

Pontoon Construction Project

What is the purpose of the pontoon construction project?

The purpose of the project is to develop a facility to expedite construction of pontoons to be used to restore the floating section of the SR 520 Evergreen Point Bridge in the event of a catastrophic failure, and to construct and store these pontoons until needed.

Why is this project needed?

The project is needed to reduce delay in restoring the existing capacity of the Evergreen Point Bridge following catastrophic pontoon failure.

The floating section of the SR 520 Evergreen Point Bridge is at risk of catastrophic failure, and the consequences of severed connectivity to the Region's transportation system and economy would be severe. Pontoons needed to restore the bridge's existing capacity would take years to build and the WSDOT and FHWA, the lead agencies for the project, have identified timely availability of new pontoons as the most time-critical element of catastrophic failure recovery.

Provide a Facility

At up to 75 feet wide, 360 feet long, 35 feet high, and 15,000 tons in weight, floating bridge pontoons are specialty concrete structures that require unique facilities for construction. Facility requirements include:

- Deep-water access for pontoon transport
- Sufficient acreage for constructing several pontoons at a time with lay-down areas for materials and equipment storage
- Labor and material availability and access
- Access to moorage areas for pontoon storage

For emergency repair or restoration of the Evergreen Point Bridge, pontoons sufficient to support 7,600 linear feet of floating bridge need to be constructed and stored. Currently, no existing facility in Washington has the capacity to quickly produce the number and size of pontoons that would be needed to replace this length of floating bridge in the event of catastrophic failure.

Reduce Delay

Floating bridge pontoons can take six months or longer per pontoon or group of pontoons to construct. WSDOT engineers estimate that it would take 1 to 2 years to develop any potential new site with adequate capacity to expedite pontoon construction. Once the site was complete, it would take another 12 to 18 months to produce pontoons to restore the existing bridge. Building the pontoons in advance of an emergency and having them stored for quick deployment would allow the region to avoid up to 3-½ years of SR 520 bridge closure and the resulting adverse effects on the transportation system and economy. Readyng pontoons would facilitate restoration of bridge function within 12 to 18 months in the event of catastrophic failure.

Selecting and developing a site that is appropriately zoned and unencumbered (by chemical contamination or high likelihood of cultural resources, for example) is necessary in order to expedite site development and pontoon construction. The delay involved in developing a site with these types of encumbrances would negate the time savings in emergency restoration that this project is designed to provide.

Preparedness

Severe winter storms, and the resulting wind and wave action, have damaged the floating section of the 44-year-old Evergreen Point Bridge and rendered it increasingly vulnerable to windstorms. About 6,000 feet of cracks have developed in the pontoons weakening the overall structure. The bridge was strengthened in 1999 to provide an estimated 10 to 20 years of life and to sustain winds up to 77 mph. Lake Washington has experienced over seven storms in the past 25 years with winds of at least 77 mph. WSDOT closes the bridge if winds reach and maintain an average speed of 50 mph for 15 minutes. The bridge was closed three times for a total of 34 hours in 2006 due to wind storms.

Because of the current vulnerability of the bridge and its importance to regional transportation and economy, WSDOT began planning in 2006 for the possibility that the floating section of the bridge might fail before the bridge could be replaced. Part of this planning process was to identify what measures might be taken to expedite the repair of the existing floating bridge in the event of a catastrophic failure. The fabrication of pontoons has the longest lead time of any single activity related to such an effort; hence, WSDOT determined that constructing and storing a supply of pontoons sufficient to replace the existing floating bridge were key elements of catastrophic failure planning. Expediting pontoon construction is a key need served by the project.

If the Evergreen Point Bridge were to fail, the consequences to the transportation system and economy in the region would be severe. Currently, about 115,000 vehicles cross the bridge each day. There is not an available detour designed for or capable of accommodating this amount of additional traffic at equivalent speeds or travel times. Without the bridge, not only would commute times increase for cross-lake traffic and congestion increase on alternate routes, but the movement of goods and supply of services across the lake would be impaired; trip mileage would increase; and travel costs for individual motorists, transit operators, and commercial operators would also increase. Economic and social impacts on the region are likely to be substantial.

What if the Evergreen Point Floating Bridge does not experience catastrophic failure?

Roadway improvements to the SR 520 corridor to improve mobility across Lake Washington, and planned replacement of the SR 520 bridge are currently under review as an independent project as described in a Draft EIS issued in August, 2006. If the Evergreen Point Bridge does not experience catastrophic failure before planned bridge replacement work begins, the pontoons produced by the proposed facility would be used to support planned replacement of the floating bridge. The pontoon design for this project will accommodate a variety of customized bridge decks and roadway configurations so as not to preclude or pre-determine planned bridge replacement alternatives.