shifts at the shipyard to keep the vessel on schedule. Thus, the accelerated schedule came at a cost. In addition, it was necessary to begin construction before all of the required design changes were made. These were not frivolous design changes; they included changes necessary for double-ended operation, meeting new U.S. Coast Guard regulations, and conforming the vessel to ADA requirements.

Another element of the State Auditor's analysis was a comparison of the Department's build of the Chetzemoka to the Island Home Ferry built by the Wood's Hole, Martha's Vineyard & Nantucket Steamship Authority in 2007. Both were based on the same basic design. The Chetzemoka cost exceeded that of the Island Home, but when the comparison is adjusted for cost factors not within the Department's control, the costs were almost identical (see Base Cost in the graph below). Those cost factors, as estimated by WSDOT's Ferries Division, included: 1) the adjustments for amounts spent to expedite the construction of the Kwa-di Tabil vessels (\$6.5 million); 2) adjusting for the impact of wage rate differences between Washington and the south where the Island Home was built (\$10.5 million); 3) the impact of the apprenticeship requirements (\$6 million); 4) the adjustment for differences in the regulations between the two builds that influenced costs at the Department (\$2.4 million); and 5) use of an average of the cost of the three vessels of the Kwa-di Tabil Class to reflect efficiencies gained in the program to build the three vessels from this class. (\$10.3 million). These factors, taken together, amount to more than \$35 million, leaving a base cost comparable to the Island Home.



The three-vessel Kwa-di Tabil project was recognized in 2011 by the American Association of State Highway and Transportation Officials in the “Under Budget, Large Project” category. While the Chetzemoka cost more than planned, the other two vessels in the class came in at a significantly lower cost, resulting in an overall project that came in under budget and ahead of schedule.

We would like to thank you and your staff for the work put into this report. We will address your recommendations to make improvements to our program and work with the Legislature, if requested, as they address your recommendations directed toward considering changes to state law.

Sincerely,

Paula J. Hammond, P.E.
Secretary
WA State Department of Transportation

Stan Marshburn
Director
Office of Financial Management

Attachment

cc's on attached

cc: Marty Loesch, Chief of Staff, Office of the Governor
Fred Olson, Deputy Chief of Staff, Office of the Governor
Kari Burrell, Director, Executive Policy Office, Office of the Governor
Jennifer Ziegler, Director of Legislative & External Affairs, Office of the Governor
Steve Reinmuth, Chief of Staff, WSDOT
David Moseley, Assistant Secretary Ferries, WSDOT
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Ralph Thomas, Director of Communications, OFM
Robin Rettew, Senior Budget Assistant, OFM

**OFFICIAL STATE CABINET AGENCY RESPONSE TO THE PERFORMANCE AUDIT ON
WASHINGTON STATE FERRIES: OPPORTUNITIES TO REDUCE VESSEL CONSTRUCTION COSTS**

DECEMBER 27, 2012

This coordinated management response to the audit report received on December 19, 2012, is provided by the Washington State Department of Transportation and the Office of Financial Management.

RECOMMENDATION 1: We recommend that the Legislature address the regulatory barriers currently in place that limit competition on WSF vessel procurements by:

- A. Allowing WSF to use alternative strategies to encourage competition for its ferry procurements when insufficient interest exists or higher-than-expected bids are received from Washington shipyards. One possible strategy to ensure adequate level of competition would be to allow WSF to invite out-of-state shipyards to bid on new vessel construction contracts in these situations.

RESPONSE

WSDOT agrees that exploring alternatives to the Build in Washington Law may result in shipyard competition to build ferries; however, further studies would be needed to determine if any savings resulting from competition, especially competition outside of Washington, would offset the benefits to the state of a stable shipyard workforce and economic benefits of in-state jobs. WSDOT will follow legislative direction regarding possible revisions to the law.

Action Steps and Time Frame

- › Is directed to the Washington State Legislature.
- B. Undertake a study of the Apprenticeship Act to identify and resolve potential barriers for prospective applicants, in particular shipyards with established apprenticeship training programs.

RESPONSE

WSDOT recognizes the intent of the required state-certified apprentice program, which is to keep a growing and thriving shipbuilding industry in Washington to help ensure the WSDOT ferry fleet can be maintained and operated for its long service life of 60 years. However, what could be explored is whether the industry's own apprentice programs achieve the same results. Revising the apprenticeship requirements would allow for increased competition within Washington, which may result in lower overall construction costs. WSDOT will follow legislative direction regarding possible revisions to the law. If directed by the Legislature, WSDOT will work with the Office of Financial Management and the Washington State Legislature to explore alternatives to the required apprentice program.

Action Steps and Time Frame

- › Is directed to the Washington State Legislature

RECOMMENDATION 2: We recommend that WSF continue to improve its vessel construction program by determining whether adopting the leading practices and suggestions for improvement provided in this report would result in program improvement and/or cost savings, and implementing those with the greatest potential for benefit.

A. The four leading practices identified by the Technical Panel as having the greatest potential for cost savings, especially if implemented together:

- Fully adhering to fixed-price contracts for ship design and construction.
- Waiting to start vessel construction until after the design is complete and regulatory approval is obtained.
- Hiring an independent owner’s representative with established expectations.
- Shifting greater responsibility for project delivery and quality to the shipyard.

RESPONSE

The report acknowledged that WSDOT’s Ferries Division has made much progress in its vessel construction program since the Jumbo Mark II class ferries were built in the late 1990’s. The report also states that Ferries employs 13 of the 15 identified leading practices for vessel construction, either fully or partially. As WSDOT moved ahead in the building of the new Olympic class ferries, it employed three of the four recommended practices having the greatest potential for cost savings as lessons learned from the building of the Kwa-di Tabil class ferries (i.e., fixed price contract, construction after design is complete, and greater responsibility to the shipyard). However, we disagree with the recommended practice of using an independent owner’s representative.

WSDOT uses a “strong owner” model of project delivery. We don’t believe an independent owner’s representative provides a proper level of review, oversight, and control of a large and complex project such as construction of one of our ferry vessels. WSDOT’s strong owner practices have resulted in on-time and on-budget projects and avoids the additional costs associated with the owner’s representative.

The other practice that is stated by the Auditor as one we do not follow is completing design before construction begins. This did happen on the Chetzemoka in the interest of expediting construction. It is not the case for the new Olympic class vessels. Finally, the audit report states that WSDOT estimates it will likely pay \$20.6 million more than the initial contract award of \$115.3 million for the first Olympic class ferry. This is not the case. The project is halfway finished and change orders have totaled \$434,470. The \$20.6 million figure is the total contingency budgeted in the project. A portion of the contingency amount is for potential escalation on steel and copper costs. The first change order was actually a reduction for lower material prices.

Action Steps and Time Frame

- WSDOT has implemented the following identified leading practices in the Olympic class construction program:
 - Fully adhere to fixed-price contracts for ship design and construction

- Waiting to start construction until after design is complete and regulatory approval is obtained. As pointed out during the audit, this practice was not employed for the Chetzemoka in light of the expedited construction schedule in order to restore service to communities affected by the retirement of the Steel Electric class ferries.
- Shifting greater responsibility for the project delivery and quality to the shipyard. Again, the Department took a greater than normal responsibility on the Kwa-di Tabil vessels in order to expedite the construction and restore service to those communities affected by the retirement of the Steel Electric class ferries.

WSDOT will further explore the identified leading practices to hire an independent owner's representative with established expectations. This is not a practice employed by WSDOT in the vessel construction program, as well as the highway construction program. Over the past three decades, WSDOT has opted to have a strong owner presence, which has resulted in on-time and on-budget projects. Ongoing.

B. The suggested improvements by the Technical Panel to three leading practices WSF currently uses:

- Timely completion and effective use of lessons learned activities.
- Strengthen financial management of construction contracts.
- Improve use of contracting methods.

RESPONSE

While WSDOT agrees that use of leading practices could lead to strengthened practices, it is not in agreement with how all 3 practices identified were applied by the Technical Panel.

Timely completion and effective use of lessons learned activities: WSDOT has implemented lessons learned from the Jumbo Mark II construction into the Kwa-di Tabil builds and Kwa-di Tabil lessons learned into the Olympic class vessels currently under construction. However, WSDOT will formalize the lessons learned process in place. By implementing lessons learned from the Kwa-di Tabil builds, WSDOT has adopted practices identified by SAO as leading practices. Formalized lesson learned practices will be completed by January 31, 2013.

Strengthen financial management of construction contracts: WSDOT takes exception to how the SAO applied this leading practice to the Kwa-di Tabil vessel construction program. This recommendation is based on the Technical Panel's lack of understanding of the state government appropriations process, which requires that appropriated funds be tracked and reported in comparison to monies allotted. The Technical Panel felt that we were misrepresenting the project cost because the propulsion systems, purchased under separate contracts in prior reporting periods, were not tracked collectively. WSDOT's financial management meets or exceeds all state-required accounting practices and the Kwa-di Tabil vessels included their cost of the propulsion system purchased in the prior reporting period.

Improve use of contracting methods: Again, WSDOT takes exception to how this leading practice was applied, especially for the Chetzemoka vessel construction. The noted exceptions to the practice resulted from the need to expedite the Chetzemoka vessel construction and restore service to communities after the sudden retirement of the Steel Electric ferries. Detailed design was complete before construction began on the Olympic class ferries. The report also questioned a decision to hire another shipyard to perform final outfitting, which was done to expedite the

construction schedule. This actually resulted in reduced expenditures, as the bid for outfitting resulted in a lower contract than that of the primary contractors.

Action Steps and Time Frame

- WSDOT will continue to use and explore ways to improve upon the identified leading practices. Ongoing.