

WSDOT announces SR 520 pontoon design changes and repairs, results of internal review

Local News

Posted by:

Posted on : February 26, 2013 at 5:00 pm

SEATTLE, Wash. - Secretary Hammond announced today that WSDOT is making repairs and design modifications to the SR 520 pontoons to ensure a 75-year life of the floating bridge. These changes are the result of [findings by an expert review panel](#). Secretary Hammond also requested an internal review of what led to problems with the pontoons, which is now complete.

"We are implementing the expert review panel's findings to make repairs to the pontoons on Lake Washington and design modifications to the pontoons still to be built in Aberdeen," said Washington Transportation Secretary Paula Hammond. "The panel agrees the pontoons are structurally sufficient, and we take our responsibility for public safety seriously. These changes will ensure the SR 520 bridge is built to the highest standards."

"The results of our [internal review](#) show that we did not follow standards of good practice to validate the pontoon design elements, and as an engineer, that is particularly frustrating," Hammond continued. "We also did not strictly follow some of our protocols for oversight and administration of the contract on the construction site."

Last year, WSDOT convened an expert panel to review causes of cracking and spalling on the first cycle of pontoons built in Aberdeen. The panel's August recommendations to reduce cracking have been incorporated in the second cycle of pontoons, already under way. The panel was reconvened in fall 2012 to review pontoon structural sufficiency, repairs to the existing pontoons, future options to reduce cracking, and long-term maintenance of the floating bridge.

"The structural capacity of the SR 520 pontoons is sound, and more than adequate for all anticipated loads," said John Reilly, chair of the expert review panel. "Achieving the 75-year service life can be accomplished with normal maintenance."

There has been limited cracking of concern in the second cycle of construction to date, and the overall level of cracking is lower than the first cycle at this same stage. The second cycle of pontoons is anticipated to float out of the Aberdeen casting basin this spring.

"Based on the panel's findings, we will add post-tensioning across the pontoons on Lake Washington, in addition to the length-wise post-tensioning that is already in place," said WSDOT construction engineer Jeff Carpenter. "The additional post-tensioning and epoxy injections will help seal the cracks and improve their watertightness."

Based on the findings of the expert review panel, WSDOT will add transverse post-tensioning to all longitudinal pontoons. Post-tensioning is a process where steel tendons are stretched through the top and bottom slabs and walls of the pontoons through a series of ducts to compress and strengthen the concrete. In the first cycle, the longitudinal pontoons were post-tensioned lengthwise

only. Adding transverse post-tensioning across the ends of the pontoons will help close cracks in the longitudinal pontoons' end walls, particularly at the keel and top slabs.

Crews will retrofit the first cycle of pontoons on Lake Washington with transverse post-tensioning and will add transverse post-tensioning to the second cycle of pontoons under construction. Transverse post-tensioning will be incorporated into the remaining longitudinal pontoons to be constructed.

The two cross pontoons are post-tensioned in the lengthwise and transverse directions at the bolt beam location. Transverse post-tensioning will be added at the end walls.

The SR 520 program has an established budget that includes a remaining balance of \$200 million in risk and contingency. WSDOT and Kiewit Construction expect to complete negotiations next month on a change order to address the added work required with the first cycle of pontoons in Aberdeen. Future change orders will address design modifications and schedule delays.

"We will continue to work aggressively with our contractor to recover schedule delays caused by the repairs and design modifications," said Julie Meredith, SR 520 Program Manager. "Opening the new bridge to travelers as soon as possible is critically important to address the seismic and windstorm vulnerabilities of the existing SR 520 bridge."

Secretary Hammond requested an internal review to determine if employees or managers acted or failed to act in ways that led to greater-than-anticipated pontoon spalling and cracking, deficiencies in contract administration, and lack of proactive resolution of problems. The review also identified areas where WSDOT can improve management, communications, and internal alignment of capital project delivery practices.

"I agree with the internal review findings that there were technical design, construction management, and decision-making failures by our employees and managers," said Hammond. "I am directing WSDOT's chief of staff to prepare the appropriate disciplinary actions, and make the necessary changes to agency protocols and practices."

During the course of bridge construction, 44 pontoons built in Tacoma will be joined with 33 pontoons built in Aberdeen for a total of 77 pontoons needed to construct the world's longest floating bridge.

Construction on the \$367 million SR 520 Pontoon Construction Project broke ground in February 2011 in Aberdeen. Construction on the \$586.6 million SR 520 Floating Bridge and Landings Project began in spring 2012. The floating bridge contract requires the new, six-lane SR 520 floating bridge to open to traffic by July 2015, but includes incentives for an earlier opening in December 2014.

The latest jobs report counted 801 jobs directly connected to the pontoon and floating bridge project sites in Aberdeen, Tacoma, Kenmore and Bellevue and on Lake Washington.

More project information is available online:

<http://www.wsdot.wa.gov/Projects/SR520Bridge/PontoonProgress.htm>.