

**I-405, SE 8th to I-90 (South Bellevue) Project
(Median Stream) Mitigation Site**

USACE NWP (14) 200501405

Northwest Region

2015 MONITORING REPORT

Wetlands Program

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I-405, SE 8th to I-90 (South Bellevue) Project (Median Stream) Mitigation Site

USACE NWP (14) 200501405



General Site Information	
USACE NWP 14 Number	200501405
Mitigation Location	Between 118 th Avenue Southeast and I-405 in the City of Bellevue, King County
LLID Number	1221824475991
Construction Date	2008
Monitoring Period	2009-2013
Year of Monitoring	7 of 10
Area of Project Impact¹	0.017 acre
Type of Mitigation	Riparian Enhancement
Planned Area of Mitigation	0.32 acre

¹The impact and mitigation acreage numbers are from WSDOT 2007. Permanent stream impact is 0.017 acre and the riparian buffer associated with it is 0.028 acre.

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Summary of Monitoring Results and Management Activities (2015)

Performance Standards	2015 Results ²	Management Activities
35% cover native woody species in Year 5 in the enhancement areas.	59% cover (CI _{80%} = 42-75%)	Planted 100 conifers in November 2015
Habitat structure will improve over time as trees and shrubs mature.	Two strata present	

Report Introduction

This report summarizes seventh-year (Year-7) monitoring activities at the Interstate (I) 405 Median Stream Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site development. Monitoring activities included vegetation surveys and photo-documentation on September 24, 2015.

¹ Estimated values are presented with their corresponding statistical confidence interval. For example, 59% (CI_{65%} = 47-70% cover) means we are 80% confident that the true cover value is between 42% and 75%.

What is the I-405 Median Stream Mitigation Site?

This on-site mitigation (Figure 1) is made up of an existing wetland and with an enhanced riparian buffer. Median Stream flows onto the site from a culvert under the southbound lanes of I-405 and meanders through the existing wetland. Roadside restoration plantings and riparian enhancement plantings buffer the stream from runoff and provide habitat structure for wildlife in the area.

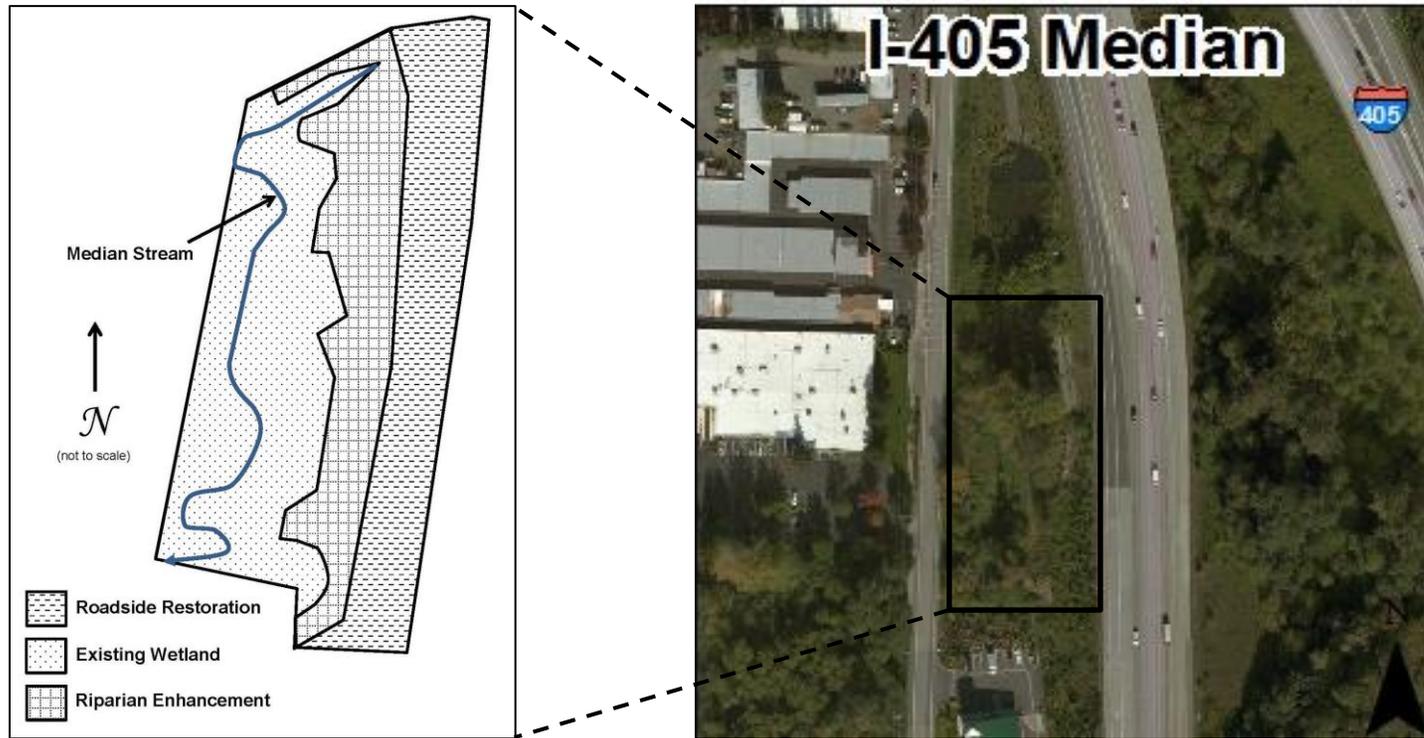


Figure 1 Site Sketch

Removal of fill on the south bank of Median Stream and enhancement of riparian buffer are intended to compensate for the replacement of a culvert under the railroad tracks within the median and the repair of a sinkhole that had developed under the existing culvert. Site directions are included in Appendix 2.

What are the performance standards for this site?

Year 10

Performance Standard 1

Native woody species aerial cover will be at least 35 percent in Year 5 in the enhancement areas.

Performance Standard 2

Habitat structure will improve over time as trees and shrubs mature.

Appendix 1 shows the as-built planting plan (WSDOT 2008).

How were the performance standards evaluated?

The table below documents the sampling methodology utilized for the Performance standards (PS) (Figure 2). For additional details on the methods see the [WSDOT Wetland Mitigation Site Monitoring Methods Paper](#) (WSDOT 2008).

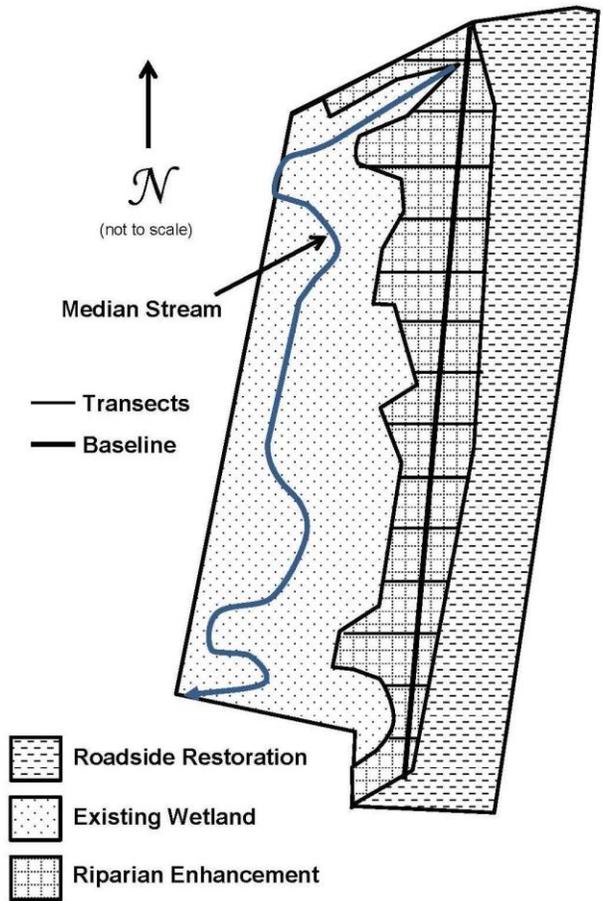


Figure 2 Site Sampling Design (2015)

Placement of Baseline: The baseline was placed through the middle of the enhancement area.
 Length: 100m Transects: 7

	PS 1	PS 2
Attribute	Cover	Habitat Structure
Target pop.	Native Woody	Trees and shrubs
Zone	Riparian	Entire Site
Sample method	Line-intercept	Qualitative
SU length	5m	NA
SU width	NA	NA
Points per SU	NA	NA
Total # of SU	7	NA

How is the site developing?

This site is successfully meeting all Year 10 standards two consecutive years in a row in Year 6 and 7 (see Appendix 3, Table 1). The planted trees and shrubs currently occupy the understory of the site with the mature black cottonwood (*Populus balsamifera*) above. The native woody cover estimate would be much higher if the mature black cottonwoods were included. Not much is growing directly beneath them.

Invasive cover is low (less than five percent overall). Some reed canarygrass (*Phalaris arundinacea*) and climbing nightshade (*Solanum dulcamara*) are creeping in from the wetland. Himalayan blackberry (*Rubus armeniacus*) is scattered throughout the enhancement area, however it appears that recent maintenance activity has occurred to control it.

Results for Performance Standard 1

(35% cover native woody species in Year 5 in the enhancement areas):

Cover of native woody species is estimated at 59 percent (CI_{80%}= 42-75%). This value exceeds the performance standard target. Dominant species include redosier dogwood (*Cornus alba*), Nootka rose (*Rosa nutkana*), and black cottonwood. Other species present include red alder (*Alnus rubra*), Lewis' mock orange (*Philadelphus lewisii*), western red cedar (*Thuja plicata*), Sitka willow (*Salix sitchensis*), Scouler's willow (*Salix scouleriana*), Oregon ash (*Fraxinus latifolia*), Sitka spruce (*Picea sitchensis*), Pacific willow (*Salix lasiandra*), and salmonberry (*Rubus spectabilis*). (Photo 1)

Results for Performance Standard 2

(Habitat structure will improve over time as trees and shrubs mature):

Two strata are present: a mature tree stratum (greater than 10 meters tall) and a planted shrub stratum (one to two meters tall). (Photo 2)

What is planned for this site?

The region has plans to continue weed control on this site.



Photo 1
Woody cover in the enhancement area at the edge of the wetland (September 2015)



Photo 2
Habitat structure in the enhancement area (September 2015)

QUANTITY TAB			
SYMBOL	ITEM	NOTES SEE	QTY
	PLANT MIX S - HYDROSEED	LD-09	558
	SEEDING, FERTILIZING AND MULCHING (ACRE)	NA	0.09

QUANTITY TAB						
SYMBOL	ITEM & PERCENTAGE	NOTES SEE	QTY	QTY	QTY	QTY
	PLANT MIX A - CORRIDOR MIX	LD-09	A45	A46	A47	
	NORWAY MAPLE 7.5%	1, 16	46	20	29	
	VINE MAPLE 7.5%	1, 16	46	20	29	
	WESTERN RED CEDAR 7.5%	1, 16	46	20	29	
	DOUGLAS-FIR 7.5%	1, 16	46	20	29	
	OREGON GRAPE 11.66%	1	71	32	46	
	SERVICEBERRY 11.66%	1	71	32	46	
	INDIAN PLUM 11.66%	1	71	32	46	
	WILD MOCK ORANGE 11.66%	1	71	32	46	
	RED OSIER DOGWOOD 11.66%	1	71	32	46	
	PACIFIC WAX MYRTLE 11.66%	1	71	32	46	
	SEEDING, FERTILIZING AND MULCHING (ACRE)		0.20	0.09	0.13	
	SOIL AMENDMENT (CY) (@ 3" MIN. DEPTH)		122	55	78	
	FINE COMPOST (CY) (@ 1" MIN. DEPTH)		41	18	26	
	BARK OR WOODCHIP MULCH (CY) (@ 3" MIN. DEPTH) *		40	18	25	

QUANTITY TAB			
SYMBOL	ITEM	NOTES SEE	QTY
	PLANT MIX P - PALUSTRINE SCRUB/SHRUB MIX	LD-09	P1
	SITKA WILLOW	1, 17	12
	RED OSIER DOGWOOD	1	12
	FINE COMPOST - (CY) (@ 1" MIN. DEPTH)		
	BARK OR WOOD CHIP MULCH (CY) (@ 3" MIN. DEPTH)		
NOTE: PIT PLANT AREA P1. NO FINE COMPOST SOIL AMENDMENT REQUIRED.			

QUANTITY TAB			
SYMBOL	ITEM & PERCENTAGE	NOTES SEE	QTY
	PLANT MIX D - RIPARIAN MIX	LD-09	D9
	WESTERN RED CEDAR 18%	1, 16	86
	SCOLLER'S WILLOW 18%	1	86
	SITKA WILLOW 18%	1	86
	RED OSIER DOGWOOD 23.33%	1	201
	YELLOW TWIG DOGWOOD 23.33%	1	201
	NOOKTA ROSE 23.33%	1	201
	SOIL AMENDMENT (CY) (@ 3" MIN. DEPTH)		173
	FINE COMPOST - (CY) (@ 1" MIN. DEPTH)		58
	BARK OR WOODCHIP MULCH (CY) (@ 3" MIN. DEPTH)		173

QUANTITY TAB				
SYMBOL	ITEM	NOTES SEE	QTY	QTY
	PLANT MIX RF2 - RIPARIAN FOREST MIX 2	LD-09	RF2-1	RF2-2
	WESTERN RED CEDAR (NO. 6 CONT.)	1, 17	16	44
	SITKA SPRUCE	1, 17	8	22
	BARK OR WOODCHIP MULCH (CY) (@ 3" MIN. DEPTH)		2	4
NOTE: PIT PLANT ALL RF2 AREAS. NO FINE COMPOST SOIL AMENDMENT OR 1" FINE COMPOST LAYER REQUIRED.				

QUANTITY TAB					
SYMBOL	ITEM	NOTES SEE	QTY	QTY	QTY
	PLANT MIX RF1 - RIPARIAN FOREST MIX 1	LD-09	RF1-1	RF1-2	RF1-3
	WESTERN RED CEDAR (NO. 6 CONT.)	1, 17	9	6	6
	SITKA SPRUCE	1, 17	8	5	5
	RED ELDERBERRY	1	7	4	4
	PACIFIC NINEBARK	1	7	4	4
	FINE COMPOST - (CY) (@ 1" MIN. DEPTH)		3	2	2
	BARK OR WOODCHIP MULCH (CY) (@ 3" MIN. DEPTH)		2	2	2
NOTE: PIT PLANT ALL RF1 AREAS. NO FINE COMPOST SOIL AMENDMENT REQUIRED.					

ATKINSON

JUL 31 2008

AS-BUILT

RELEASED FOR CONSTRUCTION

FILE NAME	J:\11508501\dwg\sheet files\LS15C7283_PS_L5_15_C.dgn	REGION NO.	10	STATE	WASH	FED.AID PROJ.NO.		 <p>Washington State Department of Transportation</p>	<p>I-405 112TH AVE SE TO SE 8TH ST WIDENING</p>	<p>LS-15C</p>
TIME	8:27:18 AM	CONTRACT NO.	C7283	LOCATION NO.		DATE				
DATE	7/20/2008	PROJ. ENGR.	S. JAVIER	REV 0 - RELEASED FOR CONSTRUCTION		DATE				
PLOTTED BY	Jwallmann	REGIONAL ADM.	D. DYE	REVISION						
DESIGNED BY	C. PETERSEN									
ENTERED BY	J. WALLMANN									
CHECKED BY	A. MCCLISHKEY									

Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on September 24, 2015 and document current site development.

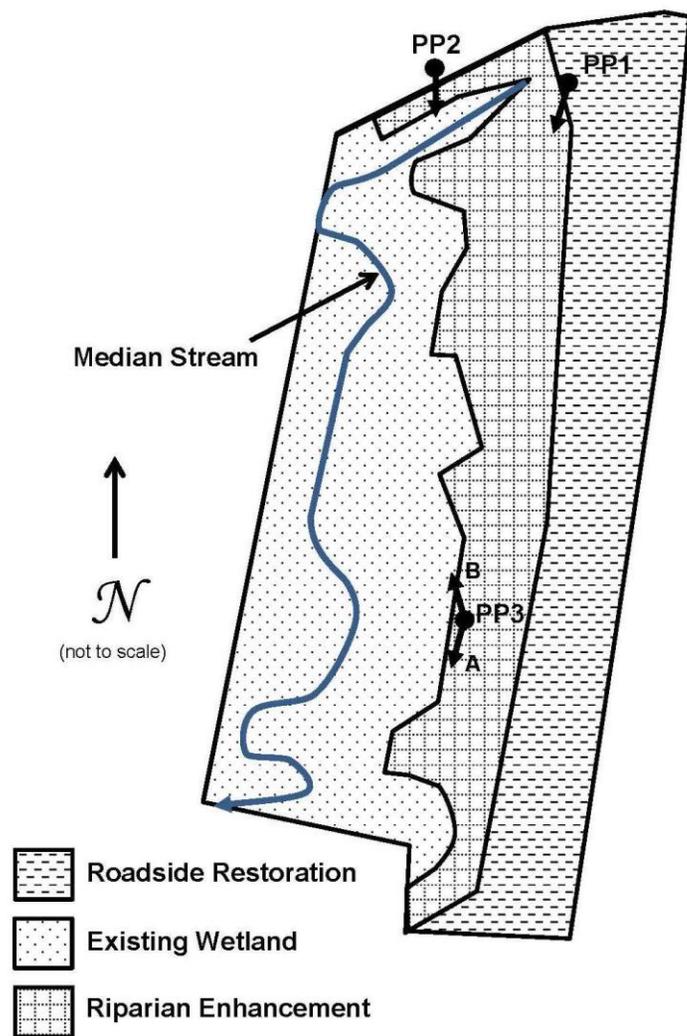


Photo Point 1



Photo Point 2



Photo Point 3a



Photo Point 3b

Driving Directions:

From I-5, take Exit 154B for I-405 north towards Renton/Bellevue. Take Exit 12 for Southeast 8th Street and turn left onto Southeast 8th Street. Turn left again onto 118th Avenue Southeast/Lake Washington Boulevard. The site is on the east side of the road between the southbound lanes of I-405 and 118th Street. Pull over on the side of the road in a wide area just before the site.

Appendix 3 – Data Table

Table 1. Year 10 performance standards met in Years 6 and 7

Performance Standards (Year-10)	Year 6 (2014) Qualitative Results	Year 7 (2015) Results
35% cover native woody species in Year 5 in the enhancement areas.	50% cover	59% cover (CI _{65%} = 47-70%)
Habitat structure will improve over time as trees and shrubs mature.	Two strata present	Two strata present

Literature Cited

1. [USACE] US Army Corps of Engineers. 2006. Department of the Army Nationwide (14) Permit Number 200501405.
2. [USACE] US Army Corps of Engineers. Permit Modification. 2007. Department of the Army Nationwide (14) Permit Number 200501405.
3. [WSDOT] Washington State Department of Transportation. 2007. Revised Stream Mitigation Plan, I-405, SE 8th to I-90 (South Bellevue) Project. Bellevue (WA): Washington State Department of Transportation, Northwest Region.
4. [WSDOT] Washington State Department of Transportation. 2008. I-405 Ave SE to SE 8th St Widening As-built Plan.
5. [WSDOT] Washington State Department of Transportation. 2008. WSDOT Wetland Mitigation Site Monitoring Methods. <http://www.wsdot.wa.gov/NR/ronlyres/C211AB59-D5A2-4AA2-8A76-3D9A77E01203/0/MethodsWhitePaper052004.pdf>