



Washington State
Department of Transportation

SR 520 Bridge Replacement and HOV Program



Pontoon Construction Project

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Washington State
Department of Transportation

Presentation agenda



West approach of SR 520 floating bridge.

- **Project purpose.**
- **SR 520 Program.**
- **Pontoon moorage.**
 - **Design**
 - **Environment**
 - **Community input**
- **Next steps.**

Why are we building new pontoons for SR 520?



SR 520 floating bridge during a wind storm.

Vulnerability and Safety Concerns.

The SR 520 floating bridge is nearing the end of its useful life.

Constructing and storing pontoons are key elements in catastrophic failure planning.

SR 520 Program description

The SR 520 Bridge Replacement and HOV Program will replace the Portage Bay and Evergreen Point bridges and improve existing roadway between I-5 in Seattle and SR 202 on the Eastside.

The SR 520 Bridge Replacement and HOV Program includes four projects:

- I-5 to Medina: Bridge Replacement and HOV Project**
- Medina to SR 202: Eastside Transit and HOV Project**
- Pontoon Construction Project**
- Lake Washington Congestion Management Project**



Pontoon Construction Project schedule

2009

- Evaluating two sites in Grays Harbor.
- Began innovative pontoon construction tests.
- Award design-build contract.

2010

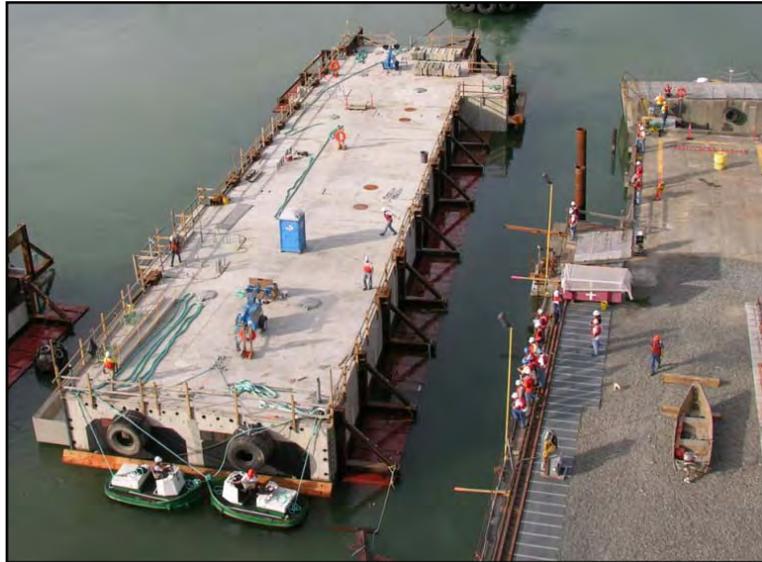
- Release draft environmental impact statement.
- Begin pontoon site construction in Grays Harbor.

2012

- Begin construction of pontoons in Grays Harbor.



What are bridge pontoons?



Examples of pontoon float-out from casting basin.

- Large, hollow concrete structures.
 - Weight: 12,000 tons.
 - Length: 360 feet.
 - Height: 30 feet.
 - Width: 75 feet.
- Form the foundation of a floating bridge.
- Anchored to the lakebed below.
- Support the weight of the road and vehicles.

Building pontoons in Washington



- 33 pontoons needed.
- Build a new pontoon construction facility in Grays Harbor.
- Build pontoons at new construction facility and may use existing Tacoma facility.

Map illustrates the Grays Harbor and Tacoma pontoon construction sites' proximity to the SR 520 floating bridge.

Evaluating two sites in Grays Harbor



Preferred site: Aberdeen Log Yard
(Conceptual design of casting facility.)



Anderson & Middleton
(Conceptual design of casting facility.)

- Crane rail
- - - - - Proposed rail spur
- Access road
- Batch plant
- Launch channel
- Office and parking
- Pontoon
- Water treatment area
- Berm
- Casting basin
- Dry storage and laydown area
- Gate

Conceptual casting facility



The casting facility is designed to construct eight pontoons at a time.

How do pontoons leave the casting basin?

Pontoon float-out process:

- Flood the basin.
- Move the gate.
- Use tugboats to tow each pontoon.
- Return the gate.
- Drain the basin.



Hood Canal Bridge pontoon leaving existing Tacoma casting basin.

Pontoon moorage

- Pontoons will be moored until needed.
- WSDOT could moor up to 33 pontoons in Grays Harbor.
 - Total pontoon surface area is approximately 15 acres.
- Pontoons cannot be towed out of Grays Harbor during the winter storm season.



Hood Canal Bridge pontoon with roadway structure formerly moored to Port Gamble. SR 520 pontoons will be moored without roadway structure.

How will pontoons be moored?

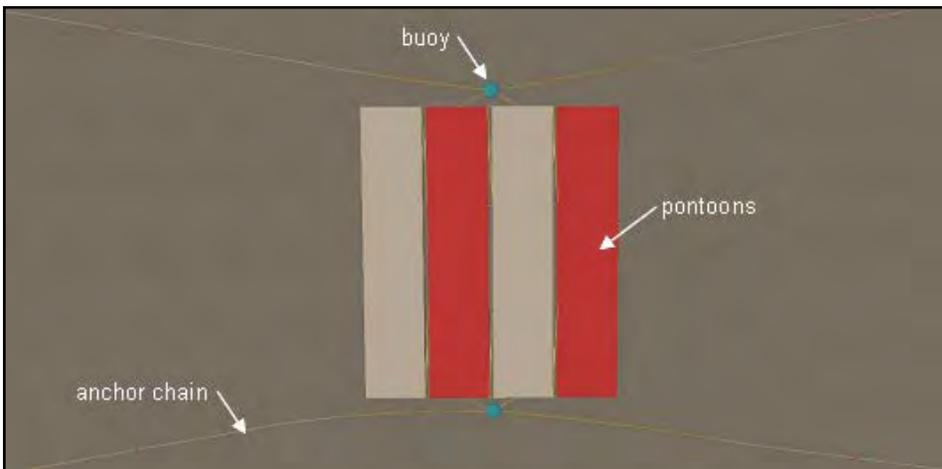
Existing berths, such as docks.

The method of mooring pontoons and securing them at existing berths.

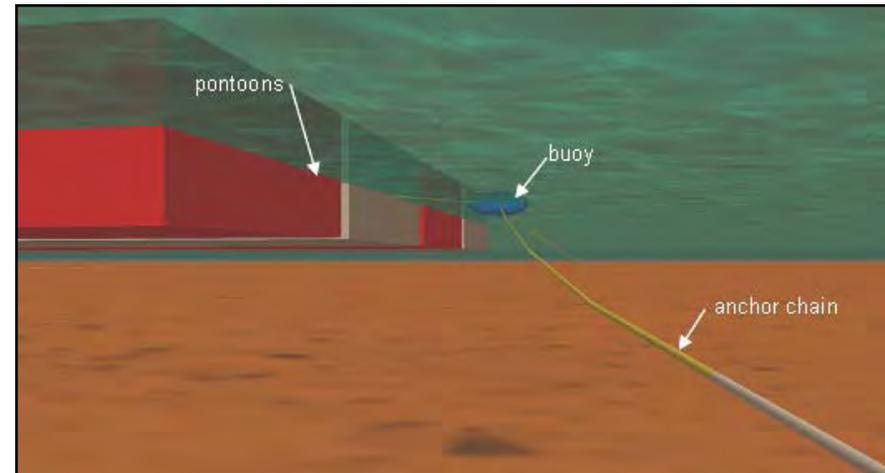
Spread moorage, pontoons on anchor.

The method of mooring and securing pontoons in place with anchors and anchor lines.

Examples of Spread moorage



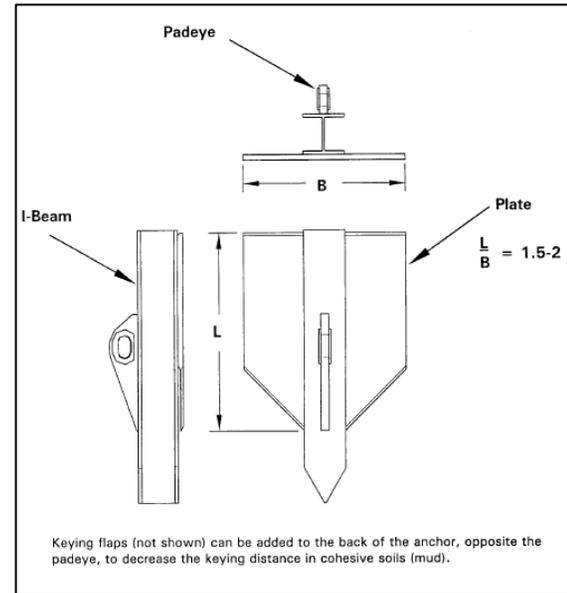
Spread moorage example: conceptual aerial view of four anchored pontoons rafted together.



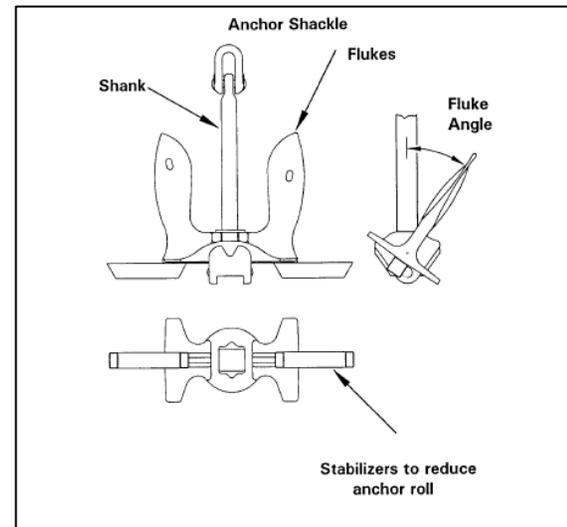
Spread moorage example: conceptual cross section of four pontoons rafted together and anchored to harbor floor. (*underwater view*)

How will pontoons be protected?

- Anchor system designed to prevent drifting.
- Monitoring sensors and inspection to ensure safety.
- Navigational lighting to ensure visibility.



Driven Plate Anchor



Drag Embedment Anchor

Where will pontoons be moored in Grays Harbor?



How will pontoons be moved to the bridge site?

Possible Towing Route and Pontoon Outfitting Locations



- Pontoons will be towed individually from Grays Harbor to Lake Washington.
- WSDOT completed a towing study to ensure safe ocean towing.

How are we gathering information about moorage effects?

Engineering experts:

Evaluate currents, wind and wave energy, and sediment transport.

Community groups:

Provide input on the potential effects to other Grays Harbor users.

Test plate study:

Test plate study to understand the types of organisms that may attach to pontoons.



WSDOT team member sharing project information at a local Grays Harbor event.

Next steps



- Continue meeting with regulatory agencies.
- Collect and address input in the draft environmental impact statement.
- Opportunity to view and comment on the draft environmental impact statement.
- Public hearing in the new year when the document is released.

Questions?

For more information visit the project Web site at:



Existing SR 520 floating bridge's mid span.

Program information:

www.wsdot.wa.gov/projects/SR520Bridge

Contracting information:

www.wsdot.wa.gov/biz/contaa/