

**SR 520, I-5 to Medina: Bridge Replacement and HOV Project
(South Lake Washington) Mitigation Site**

USACE NWS-2011-376

Northwest Region

2015 MONITORING REPORT

Wetlands Program

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General Site Information	
USACE NWS Number	2011-376
Mitigation Location	North of the Renton Boeing property on the south end of Lake Washington, King County
LLID Number	1222077475027
Construction Date	2014
Monitoring Period	2015-2024
Year of Monitoring	1 of 10
Area of Project Impact¹	7.43 acres
Type of Mitigation	Shoreline and Riparian Enhancement
Planned Area of Mitigation²	4.25 acres

¹Project acreage impacts sourced from WSDOT (2011).

²Additional mitigation acreage provided see WSDOT (2011).

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Summary of Monitoring Results and Management Activities (2015)

Performance Standards	2015 Results ¹	Management Activities
As-built condition is consistent with the planting plan.	Site appears to be constructed to plan.	
Riparian woody density 4/plants100ft ² Shoreline woody density 6/plants100ft ²	Riparian: 5.6 plants/100ft ² (CI _{80%} = 5.2-6) Shoreline: 10.1 plants/100ft ² (CI _{80%} = 9.2-11)	Extensive replanting in November 2015
Washington State and King County Class A Noxious Weeds will be eradicated	No Class A noxious weeds were observed	
King County listed Class B and C Weeds identified on the site are controlled.	Garden loosestrife (<i>Lysimachia vulgaris</i>) is present and is being controlled	Weed control occurred in November 2015
Noxious weeds listed by King County as Non-Designate including reed canarygrass, non-native blackberries, and Scot's broom do not exceed 25% aerial cover in riparian zones.	3% cover	Weed control occurred in November 2015

Report Introduction

This report summarizes first-year monitoring activities at the State Route (SR) 520 South Lake Washington Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site success. Monitoring activities included vegetation surveys, and photo-documentation. Monitoring activities occurred on May 20, 2015.

¹ Estimated values are presented with their corresponding statistical confidence interval. For example, 5.6 plants/100ft² (CI_{80%} = 5.2-6) means we are 80% confident that the true density value is between 5.2 and 6 plants/100ft².

What is the SR 520 South Lake Washington Mitigation Site?

This 4.25-acre mitigation site (Figure 1) is combination of shoreline and riparian enhancement on the southern shoreline of Lake Washington. This site was created to partially compensate for the loss of 7.43 acres of aquatic functions and values. The shoreline plantings, riparian plantings, and the creation of a shallow bench waterward of the shoreline with a suitable substrate are designed to provide juvenile rearing and feeding habitat for Chinook and Sockeye salmon.

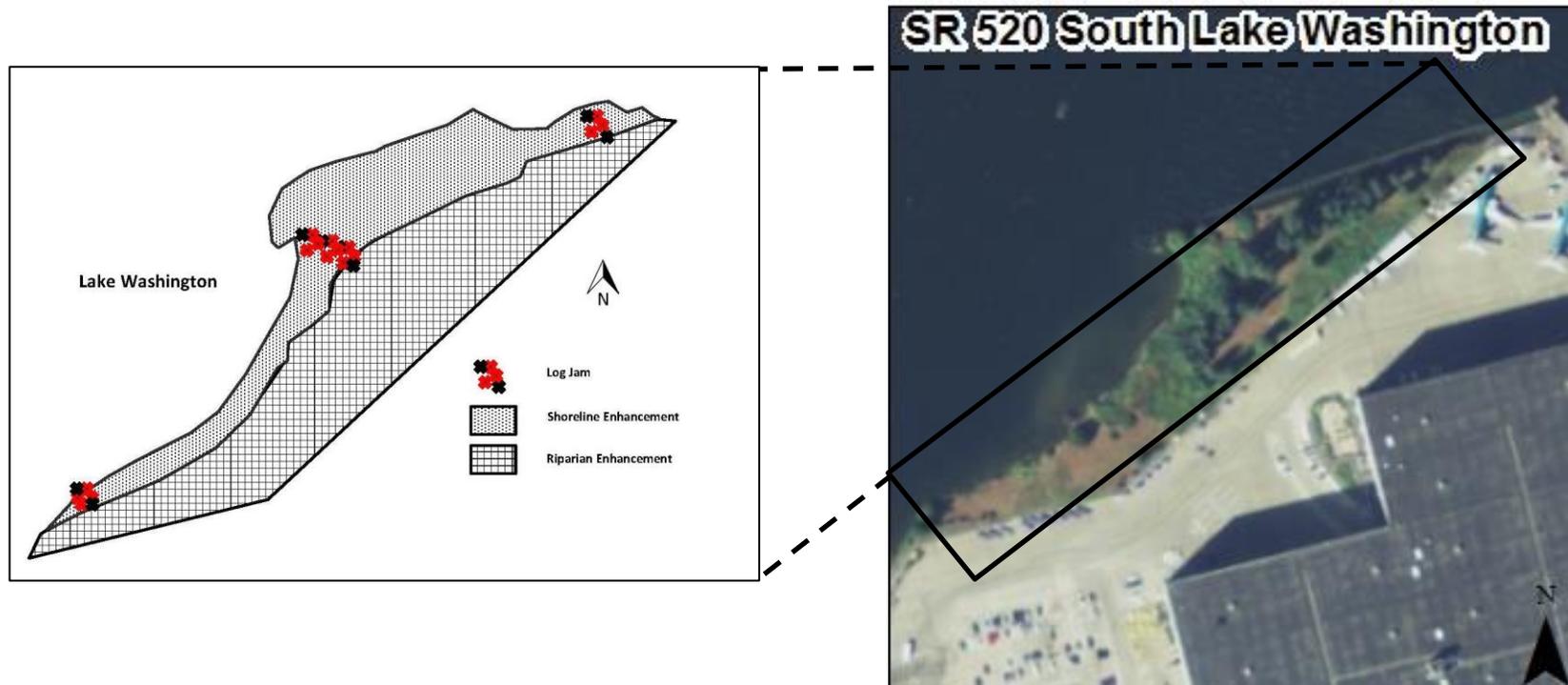


Figure 1 Site Sketch

The shoreline enhancement area includes the lake shore edge and re-established shallow nearshore habitat. The riparian restoration area includes wetland along the shore edge and upland areas. Part of the riparian area is within the Boeing wing-tip easement on the outer southern edge of the site. The Boeing wingtip easement precludes planting trees and was only be planted with shrubs. Appendix 2 includes site directions.

What are the performance standards for this site?

Year-1

Performance Standard 1

As-built condition is consistent with the project design elements, including hard structure removal, site grading plan, gravel supplementation specifications, and installed habitat features.

Performance Standard 2

Native woody species (planted and volunteer) achieve an average density of at least four plants per 100 square feet in the overall riparian zone and a density of 6 plants per 100 square feet within 10 feet of the shoreline.

Performance Standard 3

Washington State and King County listed Class A Noxious Weeds identified on the site are eradicated.

Performance Standard 4

King County listed Class B and C Weeds identified on the site are controlled. Control of noxious weeds means to prevent all seed production and to prevent the dispersal of all propagative parts capable of forming new plants. If Japanese knotweed is found at the mitigation site during monitoring, WSDOT (or its designated representatives) will promptly remove the stems above ground and chemically treat it to facilitate elimination of roots and rhizomes below ground.

Performance Standard 5

Noxious weeds listed by King County as Non-Designate including reed canarygrass, non-native blackberries, and Scot's broom do not exceed 25% aerial cover in riparian zones.

Appendix 1 shows the planting plan (USACE 2011)

How were the performance standards evaluated?

The figure and table below documents the sampling methodology utilized for all the remaining performance standards (PS) as required by the mitigation plan or permits. For additional details on the methods see the [WSDOT Wetland Mitigation Site Monitoring Methods Paper](#) (WSDOT 2008).

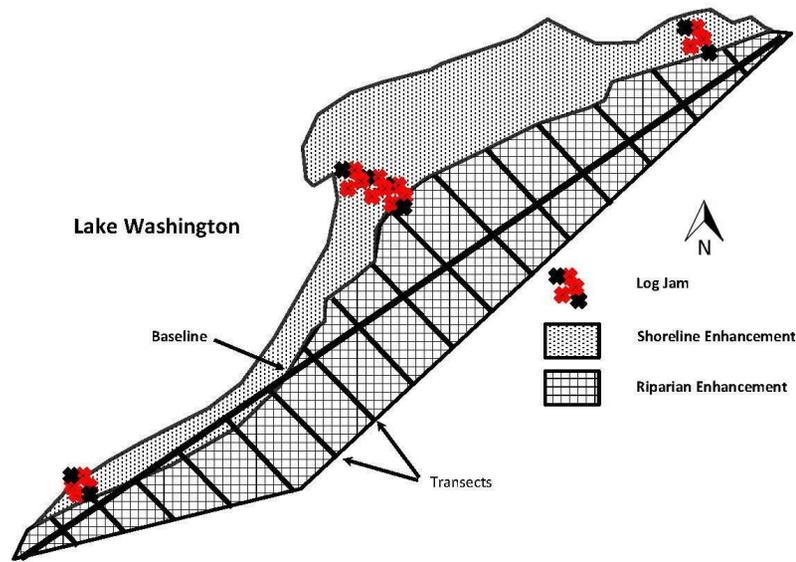


Figure 2 Site Sampling Design (2015)

Placement of Baseline: From west to east roughly through the center of the riparian planting zone (Figure 2).

	PS 2	PS 2	PS 3	PS 4	PS 5
Attribute	Density	Density	Presence/ Absence	Presence/ Absence	Cover
Target pop.	Native Woody	Native Woody	Noxious Weeds	Noxious Weeds	Invasive sp.
Zone	Riparian	Shoreline	Entire site	Entire site	Entire site
Sample method	UBT	UBT	Qualitative	Qualitative	Qualitative
SU length	Variable	Variable	N/A	N/A	N/A
SU width	1 m	1 m	N/A	N/A	N/A
Points per SU	N/A	N/A	N/A	N/A	N/A
Total # of SU	19	19	N/A	N/A	N/A
Other					

How is the site developing?

In general the site appears to be on a positive trajectory. All of the first year performance standards are currently being met. There is a high diversity of native woody plantings in both the shoreline and riparian planting zones. There are twenty-two separate species in the riparian zone and six separate species present within the shoreline planting area. Invasive species cover is low across the site.

The site was intended to provide a migratory corridor, protection from predators, and food sources for juvenile rearing and feeding Chinook and Sockeye salmon as well for juvenile migrating Chinook salmon. Some of this intent has been met with the creation of shallow water habitat with the addition of over 9,000 cubic yard of fine gravel, sand, round cobble and sediment along the shoreline, the placement of three engineered log jams, and the removal of a derelict flume structure. The other intended functions shall be provided as the native vegetation matures and provides shade for the near shoreline and nutrient export.

Results for Performance Standard 1

(As-built condition is consistent with the planting plan):

The site appears to be constructed to plan.

Results for Performance Standard 2

(Native woody density):

Native woody density in the riparian zone is estimated at 5.6 plants/100ft² (CI_{80%} = 5.2-6). Dominant species include western swordfern (*Polystichum munitum*), salal (*Gaultheria shallon*), and snowberry (*Symphoricarpos albus*). Native woody density in the shoreline zone is estimated at 10.1 plants/100ft² (CI_{80%} = 9.2-11). Dominant species include Sitka willow (*Salix sitchensis*) and Pacific willow (*Salix lasiandra*).

Results for Performance Standard 3

(Washington State and King County listed Class A Noxious):

No Washington State or King County listed Class A Noxious were observed on site.

Results for Performance Standard 4

(King County listed Class B and C Weeds identified on the site are controlled):

Garden loosestrife (*Lysimachia vulgaris*) is present in relative small quantities along northern edge of site.

Results for Performance Standard 5

(Noxious weeds will not exceed 25% cover):

Himalayan blackberry (*Rubus armeniacus*) cover was qualitatively estimate at 3 percent and is scattered throughout the drier portions of the site



Photo 1
Woody density along the shoreline (May 2015)



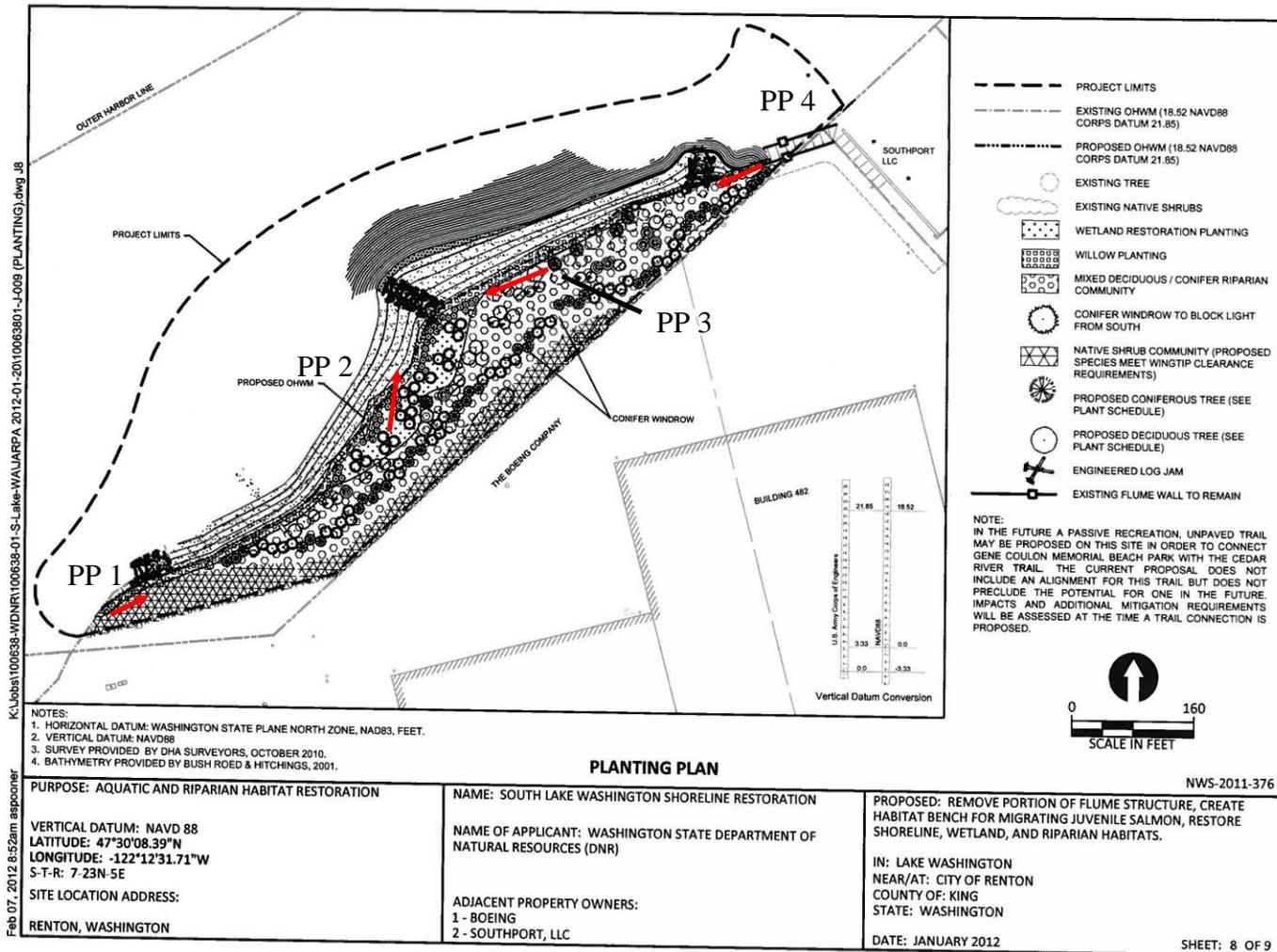
Photo 2
Woody density in the riparian planting zone (May 2015)

What is planned for this site?

The region has plans to continue weed control on an as needed basis.

Appendix 1 – Planting Plan And Photo Point Map

(from USACE 2011)



Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on May 20, 2015 and document current site development.



Photo Point 1



Photo Point 2



Photo Point 3



Photo Point 4

Driving Directions:

From I-5 N take exit 154 to I-405 N. At exit 5, take ramp right for WA-900 East toward Sunset Blvd NE / Issaquah. Turn left onto WA-900 / NE Park Dr. Turn right onto Lake Washington Blvd N. Turn left into Gene Coulon Memorial Beach Park. Park on the west end of the park and walk SW toward the north entrance to Boeing.

Literature Cited

1. [USACE] US Army Corps of Engineers. 2011. Department of the Army Individual Permit Number NWS-2011-376.
2. [WSDOT] Washington State Department of Transportation. 2011. SR 520, I-5 to Medina: Bridge Replacement and HOV Project. Final Aquatic Mitigation Report Seattle (WA): Washington State Department of Transportation, Northwest Region.
3. [WSDOT] Washington State Department of Transportation. 2008. WSDOT Wetland Mitigation Site Monitoring Methods. <http://www.wsdot.wa.gov/NR/rdonlyres/C211AB59-D5A2-4AA2-8A76-3D9A77E01203/0/MethodsWhitePaper052004.pdf>